

==> Acanthomorpha.txt <==

[('nucleophilic - nucleophilic', 288), ('nucleophilic - hydrophobic', 286), ('nucleophilic - acidic', 252), ('nucleophilic - basic', 244), ('hydrophobic - basic', 229), ('acidic - basic', 194), ('nucleophilic - aromatic', 188), ('hydrophobic - acidic', 183), ('hydrophobic - hydrophobic', 163), ('hydrophobic - aromatic', 147), ('acidic - acidic', 143), ('nucleophilic - amide', 140), ('hydrophobic - amide', 139), ('basic - basic', 125), ('aromatic - basic', 95), ('amide - basic', 80), ('aromatic - acidic', 74), ('acidic - amide', 73), ('aromatic - amide', 64), ('amide - amide', 39), ('aromatic - aromatic', 29)]

==> Aconoidasida.txt <==

[('nucleophilic - hydrophobic', 191), ('hydrophobic - basic', 171), ('nucleophilic - amide', 168), ('hydrophobic - acidic', 156), ('hydrophobic - aromatic', 155), ('acidic - basic', 155), ('nucleophilic - basic', 144), ('nucleophilic - acidic', 136), ('hydrophobic - hydrophobic', 126), ('amide - amide', 118), ('nucleophilic - aromatic', 117), ('hydrophobic - amide', 116), ('acidic - amide', 112), ('nucleophilic - nucleophilic', 106), ('acidic - acidic', 102), ('amide - basic', 87), ('aromatic - basic', 85), ('basic - basic', 75), ('aromatic - acidic', 71), ('aromatic - amide', 63), ('aromatic - aromatic', 39)]

==> Actinobacteria.txt <==

[('nucleophilic - hydrophobic', 171), ('nucleophilic - nucleophilic', 105), ('nucleophilic - acidic', 105), ('hydrophobic - acidic', 104), ('hydrophobic - hydrophobic', 98), ('nucleophilic - basic', 87), ('hydrophobic - basic', 85), ('acidic - acidic', 57), ('acidic - basic', 54), ('nucleophilic - amide', 48), ('hydrophobic - amide', 45), ('nucleophilic - aromatic', 42), ('hydrophobic - aromatic', 42), ('basic - basic', 36), ('aromatic - acidic', 31), ('aromatic - amide', 29), ('acidic - amide', 24), ('aromatic - basic', 22), ('amide - basic', 22), ('aromatic - aromatic', 7), ('amide - amide', 6)]

==> Actinomycetaceae.txt <==

[('nucleophilic - hydrophobic', 313), ('hydrophobic - basic', 178), ('hydrophobic - amide', 165), ('nucleophilic - acidic', 156), ('hydrophobic - acidic', 155), ('hydrophobic - hydrophobic', 150), ('nucleophilic - nucleophilic', 133), ('nucleophilic - basic', 125), ('nucleophilic - amide', 115), ('nucleophilic - aromatic', 111), ('acidic - basic', 79), ('hydrophobic - aromatic', 76), ('amide - basic', 70), ('acidic - amide', 65), ('aromatic - amide', 61), ('aromatic - basic', 50), ('aromatic - acidic', 45), ('basic - basic', 36), ('acidic - acidic', 32), ('amide - amide', 29), ('aromatic - aromatic', 15)]

==> Actinomycetales.txt <==

[('nucleophilic - hydrophobic', 313), ('hydrophobic - basic', 178), ('hydrophobic - amide', 165), ('nucleophilic - acidic', 156), ('hydrophobic - acidic', 155), ('hydrophobic - hydrophobic', 150), ('nucleophilic - nucleophilic', 133), ('nucleophilic - basic', 125), ('nucleophilic - amide', 115), ('nucleophilic - aromatic', 111), ('acidic - basic', 79), ('hydrophobic - aromatic', 76), ('amide - basic', 70), ('acidic - amide', 65), ('aromatic - amide', 61), ('aromatic - basic', 50), ('aromatic - acidic', 45), ('basic - basic', 36), ('acidic - acidic', 32), ('amide - amide', 29), ('aromatic - aromatic', 15)]

==> Actinopterygii.txt <==

[('nucleophilic - nucleophilic', 298), ('nucleophilic - hydrophobic', 274), ('nucleophilic - acidic', 255), ('nucleophilic - basic', 233), ('acidic - basic', 206), ('hydrophobic - basic', 181), ('hydrophobic - acidic', 153), ('acidic - acidic', 137), ('nucleophilic - amide', 137), ('nucleophilic - aromatic', 131), ('hydrophobic - hydrophobic', 125), ('hydrophobic - amide', 108), ('basic - basic', 107), ('hydrophobic - aromatic', 90), ('amide - basic', 82), ('acidic - amide', 79), ('aromatic - basic', 68), ('aromatic - acidic', 53), ('aromatic - amide', 36), ('amide - amide', 30), ('aromatic - aromatic', 15)]

==> Alphaproteobacteria.txt <==

[('hydrophobic - basic', 26), ('nucleophilic - hydrophobic', 23), ('hydrophobic - acidic', 22), ('hydrophobic - amide', 21), ('acidic - basic', 20), ('hydrophobic - hydrophobic', 17), ('nucleophilic - amide', 17), ('nucleophilic - acidic', 16), ('acidic - amide', 15), ('nucleophilic - nucleophilic', 13), ('nucleophilic - basic', 13), ('hydrophobic - aromatic', 12), ('aromatic - amide', 10), ('aromatic - acidic', 9), ('amide - amide', 8), ('aromatic - basic', 8), ('acidic - acidic', 7), ('amide - basic', 5), ('basic - basic', 3), ('nucleophilic - aromatic', 3)]

==> Alteromonadales.txt <==

[('nucleophilic - hydrophobic', 299), ('hydrophobic - acidic', 293), ('hydrophobic - amide', 214), ('acidic - acidic', 207), ('nucleophilic - acidic', 161), ('hydrophobic - hydrophobic', 152), ('acidic - amide', 142), ('hydrophobic - aromatic', 138), ('aromatic - acidic', 124), ('nucleophilic - aromatic', 102), ('nucleophilic - amide', 84), ('aromatic - amide', 81), ('hydrophobic - basic', 79), ('nucleophilic - nucleophilic', 58), ('acidic - basic', 44), ('amide - basic', 42), ('nucleophilic - basic', 38), ('amide - amide', 37), ('aromatic - aromatic', 32), ('aromatic - basic', 27), ('basic - basic', 6)]

==> Alveolata.txt <==

[('nucleophilic - hydrophobic', 487), ('aromatic - aromatic', 479), ('nucleophilic - aromatic', 436), ('hydrophobic - basic', 384), ('acidic - basic', 381), ('hydrophobic - aromatic', 366), ('hydrophobic - acidic', 302), ('hydrophobic - hydrophobic', 290), ('nucleophilic - basic', 281), ('nucleophilic - acidic', 259), ('nucleophilic - nucleophilic', 259), ('hydrophobic - amide', 207), ('acidic - acidic', 202), ('nucleophilic - amide', 181), ('aromatic - basic', 179), ('basic - basic', 176), ('amide - basic', 165), ('acidic - amide', 152), ('aromatic - acidic', 146), ('aromatic - amide', 125), ('amide - amide', 90)]

==> Apicomplexa.txt <==

[('nucleophilic - hydrophobic', 218), ('hydrophobic - acidic', 186), ('hydrophobic - basic', 180), ('hydrophobic - aromatic', 166), ('acidic - basic', 162), ('nucleophilic - acidic', 154), ('hydrophobic - hydrophobic', 149), ('nucleophilic - basic', 147), ('nucleophilic - aromatic', 138), ('nucleophilic - nucleophilic', 135), ('hydrophobic - amide', 119), ('nucleophilic - amide', 111), ('acidic - amide', 108), ('basic - basic', 105), ('aromatic - basic', 94), ('amide - basic', 89), ('acidic - acidic', 85), ('aromatic - acidic', 78), ('aromatic - amide', 59), ('aromatic - aromatic', 46), ('amide - amide', 36)]

==> Arachnida.txt <==

[('nucleophilic - nucleophilic', 100), ('nucleophilic - amide', 57), ('nucleophilic - acidic', 55), ('nucleophilic - aromatic', 55), ('nucleophilic - hydrophobic', 51), ('nucleophilic - basic', 40), ('hydrophobic - basic', 33), ('hydrophobic - acidic', 28), ('acidic - basic', 26), ('aromatic - basic', 26), ('hydrophobic - amide', 25), ('hydrophobic - aromatic', 24), ('amide - basic', 23), ('aromatic - aromatic', 23), ('hydrophobic - hydrophobic', 21), ('acidic - acidic', 16), ('aromatic - acidic', 13), ('basic - basic', 13), ('amide - amide', 12), ('acidic - amide', 12), ('aromatic - amide', 11)]

==> Archaea.txt <==

[('nucleophilic - acidic', 197), ('acidic - acidic', 158), ('hydrophobic - acidic', 134), ('nucleophilic - hydrophobic', 125), ('hydrophobic - hydrophobic', 78), ('acidic - basic', 73), ('nucleophilic - amide', 65), ('hydrophobic - amide', 65), ('acidic - amide', 65), ('hydrophobic - basic', 65), ('aromatic - acidic', 64), ('nucleophilic - aromatic', 57), ('aromatic - amide', 56), ('nucleophilic - basic', 48), ('hydrophobic - aromatic', 48), ('nucleophilic - nucleophilic', 44), ('amide - basic', 33), ('aromatic - basic', 31), ('basic - basic', 24), ('aromatic - aromatic', 20), ('amide - amide', 17)]

==> Archelosauria.txt <==

[('nucleophilic - hydrophobic', 275), ('nucleophilic - acidic', 194), ('nucleophilic - nucleophilic', 183), ('nucleophilic - basic', 167), ('hydrophobic - basic', 163), ('hydrophobic - hydrophobic', 159), ('hydrophobic - acidic', 144), ('nucleophilic - aromatic', 132), ('nucleophilic - amide', 124), ('hydrophobic - amide', 123), ('hydrophobic - aromatic', 106), ('acidic - basic', 98), ('amide - basic', 80), ('aromatic - acidic', 70), ('basic - basic', 69), ('aromatic - basic', 68), ('acidic - amide', 66), ('acidic - acidic', 54), ('aromatic - amide', 33), ('amide - amide', 26), ('aromatic - aromatic', 23)]

==> Archosauria.txt <==

[('nucleophilic - hydrophobic', 368), ('nucleophilic - acidic', 277), ('nucleophilic - nucleophilic', 255), ('hydrophobic - basic', 238), ('hydrophobic - hydrophobic', 231), ('nucleophilic - basic', 226), ('hydrophobic - acidic', 220), ('nucleophilic - aromatic', 169), ('hydrophobic - amide', 141), ('hydrophobic - aromatic', 140), ('nucleophilic - amide', 139), ('acidic - basic', 130), ('acidic - amide', 92), ('amide - basic', 91), ('acidic - acidic', 91), ('aromatic - basic', 83), ('aromatic - acidic', 75), ('aromatic - amide', 67), ('basic -

basic', 60), ('amide - amide', 34), ('aromatic - aromatic', 33)]

==> Arthropoda.txt <==

[('nucleophilic - acidic', 404), ('nucleophilic - hydrophobic', 325), ('nucleophilic - nucleophilic', 282), ('acidic - acidic', 241), ('hydrophobic - acidic', 197), ('nucleophilic - basic', 166), ('acidic - basic', 165), ('hydrophobic - basic', 127), ('acidic - amide', 123), ('nucleophilic - amide', 111), ('hydrophobic - hydrophobic', 110), ('hydrophobic - amide', 94), ('nucleophilic - aromatic', 92), ('hydrophobic - aromatic', 80), ('aromatic - basic', 73), ('aromatic - acidic', 57), ('amide - basic', 54), ('basic - basic', 46), ('aromatic - amide', 28), ('amide - amide', 16), ('aromatic - aromatic', 13)]

==> Artiodactyla.txt <==

[('nucleophilic - hydrophobic', 202), ('nucleophilic - nucleophilic', 202), ('nucleophilic - acidic', 122), ('hydrophobic - hydrophobic', 106), ('nucleophilic - amide', 106), ('nucleophilic - basic', 106), ('hydrophobic - acidic', 102), ('hydrophobic - basic', 87), ('nucleophilic - aromatic', 82), ('hydrophobic - amide', 71), ('hydrophobic - aromatic', 65), ('acidic - basic', 41), ('aromatic - acidic', 39), ('aromatic - basic', 37), ('amide - basic', 33), ('basic - basic', 26), ('acidic - amide', 26), ('acidic - acidic', 24), ('aromatic - amide', 16), ('amide - amide', 14), ('aromatic - aromatic', 13)]

==> Atherinomorphae.txt <==

[('nucleophilic - nucleophilic', 190), ('nucleophilic - hydrophobic', 159), ('nucleophilic - acidic', 114), ('nucleophilic - aromatic', 111), ('nucleophilic - basic', 104), ('hydrophobic - amide', 92), ('hydrophobic - hydrophobic', 80), ('hydrophobic - acidic', 78), ('hydrophobic - basic', 77), ('acidic - basic', 77), ('nucleophilic - amide', 72), ('hydrophobic - aromatic', 61), ('acidic - acidic', 50), ('basic - basic', 43), ('acidic - amide', 41), ('aromatic - basic', 40), ('amide - basic', 31), ('aromatic - amide', 26), ('amide - amide', 21), ('aromatic - acidic', 20), ('aromatic - aromatic', 11)]

==> Autobranchia.txt <==

[('nucleophilic - aromatic', 259), ('hydrophobic - aromatic', 234), ('nucleophilic - hydrophobic', 232), ('hydrophobic - hydrophobic', 115), ('nucleophilic - nucleophilic', 114), ('nucleophilic - basic', 69), ('aromatic - basic', 64), ('hydrophobic - basic', 39), ('aromatic - aromatic', 35), ('nucleophilic - amide', 23), ('hydrophobic - acidic', 22), ('nucleophilic - acidic', 18), ('basic - basic', 14), ('aromatic - amide', 13), ('aromatic - acidic', 12), ('amide - basic', 12), ('hydrophobic - amide', 12), ('acidic - amide', 6), ('acidic - acidic', 4), ('amide - amide', 3), ('acidic - basic', 2)]

==> Aves.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - acidic', 229), ('nucleophilic - nucleophilic', 227), ('nucleophilic - basic', 205), ('hydrophobic - hydrophobic', 201), ('hydrophobic - basic', 184), ('hydrophobic - acidic', 180), ('nucleophilic - aromatic', 129), ('nucleophilic - amide', 127), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 113), ('acidic - basic', 97), ('acidic - acidic', 85), ('aromatic - acidic', 73), ('amide - basic', 70), ('acidic - amide', 69), ('basic - basic', 56), ('aromatic - basic', 50), ('aromatic - amide', 45), ('amide - amide', 27), ('aromatic - aromatic', 27)]

==> Babesia.txt <==

[('nucleophilic - hydrophobic', 93), ('acidic - acidic', 71), ('nucleophilic - acidic', 66), ('hydrophobic - acidic', 63), ('nucleophilic - basic', 59), ('acidic - basic', 55), ('hydrophobic - hydrophobic', 51), ('nucleophilic - nucleophilic', 48), ('hydrophobic - basic', 48), ('hydrophobic - amide', 42), ('nucleophilic - amide', 40), ('aromatic - acidic', 39), ('hydrophobic - aromatic', 35), ('acidic - amide', 35), ('aromatic - basic', 32), ('basic - basic', 31), ('amide - basic', 30), ('nucleophilic - aromatic', 20), ('aromatic - amide', 11), ('aromatic - aromatic', 9), ('amide - amide', 7)]

==> Babesiidae.txt <==

[('nucleophilic - hydrophobic', 93), ('acidic - acidic', 71), ('nucleophilic - acidic', 66), ('hydrophobic - acidic', 63), ('nucleophilic - basic', 59), ('acidic - basic', 55), ('hydrophobic - hydrophobic', 51), ('nucleophilic - nucleophilic', 48), ('hydrophobic - basic', 48), ('hydrophobic - amide', 42), ('nucleophilic - amide', 40), ('aromatic - acidic', 39), ('hydrophobic - aromatic', 35), ('acidic - amide', 35), ('aromatic - basic', 32),

('basic - basic', 31), ('amide - basic', 30), ('nucleophilic - aromatic', 20), ('aromatic - amide', 11), ('aromatic - aromatic', 9), ('amide - amide', 7)]

==> Bacillaceae.txt <==

[('nucleophilic - hydrophobic', 82), ('hydrophobic - acidic', 69), ('hydrophobic - hydrophobic', 57), ('hydrophobic - basic', 52), ('nucleophilic - acidic', 52), ('aromatic - acidic', 45), ('hydrophobic - amide', 45), ('nucleophilic - basic', 41), ('hydrophobic - aromatic', 37), ('acidic - acidic', 32), ('nucleophilic - aromatic', 32), ('acidic - basic', 30), ('nucleophilic - nucleophilic', 27), ('acidic - amide', 26), ('nucleophilic - amide', 21), ('amide - basic', 21), ('aromatic - basic', 20), ('aromatic - amide', 19), ('aromatic - aromatic', 15), ('basic - basic', 9), ('amide - amide', 6)]

==> Bacillales.txt <==

[('nucleophilic - hydrophobic', 79), ('hydrophobic - acidic', 60), ('hydrophobic - hydrophobic', 54), ('hydrophobic - aromatic', 52), ('nucleophilic - acidic', 52), ('hydrophobic - basic', 50), ('nucleophilic - aromatic', 37), ('acidic - acidic', 37), ('nucleophilic - basic', 36), ('acidic - basic', 35), ('aromatic - acidic', 32), ('hydrophobic - amide', 32), ('nucleophilic - amide', 28), ('nucleophilic - nucleophilic', 24), ('aromatic - basic', 21), ('acidic - amide', 20), ('aromatic - amide', 18), ('amide - basic', 16), ('basic - basic', 11), ('amide - amide', 10), ('aromatic - aromatic', 9)]

==> Bacilli.txt <==

[('nucleophilic - hydrophobic', 93), ('hydrophobic - acidic', 58), ('hydrophobic - basic', 53), ('nucleophilic - basic', 48), ('hydrophobic - hydrophobic', 48), ('hydrophobic - aromatic', 45), ('nucleophilic - acidic', 42), ('hydrophobic - amide', 40), ('acidic - basic', 31), ('nucleophilic - amide', 27), ('nucleophilic - aromatic', 24), ('aromatic - basic', 24), ('nucleophilic - nucleophilic', 24), ('amide - basic', 22), ('aromatic - acidic', 21), ('basic - basic', 18), ('acidic - acidic', 17), ('acidic - amide', 17), ('aromatic - amide', 12), ('aromatic - aromatic', 8), ('amide - amide', 2)]

==> Bacillus.txt <==

[('hydrophobic - acidic', 105), ('nucleophilic - hydrophobic', 79), ('hydrophobic - basic', 74), ('nucleophilic - acidic', 66), ('hydrophobic - aromatic', 61), ('hydrophobic - hydrophobic', 61), ('nucleophilic - aromatic', 50), ('aromatic - acidic', 47), ('acidic - basic', 46), ('acidic - acidic', 42), ('hydrophobic - amide', 38), ('nucleophilic - basic', 31), ('acidic - amide', 31), ('aromatic - basic', 30), ('nucleophilic - amide', 24), ('amide - basic', 23), ('nucleophilic - nucleophilic', 23), ('aromatic - amide', 22), ('aromatic - aromatic', 15), ('basic - basic', 15), ('amide - amide', 5)]

==> Bacteria.txt <==

[('nucleophilic - hydrophobic', 1617), ('hydrophobic - acidic', 879), ('nucleophilic - acidic', 734), ('nucleophilic - nucleophilic', 708), ('hydrophobic - hydrophobic', 660), ('hydrophobic - amide', 587), ('nucleophilic - amide', 517), ('hydrophobic - basic', 382), ('acidic - acidic', 378), ('hydrophobic - aromatic', 360), ('acidic - amide', 336), ('nucleophilic - aromatic', 320), ('aromatic - acidic', 267), ('nucleophilic - basic', 256), ('acidic - basic', 250), ('aromatic - amide', 210), ('amide - basic', 161), ('aromatic - basic', 145), ('amide - amide', 115), ('aromatic - aromatic', 79), ('basic - basic', 62)]

==> Bacteroidetes.txt <==

[('nucleophilic - hydrophobic', 143), ('hydrophobic - acidic', 132), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 105), ('hydrophobic - hydrophobic', 104), ('nucleophilic - acidic', 101), ('nucleophilic - amide', 82), ('nucleophilic - aromatic', 80), ('hydrophobic - basic', 79), ('aromatic - amide', 67), ('nucleophilic - nucleophilic', 64), ('acidic - acidic', 63), ('acidic - amide', 62), ('aromatic - acidic', 62), ('acidic - basic', 51), ('aromatic - basic', 46), ('nucleophilic - basic', 40), ('amide - basic', 36), ('amide - amide', 33), ('aromatic - aromatic', 33), ('basic - basic', 15)]

==> Betaproteobacteria.txt <==

[('nucleophilic - hydrophobic', 521), ('nucleophilic - nucleophilic', 415), ('hydrophobic - acidic', 208), ('hydrophobic - amide', 183), ('nucleophilic - acidic', 180), ('hydrophobic - hydrophobic', 153), ('nucleophilic - amide', 150), ('nucleophilic - aromatic', 89), ('hydrophobic - basic', 88), ('nucleophilic -

basic', 73), ('acidic - amide', 58), ('acidic - basic', 56), ('hydrophobic - aromatic', 55), ('aromatic - amide', 39), ('aromatic - acidic', 38), ('acidic - acidic', 38), ('amide - basic', 36), ('aromatic - basic', 19), ('amide - amide', 18), ('basic - basic', 13), ('aromatic - aromatic', 8)]

==> Bifurcata.txt <==

[('nucleophilic - nucleophilic', 175), ('nucleophilic - hydrophobic', 169), ('nucleophilic - acidic', 120), ('nucleophilic - amide', 110), ('hydrophobic - acidic', 101), ('hydrophobic - basic', 101), ('nucleophilic - basic', 99), ('hydrophobic - hydrophobic', 97), ('nucleophilic - aromatic', 94), ('hydrophobic - aromatic', 70), ('acidic - basic', 69), ('hydrophobic - amide', 60), ('aromatic - acidic', 48), ('aromatic - basic', 45), ('basic - basic', 40), ('amide - basic', 38), ('acidic - acidic', 37), ('acidic - amide', 32), ('aromatic - amide', 23), ('aromatic - aromatic', 15), ('amide - amide', 13)]

==> Bivalvia.txt <==

[('nucleophilic - aromatic', 259), ('hydrophobic - aromatic', 234), ('nucleophilic - hydrophobic', 232), ('hydrophobic - hydrophobic', 115), ('nucleophilic - nucleophilic', 114), ('nucleophilic - basic', 69), ('aromatic - basic', 64), ('hydrophobic - basic', 39), ('aromatic - aromatic', 35), ('nucleophilic - amide', 23), ('hydrophobic - acidic', 22), ('nucleophilic - acidic', 18), ('basic - basic', 14), ('aromatic - amide', 13), ('aromatic - acidic', 12), ('amide - basic', 12), ('hydrophobic - amide', 12), ('acidic - amide', 6), ('acidic - acidic', 4), ('amide - amide', 3), ('acidic - basic', 2)]

==> Bovidae.txt <==

[('nucleophilic - hydrophobic', 217), ('nucleophilic - nucleophilic', 209), ('nucleophilic - basic', 159), ('nucleophilic - acidic', 129), ('hydrophobic - hydrophobic', 120), ('hydrophobic - acidic', 120), ('nucleophilic - aromatic', 105), ('nucleophilic - amide', 104), ('hydrophobic - basic', 98), ('hydrophobic - amide', 86), ('acidic - basic', 66), ('acidic - amide', 61), ('hydrophobic - aromatic', 56), ('amide - basic', 52), ('aromatic - acidic', 43), ('aromatic - basic', 43), ('basic - basic', 39), ('acidic - acidic', 37), ('amide - amide', 22), ('aromatic - amide', 21), ('aromatic - aromatic', 15)]

==> Bovinae.txt <==

[('nucleophilic - hydrophobic', 256), ('nucleophilic - nucleophilic', 195), ('nucleophilic - basic', 148), ('nucleophilic - acidic', 132), ('hydrophobic - acidic', 122), ('nucleophilic - amide', 119), ('hydrophobic - amide', 118), ('hydrophobic - hydrophobic', 117), ('hydrophobic - basic', 112), ('nucleophilic - aromatic', 87), ('hydrophobic - aromatic', 65), ('acidic - basic', 63), ('acidic - amide', 56), ('amide - basic', 54), ('aromatic - basic', 49), ('aromatic - acidic', 40), ('basic - basic', 33), ('acidic - acidic', 32), ('aromatic - amide', 25), ('amide - amide', 23), ('aromatic - aromatic', 13)]

==> Brevundimonas.txt <==

[('nucleophilic - hydrophobic', 20), ('hydrophobic - amide', 17), ('aromatic - acidic', 12), ('hydrophobic - hydrophobic', 10), ('nucleophilic - amide', 10), ('amide - amide', 9), ('hydrophobic - basic', 9), ('acidic - basic', 7), ('nucleophilic - nucleophilic', 7), ('hydrophobic - aromatic', 7), ('acidic - amide', 7), ('nucleophilic - aromatic', 6), ('nucleophilic - acidic', 6), ('hydrophobic - acidic', 6), ('aromatic - amide', 5), ('acidic - acidic', 4), ('aromatic - basic', 4), ('aromatic - aromatic', 4), ('amide - basic', 3), ('basic - basic', 2), ('nucleophilic - basic', 2)]

==> Burkholderiales.txt <==

[('nucleophilic - hydrophobic', 560), ('nucleophilic - nucleophilic', 433), ('hydrophobic - acidic', 194), ('hydrophobic - amide', 192), ('hydrophobic - hydrophobic', 186), ('nucleophilic - acidic', 176), ('nucleophilic - amide', 174), ('nucleophilic - aromatic', 101), ('hydrophobic - basic', 87), ('acidic - basic', 66), ('nucleophilic - basic', 61), ('hydrophobic - aromatic', 59), ('acidic - amide', 57), ('aromatic - amide', 49), ('aromatic - acidic', 35), ('acidic - acidic', 34), ('amide - basic', 28), ('aromatic - basic', 16), ('amide - amide', 15), ('basic - basic', 12), ('aromatic - aromatic', 10)]

==> Caniformia.txt <==

[('nucleophilic - nucleophilic', 168), ('nucleophilic - hydrophobic', 119), ('nucleophilic - acidic', 99), ('nucleophilic - basic', 98), ('hydrophobic - hydrophobic', 86), ('hydrophobic - acidic', 76), ('nucleophilic -

aromatic', 74), ('nucleophilic - amide', 72), ('hydrophobic - basic', 68), ('hydrophobic - amide', 44), ('hydrophobic - aromatic', 39), ('acidic - amide', 37), ('acidic - basic', 32), ('aromatic - acidic', 32), ('acidic - acidic', 30), ('basic - basic', 25), ('aromatic - basic', 24), ('amide - basic', 20), ('aromatic - amide', 17), ('aromatic - aromatic', 11), ('amide - amide', 10)]

==> Carnivora.txt <==

[('nucleophilic - nucleophilic', 171), ('nucleophilic - hydrophobic', 133), ('nucleophilic - acidic', 112), ('nucleophilic - basic', 109), ('hydrophobic - hydrophobic', 87), ('nucleophilic - amide', 84), ('hydrophobic - basic', 83), ('hydrophobic - acidic', 81), ('nucleophilic - aromatic', 76), ('hydrophobic - amide', 55), ('acidic - basic', 43), ('hydrophobic - aromatic', 43), ('acidic - amide', 37), ('acidic - acidic', 32), ('aromatic - acidic', 30), ('basic - basic', 29), ('amide - basic', 26), ('aromatic - basic', 25), ('aromatic - amide', 20), ('aromatic - aromatic', 14), ('amide - amide', 12)]

==> Catarrhini.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - basic', 221), ('nucleophilic - nucleophilic', 221), ('hydrophobic - acidic', 197), ('hydrophobic - basic', 186), ('nucleophilic - acidic', 180), ('hydrophobic - hydrophobic', 174), ('nucleophilic - amide', 162), ('nucleophilic - aromatic', 140), ('hydrophobic - amide', 136), ('acidic - basic', 105), ('hydrophobic - aromatic', 95), ('acidic - amide', 89), ('amide - basic', 77), ('aromatic - basic', 69), ('aromatic - acidic', 65), ('basic - basic', 56), ('acidic - acidic', 49), ('aromatic - amide', 44), ('aromatic - aromatic', 24), ('amide - amide', 24)]

==> Caulobacter.txt <==

[('hydrophobic - acidic', 51), ('hydrophobic - basic', 48), ('nucleophilic - hydrophobic', 40), ('hydrophobic - amide', 33), ('nucleophilic - amide', 23), ('nucleophilic - acidic', 23), ('acidic - basic', 21), ('amide - basic', 20), ('hydrophobic - aromatic', 17), ('nucleophilic - basic', 16), ('nucleophilic - nucleophilic', 15), ('hydrophobic - hydrophobic', 15), ('aromatic - amide', 15), ('aromatic - acidic', 15), ('acidic - acidic', 12), ('aromatic - basic', 11), ('amide - amide', 11), ('basic - basic', 10), ('acidic - amide', 8), ('nucleophilic - aromatic', 6), ('aromatic - aromatic', 5)]

==> Caulobacteraceae.txt <==

[('hydrophobic - basic', 33), ('nucleophilic - hydrophobic', 32), ('hydrophobic - acidic', 32), ('hydrophobic - amide', 26), ('acidic - basic', 21), ('nucleophilic - aromatic', 18), ('hydrophobic - aromatic', 16), ('nucleophilic - acidic', 16), ('hydrophobic - hydrophobic', 16), ('nucleophilic - amide', 14), ('amide - basic', 13), ('acidic - acidic', 13), ('acidic - amide', 13), ('amide - amide', 13), ('nucleophilic - basic', 10), ('aromatic - amide', 10), ('aromatic - acidic', 8), ('aromatic - basic', 8), ('nucleophilic - nucleophilic', 7), ('basic - basic', 7), ('aromatic - aromatic', 4)]

==> Caulobacterales.txt <==

[('hydrophobic - basic', 33), ('nucleophilic - hydrophobic', 32), ('hydrophobic - acidic', 32), ('hydrophobic - amide', 26), ('acidic - basic', 21), ('nucleophilic - aromatic', 18), ('hydrophobic - aromatic', 16), ('nucleophilic - acidic', 16), ('hydrophobic - hydrophobic', 16), ('nucleophilic - amide', 14), ('amide - basic', 13), ('acidic - acidic', 13), ('acidic - amide', 13), ('amide - amide', 13), ('nucleophilic - basic', 10), ('aromatic - amide', 10), ('aromatic - acidic', 8), ('aromatic - basic', 8), ('nucleophilic - nucleophilic', 7), ('basic - basic', 7), ('aromatic - aromatic', 4)]

==> Cellvibrionales.txt <==

[('acidic - acidic', 207), ('hydrophobic - acidic', 172), ('nucleophilic - acidic', 158), ('nucleophilic - hydrophobic', 156), ('hydrophobic - hydrophobic', 128), ('acidic - amide', 113), ('hydrophobic - amide', 95), ('nucleophilic - amide', 90), ('aromatic - acidic', 84), ('hydrophobic - aromatic', 74), ('hydrophobic - basic', 72), ('nucleophilic - nucleophilic', 66), ('nucleophilic - aromatic', 56), ('acidic - basic', 54), ('nucleophilic - basic', 44), ('aromatic - amide', 35), ('amide - amide', 29), ('amide - basic', 27), ('aromatic - aromatic', 26), ('aromatic - basic', 25), ('basic - basic', 9)]

==> Cercopithecidae.txt <==

[('nucleophilic - hydrophobic', 346), ('nucleophilic - nucleophilic', 236), ('hydrophobic - acidic', 228),

('nucleophilic - acidic', 227), ('nucleophilic - basic', 224), ('hydrophobic - basic', 175), ('nucleophilic - amide', 168), ('hydrophobic - hydrophobic', 161), ('hydrophobic - amide', 149), ('nucleophilic - aromatic', 128), ('acidic - basic', 105), ('hydrophobic - aromatic', 97), ('acidic - amide', 97), ('aromatic - basic', 92), ('aromatic - acidic', 75), ('acidic - acidic', 75), ('amide - basic', 74), ('basic - basic', 70), ('aromatic - amide', 44), ('amide - amide', 25), ('aromatic - aromatic', 23)]

==> Cercopithecinae.txt <==

[('nucleophilic - hydrophobic', 379), ('nucleophilic - nucleophilic', 260), ('nucleophilic - acidic', 228), ('nucleophilic - basic', 227), ('hydrophobic - acidic', 225), ('hydrophobic - basic', 185), ('hydrophobic - hydrophobic', 171), ('nucleophilic - amide', 167), ('hydrophobic - amide', 146), ('nucleophilic - aromatic', 136), ('acidic - basic', 121), ('hydrophobic - aromatic', 102), ('acidic - amide', 101), ('aromatic - basic', 89), ('acidic - acidic', 84), ('amide - basic', 78), ('aromatic - acidic', 75), ('basic - basic', 69), ('aromatic - amide', 46), ('amide - amide', 26), ('aromatic - aromatic', 24)]

==> Cetacea.txt <==

[('nucleophilic - hydrophobic', 312), ('nucleophilic - nucleophilic', 283), ('nucleophilic - acidic', 211), ('hydrophobic - acidic', 171), ('nucleophilic - basic', 142), ('nucleophilic - amide', 125), ('hydrophobic - hydrophobic', 125), ('nucleophilic - aromatic', 105), ('hydrophobic - basic', 104), ('hydrophobic - amide', 88), ('acidic - basic', 69), ('hydrophobic - aromatic', 67), ('aromatic - acidic', 52), ('acidic - acidic', 51), ('acidic - amide', 48), ('aromatic - basic', 47), ('amide - basic', 46), ('basic - basic', 45), ('aromatic - amide', 37), ('amide - amide', 22), ('aromatic - aromatic', 13)]

==> Chelicerata.txt <==

[('nucleophilic - nucleophilic', 181), ('nucleophilic - amide', 126), ('nucleophilic - hydrophobic', 125), ('nucleophilic - basic', 91), ('nucleophilic - acidic', 91), ('nucleophilic - aromatic', 69), ('hydrophobic - basic', 54), ('hydrophobic - acidic', 44), ('hydrophobic - amide', 35), ('aromatic - acidic', 34), ('acidic - basic', 34), ('amide - basic', 31), ('hydrophobic - aromatic', 31), ('hydrophobic - hydrophobic', 26), ('acidic - amide', 25), ('aromatic - aromatic', 24), ('aromatic - basic', 24), ('basic - basic', 23), ('acidic - acidic', 23), ('aromatic - amide', 15), ('amide - amide', 5)]

==> Chiroptera.txt <==

[('nucleophilic - hydrophobic', 268), ('nucleophilic - nucleophilic', 209), ('nucleophilic - acidic', 201), ('hydrophobic - acidic', 179), ('nucleophilic - basic', 137), ('hydrophobic - hydrophobic', 119), ('nucleophilic - aromatic', 119), ('hydrophobic - basic', 117), ('nucleophilic - amide', 115), ('acidic - basic', 73), ('hydrophobic - amide', 73), ('aromatic - acidic', 67), ('acidic - acidic', 62), ('hydrophobic - aromatic', 61), ('aromatic - basic', 56), ('acidic - amide', 44), ('amide - basic', 39), ('basic - basic', 34), ('aromatic - amide', 29), ('amide - amide', 19), ('aromatic - aromatic', 18)]

==> Chordata.txt <==

[('nucleophilic - hydrophobic', 363), ('nucleophilic - nucleophilic', 303), ('nucleophilic - basic', 252), ('nucleophilic - acidic', 224), ('hydrophobic - basic', 207), ('hydrophobic - acidic', 175), ('hydrophobic - hydrophobic', 166), ('nucleophilic - amide', 152), ('hydrophobic - aromatic', 128), ('acidic - basic', 124), ('nucleophilic - aromatic', 123), ('hydrophobic - amide', 97), ('basic - basic', 94), ('amide - basic', 77), ('acidic - amide', 72), ('aromatic - basic', 68), ('acidic - acidic', 66), ('aromatic - acidic', 55), ('aromatic - amide', 38), ('aromatic - aromatic', 25), ('amide - amide', 22)]

==> Cichlidae.txt <==

[('nucleophilic - nucleophilic', 167), ('nucleophilic - hydrophobic', 158), ('nucleophilic - acidic', 122), ('nucleophilic - amide', 99), ('nucleophilic - aromatic', 99), ('nucleophilic - basic', 90), ('hydrophobic - basic', 72), ('hydrophobic - acidic', 67), ('hydrophobic - aromatic', 64), ('hydrophobic - hydrophobic', 57), ('hydrophobic - amide', 52), ('aromatic - basic', 46), ('aromatic - acidic', 42), ('amide - basic', 36), ('basic - basic', 30), ('aromatic - amide', 29), ('aromatic - aromatic', 26), ('acidic - amide', 25), ('acidic - basic', 24), ('amide - amide', 15), ('acidic - acidic', 14)]

==> Cichliformes.txt <==

[('nucleophilic - nucleophilic', 167), ('nucleophilic - hydrophobic', 158), ('nucleophilic - acidic', 122), ('nucleophilic - amide', 99), ('nucleophilic - aromatic', 99), ('nucleophilic - basic', 90), ('hydrophobic - basic', 72), ('hydrophobic - acidic', 67), ('hydrophobic - aromatic', 64), ('hydrophobic - hydrophobic', 57), ('hydrophobic - amide', 52), ('aromatic - basic', 46), ('aromatic - acidic', 42), ('amide - basic', 36), ('basic - basic', 30), ('aromatic - amide', 29), ('aromatic - aromatic', 26), ('acidic - amide', 25), ('acidic - basic', 24), ('amide - amide', 15), ('acidic - acidic', 14)]

==> Cichlomorphae.txt <==

[('nucleophilic - nucleophilic', 167), ('nucleophilic - hydrophobic', 158), ('nucleophilic - acidic', 122), ('nucleophilic - amide', 99), ('nucleophilic - aromatic', 99), ('nucleophilic - basic', 90), ('hydrophobic - basic', 72), ('hydrophobic - acidic', 67), ('hydrophobic - aromatic', 64), ('hydrophobic - hydrophobic', 57), ('hydrophobic - amide', 52), ('aromatic - basic', 46), ('aromatic - acidic', 42), ('amide - basic', 36), ('basic - basic', 30), ('aromatic - amide', 29), ('aromatic - aromatic', 26), ('acidic - amide', 25), ('acidic - basic', 24), ('amide - amide', 15), ('acidic - acidic', 14)]

==> Clostridia.txt <==

[('nucleophilic - hydrophobic', 212), ('hydrophobic - acidic', 143), ('hydrophobic - basic', 124), ('hydrophobic - hydrophobic', 107), ('nucleophilic - acidic', 107), ('hydrophobic - amide', 81), ('nucleophilic - basic', 78), ('nucleophilic - nucleophilic', 75), ('hydrophobic - aromatic', 75), ('acidic - basic', 73), ('nucleophilic - amide', 71), ('nucleophilic - aromatic', 64), ('aromatic - acidic', 57), ('acidic - amide', 52), ('amide - basic', 45), ('aromatic - basic', 37), ('aromatic - amide', 33), ('acidic - acidic', 31), ('basic - basic', 31), ('amide - amide', 21), ('aromatic - aromatic', 17)]

==> Clostridiaceae.txt <==

[('nucleophilic - hydrophobic', 171), ('hydrophobic - acidic', 121), ('hydrophobic - basic', 100), ('hydrophobic - amide', 100), ('hydrophobic - hydrophobic', 99), ('nucleophilic - acidic', 77), ('hydrophobic - aromatic', 65), ('nucleophilic - aromatic', 61), ('nucleophilic - basic', 55), ('acidic - basic', 55), ('nucleophilic - nucleophilic', 53), ('nucleophilic - amide', 46), ('acidic - amide', 41), ('aromatic - basic', 41), ('aromatic - amide', 37), ('acidic - acidic', 24), ('amide - basic', 24), ('aromatic - acidic', 20), ('basic - basic', 19), ('amide - amide', 17), ('aromatic - aromatic', 9)]

==> Clostridiales.txt <==

[('nucleophilic - hydrophobic', 168), ('hydrophobic - acidic', 116), ('hydrophobic - basic', 98), ('hydrophobic - hydrophobic', 90), ('hydrophobic - amide', 81), ('nucleophilic - nucleophilic', 78), ('nucleophilic - amide', 78), ('nucleophilic - acidic', 72), ('hydrophobic - aromatic', 58), ('nucleophilic - basic', 57), ('amide - basic', 52), ('acidic - amide', 47), ('acidic - basic', 46), ('nucleophilic - aromatic', 43), ('aromatic - amide', 41), ('aromatic - acidic', 37), ('acidic - acidic', 29), ('aromatic - basic', 25), ('amide - amide', 22), ('basic - basic', 21), ('aromatic - aromatic', 19)]

==> Clostridioides.txt <==

[('nucleophilic - hydrophobic', 121), ('hydrophobic - basic', 94), ('hydrophobic - acidic', 90), ('hydrophobic - amide', 85), ('hydrophobic - hydrophobic', 76), ('nucleophilic - basic', 65), ('nucleophilic - acidic', 63), ('nucleophilic - amide', 57), ('acidic - basic', 55), ('nucleophilic - aromatic', 46), ('hydrophobic - aromatic', 43), ('aromatic - acidic', 39), ('nucleophilic - nucleophilic', 38), ('aromatic - amide', 38), ('acidic - amide', 36), ('aromatic - basic', 36), ('amide - basic', 32), ('basic - basic', 24), ('amide - amide', 22), ('acidic - acidic', 20), ('aromatic - aromatic', 7)]

==> Clostridium.txt <==

[('nucleophilic - hydrophobic', 122), ('hydrophobic - amide', 78), ('hydrophobic - acidic', 76), ('nucleophilic - acidic', 64), ('nucleophilic - nucleophilic', 62), ('hydrophobic - hydrophobic', 62), ('nucleophilic - amide', 58), ('nucleophilic - basic', 54), ('hydrophobic - basic', 53), ('acidic - amide', 47), ('nucleophilic - aromatic', 44), ('amide - basic', 43), ('acidic - basic', 42), ('hydrophobic - aromatic', 36), ('aromatic - acidic', 35), ('aromatic - basic', 32), ('aromatic - amide', 25), ('acidic - acidic', 22), ('amide - amide', 16), ('aromatic - aromatic', 15), ('basic - basic', 14)]



==> Coccidia.txt <==

[('nucleophilic - hydrophobic', 284), ('nucleophilic - nucleophilic', 199), ('nucleophilic - acidic', 176), ('nucleophilic - basic', 166), ('hydrophobic - basic', 158), ('hydrophobic - acidic', 158), ('hydrophobic - hydrophobic', 156), ('nucleophilic - aromatic', 116), ('hydrophobic - aromatic', 112), ('nucleophilic - amide', 111), ('hydrophobic - amide', 97), ('acidic - basic', 91), ('aromatic - basic', 73), ('acidic - amide', 69), ('acidic - acidic', 65), ('aromatic - acidic', 54), ('amide - basic', 52), ('basic - basic', 48), ('aromatic - amide', 35), ('aromatic - aromatic', 29), ('amide - amide', 27)]

==> Coelurosauria.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - acidic', 229), ('nucleophilic - nucleophilic', 227), ('nucleophilic - basic', 205), ('hydrophobic - hydrophobic', 201), ('hydrophobic - basic', 184), ('hydrophobic - acidic', 180), ('nucleophilic - aromatic', 129), ('nucleophilic - amide', 127), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 113), ('acidic - basic', 97), ('acidic - acidic', 85), ('aromatic - acidic', 73), ('amide - basic', 70), ('acidic - amide', 69), ('basic - basic', 56), ('aromatic - basic', 50), ('aromatic - amide', 45), ('amide - amide', 27), ('aromatic - aromatic', 27)]

==> Conoidasida.txt <==

[('nucleophilic - hydrophobic', 284), ('nucleophilic - nucleophilic', 199), ('nucleophilic - acidic', 176), ('nucleophilic - basic', 166), ('hydrophobic - basic', 158), ('hydrophobic - acidic', 158), ('hydrophobic - hydrophobic', 156), ('nucleophilic - aromatic', 116), ('hydrophobic - aromatic', 112), ('nucleophilic - amide', 111), ('hydrophobic - amide', 97), ('acidic - basic', 91), ('aromatic - basic', 73), ('acidic - amide', 69), ('acidic - acidic', 65), ('aromatic - acidic', 54), ('amide - basic', 52), ('basic - basic', 48), ('aromatic - amide', 35), ('aromatic - aromatic', 29), ('amide - amide', 27)]

==> Coriobacteriia.txt <==

[('nucleophilic - hydrophobic', 86), ('hydrophobic - hydrophobic', 56), ('nucleophilic - aromatic', 48), ('hydrophobic - acidic', 46), ('nucleophilic - acidic', 39), ('hydrophobic - aromatic', 34), ('hydrophobic - amide', 34), ('nucleophilic - nucleophilic', 29), ('nucleophilic - basic', 26), ('nucleophilic - amide', 25), ('aromatic - amide', 21), ('hydrophobic - basic', 21), ('acidic - basic', 15), ('amide - amide', 13), ('amide - basic', 12), ('acidic - amide', 10), ('aromatic - acidic', 10), ('aromatic - basic', 9), ('acidic - acidic', 6), ('aromatic - aromatic', 6), ('basic - basic', 3)]

==> Craniata.txt <==

[('nucleophilic - hydrophobic', 341), ('nucleophilic - nucleophilic', 230), ('hydrophobic - basic', 206), ('nucleophilic - acidic', 206), ('nucleophilic - basic', 198), ('hydrophobic - acidic', 194), ('hydrophobic - hydrophobic', 190), ('nucleophilic - amide', 150), ('nucleophilic - aromatic', 145), ('hydrophobic - aromatic', 141), ('hydrophobic - amide', 132), ('acidic - basic', 128), ('amide - basic', 84), ('acidic - acidic', 74), ('basic - basic', 70), ('aromatic - acidic', 68), ('acidic - amide', 68), ('aromatic - basic', 64), ('aromatic - amide', 50), ('amide - amide', 24), ('aromatic - aromatic', 22)]

==> Crustacea.txt <==

[('nucleophilic - hydrophobic', 137), ('nucleophilic - nucleophilic', 136), ('nucleophilic - basic', 71), ('hydrophobic - basic', 70), ('hydrophobic - hydrophobic', 68), ('nucleophilic - aromatic', 52), ('nucleophilic - acidic', 51), ('hydrophobic - aromatic', 47), ('hydrophobic - acidic', 45), ('nucleophilic - amide', 45), ('hydrophobic - amide', 36), ('basic - basic', 26), ('aromatic - basic', 24), ('aromatic - aromatic', 24), ('amide - basic', 22), ('aromatic - acidic', 19), ('aromatic - amide', 12), ('acidic - basic', 11), ('amide - amide', 10), ('acidic - amide', 10), ('acidic - acidic', 4)]

==> Cutibacterium.txt <==

[('nucleophilic - hydrophobic', 59), ('hydrophobic - basic', 52), ('hydrophobic - hydrophobic', 43), ('hydrophobic - acidic', 40), ('nucleophilic - basic', 37), ('nucleophilic - nucleophilic', 35), ('nucleophilic - acidic', 32), ('hydrophobic - amide', 28), ('nucleophilic - amide', 25), ('nucleophilic - aromatic', 25), ('acidic - basic', 23), ('amide - basic', 18), ('aromatic - acidic', 17), ('aromatic - basic', 17), ('acidic - amide', 16), ('basic - basic', 13), ('hydrophobic - aromatic', 12), ('aromatic - amide', 11), ('acidic - acidic', 10), ('aromatic - aromatic', 4), ('amide - amide', 3)]

==> Cypriniformes.txt <==

[('nucleophilic - nucleophilic', 218), ('nucleophilic - hydrophobic', 216), ('nucleophilic - acidic', 136), ('nucleophilic - basic', 126), ('nucleophilic - amide', 104), ('hydrophobic - basic', 100), ('hydrophobic - acidic', 95), ('hydrophobic - hydrophobic', 93), ('hydrophobic - amide', 75), ('nucleophilic - aromatic', 74), ('acidic - basic', 68), ('hydrophobic - aromatic', 65), ('acidic - acidic', 56), ('aromatic - acidic', 48), ('aromatic - basic', 41), ('amide - basic', 41), ('acidic - amide', 41), ('basic - basic', 37), ('aromatic - amide', 28), ('aromatic - aromatic', 16), ('amide - amide', 15)]

==> Cyprinodontiformes.txt <==

[('nucleophilic - aromatic', 277), ('nucleophilic - nucleophilic', 216), ('nucleophilic - hydrophobic', 208), ('nucleophilic - acidic', 135), ('nucleophilic - amide', 131), ('hydrophobic - amide', 99), ('hydrophobic - acidic', 98), ('nucleophilic - basic', 98), ('hydrophobic - basic', 90), ('hydrophobic - hydrophobic', 82), ('hydrophobic - aromatic', 67), ('aromatic - amide', 57), ('acidic - basic', 57), ('aromatic - basic', 51), ('acidic - amide', 49), ('amide - basic', 44), ('basic - basic', 41), ('amide - amide', 38), ('acidic - acidic', 38), ('aromatic - acidic', 31), ('aromatic - aromatic', 28)]

==> Cystobacterineae.txt <==

[('nucleophilic - hydrophobic', 95), ('nucleophilic - nucleophilic', 56), ('nucleophilic - acidic', 55), ('hydrophobic - acidic', 55), ('hydrophobic - hydrophobic', 50), ('acidic - acidic', 43), ('hydrophobic - basic', 36), ('nucleophilic - basic', 31), ('hydrophobic - amide', 30), ('nucleophilic - aromatic', 30), ('acidic - amide', 29), ('nucleophilic - amide', 29), ('acidic - basic', 23), ('hydrophobic - aromatic', 23), ('aromatic - basic', 16), ('aromatic - acidic', 15), ('amide - basic', 14), ('basic - basic', 13), ('amide - amide', 5), ('aromatic - aromatic', 4), ('aromatic - amide', 2)]

==> Deltaproteobacteria.txt <==

[('nucleophilic - acidic', 461), ('hydrophobic - acidic', 300), ('nucleophilic - hydrophobic', 270), ('nucleophilic - nucleophilic', 213), ('nucleophilic - amide', 149), ('acidic - amide', 143), ('acidic - acidic', 140), ('hydrophobic - amide', 127), ('acidic - basic', 107), ('hydrophobic - basic', 103), ('hydrophobic - aromatic', 96), ('nucleophilic - basic', 86), ('amide - basic', 83), ('nucleophilic - aromatic', 82), ('hydrophobic - hydrophobic', 78), ('aromatic - acidic', 67), ('aromatic - basic', 47), ('aromatic - aromatic', 37), ('aromatic - amide', 36), ('amide - amide', 19), ('basic - basic', 17)]

==> Desulfitobacterium.txt <==

[('nucleophilic - hydrophobic', 203), ('hydrophobic - hydrophobic', 98), ('hydrophobic - amide', 98), ('nucleophilic - acidic', 90), ('nucleophilic - aromatic', 88), ('hydrophobic - acidic', 78), ('nucleophilic - amide', 68), ('nucleophilic - nucleophilic', 64), ('hydrophobic - aromatic', 60), ('hydrophobic - basic', 54), ('aromatic - amide', 35), ('aromatic - acidic', 34), ('nucleophilic - basic', 29), ('acidic - amide', 27), ('amide - basic', 21), ('aromatic - basic', 21), ('aromatic - aromatic', 20), ('amide - amide', 16), ('acidic - acidic', 13), ('acidic - basic', 9), ('basic - basic', 8)]

==> Desulfosporosinus.txt <==

[('nucleophilic - hydrophobic', 286), ('hydrophobic - hydrophobic', 153), ('nucleophilic - nucleophilic', 124), ('hydrophobic - amide', 118), ('hydrophobic - acidic', 99), ('nucleophilic - aromatic', 97), ('nucleophilic - amide', 96), ('nucleophilic - acidic', 87), ('hydrophobic - basic', 82), ('hydrophobic - aromatic', 78), ('nucleophilic - basic', 64), ('acidic - amide', 40), ('aromatic - acidic', 39), ('aromatic - amide', 35), ('amide - basic', 30), ('aromatic - basic', 27), ('acidic - basic', 23), ('amide - amide', 22), ('acidic - acidic', 21), ('aromatic - aromatic', 16), ('basic - basic', 14)]

==> Dinosauria.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - acidic', 229), ('nucleophilic - nucleophilic', 227), ('nucleophilic - basic', 205), ('hydrophobic - hydrophobic', 201), ('hydrophobic - basic', 184), ('hydrophobic - acidic', 180), ('nucleophilic - aromatic', 129), ('nucleophilic - amide', 127), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 113), ('acidic - basic', 97), ('acidic - acidic', 85), ('aromatic - acidic', 73), ('amide - basic', 70), ('acidic - amide', 69), ('basic - basic', 56), ('aromatic - basic', 50), ('aromatic - amide', 45),

('amide - amide', 27), ('aromatic - aromatic', 27)]

==> Ecdysozoa.txt <==

[('nucleophilic - nucleophilic', 264), ('nucleophilic - acidic', 237), ('nucleophilic - hydrophobic', 159), ('nucleophilic - basic', 118), ('acidic - acidic', 103), ('nucleophilic - amide', 93), ('hydrophobic - acidic', 91), ('acidic - basic', 80), ('hydrophobic - basic', 77), ('hydrophobic - hydrophobic', 56), ('nucleophilic - aromatic', 55), ('hydrophobic - amide', 53), ('basic - basic', 53), ('acidic - amide', 49), ('aromatic - basic', 45), ('hydrophobic - aromatic', 41), ('aromatic - acidic', 39), ('amide - basic', 33), ('aromatic - amide', 28), ('amide - amide', 23), ('aromatic - aromatic', 13)]

==> Eimeriorina.txt <==

[('nucleophilic - hydrophobic', 284), ('nucleophilic - nucleophilic', 199), ('nucleophilic - acidic', 176), ('nucleophilic - basic', 166), ('hydrophobic - basic', 158), ('hydrophobic - acidic', 158), ('hydrophobic - hydrophobic', 156), ('nucleophilic - aromatic', 116), ('hydrophobic - aromatic', 112), ('nucleophilic - amide', 111), ('hydrophobic - amide', 97), ('acidic - basic', 91), ('aromatic - basic', 73), ('acidic - amide', 69), ('acidic - acidic', 65), ('aromatic - acidic', 54), ('amide - basic', 52), ('basic - basic', 48), ('aromatic - amide', 35), ('aromatic - aromatic', 29), ('amide - amide', 27)]

==> Embryophyta.txt <==

[('aromatic - basic', 122), ('nucleophilic - basic', 101), ('nucleophilic - aromatic', 97), ('aromatic - aromatic', 90), ('nucleophilic - hydrophobic', 89), ('hydrophobic - basic', 88), ('nucleophilic - nucleophilic', 81), ('hydrophobic - aromatic', 57), ('hydrophobic - hydrophobic', 51), ('nucleophilic - acidic', 51), ('hydrophobic - acidic', 51), ('basic - basic', 43), ('acidic - basic', 33), ('aromatic - acidic', 32), ('acidic - amide', 25), ('amide - basic', 24), ('hydrophobic - amide', 22), ('nucleophilic - amide', 18), ('acidic - acidic', 14), ('amide - amide', 11), ('aromatic - amide', 11)]

==> Enterobacterales.txt <==

[('nucleophilic - hydrophobic', 341), ('nucleophilic - nucleophilic', 182), ('nucleophilic - amide', 182), ('hydrophobic - amide', 141), ('hydrophobic - hydrophobic', 101), ('nucleophilic - aromatic', 96), ('nucleophilic - acidic', 91), ('hydrophobic - acidic', 90), ('hydrophobic - aromatic', 67), ('nucleophilic - basic', 64), ('hydrophobic - basic', 59), ('amide - basic', 44), ('acidic - amide', 35), ('acidic - basic', 32), ('aromatic - acidic', 30), ('aromatic - basic', 29), ('aromatic - amide', 24), ('amide - amide', 22), ('acidic - acidic', 20), ('aromatic - aromatic', 13), ('basic - basic', 9)]

==> Enterobacteriaceae.txt <==

[('nucleophilic - hydrophobic', 61), ('hydrophobic - hydrophobic', 60), ('hydrophobic - acidic', 46), ('hydrophobic - aromatic', 44), ('hydrophobic - basic', 37), ('hydrophobic - amide', 34), ('nucleophilic - aromatic', 27), ('amide - basic', 26), ('nucleophilic - amide', 25), ('nucleophilic - basic', 21), ('aromatic - amide', 19), ('aromatic - acidic', 19), ('aromatic - basic', 17), ('amide - amide', 17), ('nucleophilic - nucleophilic', 17), ('nucleophilic - acidic', 16), ('acidic - basic', 15), ('acidic - amide', 14), ('basic - basic', 12), ('aromatic - aromatic', 9), ('acidic - acidic', 5)]

==> Episquamata.txt <==

[('nucleophilic - nucleophilic', 147), ('nucleophilic - hydrophobic', 142), ('nucleophilic - acidic', 133), ('nucleophilic - amide', 106), ('hydrophobic - hydrophobic', 102), ('hydrophobic - acidic', 87), ('hydrophobic - basic', 87), ('nucleophilic - basic', 78), ('nucleophilic - aromatic', 77), ('hydrophobic - aromatic', 60), ('acidic - basic', 56), ('hydrophobic - amide', 54), ('aromatic - acidic', 42), ('aromatic - basic', 36), ('acidic - acidic', 35), ('acidic - amide', 30), ('aromatic - amide', 29), ('amide - basic', 25), ('basic - basic', 23), ('aromatic - aromatic', 12), ('amide - amide', 9)]

==> Escherichia.txt <==

[('nucleophilic - hydrophobic', 76), ('hydrophobic - aromatic', 52), ('hydrophobic - basic', 51), ('hydrophobic - hydrophobic', 48), ('hydrophobic - acidic', 40), ('hydrophobic - amide', 36), ('aromatic - basic', 33), ('nucleophilic - aromatic', 32), ('nucleophilic - acidic', 28), ('nucleophilic - basic', 26), ('amide - basic', 25), ('nucleophilic - nucleophilic', 22), ('nucleophilic - amide', 22), ('aromatic - acidic', 18), ('acidic - basic', 17),

('aromatic - amide', 16), ('aromatic - aromatic', 16), ('acidic - amide', 15), ('basic - basic', 12), ('acidic - acidic', 10), ('amide - amide', 9)]

==> Euarchontoglires.txt <==

[('nucleophilic - hydrophobic', 309), ('nucleophilic - nucleophilic', 231), ('nucleophilic - acidic', 178), ('hydrophobic - basic', 167), ('hydrophobic - hydrophobic', 165), ('hydrophobic - acidic', 158), ('nucleophilic - basic', 135), ('nucleophilic - amide', 131), ('nucleophilic - aromatic', 118), ('hydrophobic - amide', 117), ('hydrophobic - aromatic', 116), ('acidic - basic', 84), ('aromatic - basic', 57), ('amide - basic', 55), ('aromatic - acidic', 51), ('acidic - amide', 45), ('basic - basic', 37), ('acidic - acidic', 37), ('aromatic - amide', 36), ('amide - amide', 26), ('aromatic - aromatic', 20)]

==> Eucoccidiorida.txt <==

[('nucleophilic - hydrophobic', 284), ('nucleophilic - nucleophilic', 199), ('nucleophilic - acidic', 176), ('nucleophilic - basic', 166), ('hydrophobic - basic', 158), ('hydrophobic - acidic', 158), ('hydrophobic - hydrophobic', 156), ('nucleophilic - aromatic', 116), ('hydrophobic - aromatic', 112), ('nucleophilic - amide', 111), ('hydrophobic - amide', 97), ('acidic - basic', 91), ('aromatic - basic', 73), ('acidic - amide', 69), ('acidic - acidic', 65), ('aromatic - acidic', 54), ('amide - basic', 52), ('basic - basic', 48), ('aromatic - amide', 35), ('aromatic - aromatic', 29), ('amide - amide', 27)]

==> Eukaryota.txt <==

[('nucleophilic - hydrophobic', 1379), ('hydrophobic - basic', 1134), ('nucleophilic - basic', 1000), ('nucleophilic - nucleophilic', 943), ('hydrophobic - acidic', 922), ('nucleophilic - acidic', 883), ('hydrophobic - hydrophobic', 876), ('hydrophobic - amide', 682), ('acidic - basic', 649), ('hydrophobic - aromatic', 581), ('nucleophilic - aromatic', 556), ('nucleophilic - amide', 554), ('amide - basic', 502), ('basic - basic', 444), ('aromatic - basic', 377), ('aromatic - acidic', 363), ('acidic - amide', 327), ('acidic - acidic', 312), ('aromatic - amide', 205), ('amide - amide', 154), ('aromatic - aromatic', 91)]

==> Eupercaria.txt <==

[('nucleophilic - nucleophilic', 333), ('nucleophilic - hydrophobic', 286), ('nucleophilic - acidic', 217), ('nucleophilic - basic', 214), ('hydrophobic - basic', 167), ('hydrophobic - acidic', 152), ('nucleophilic - amide', 148), ('nucleophilic - aromatic', 127), ('hydrophobic - hydrophobic', 122), ('hydrophobic - amide', 120), ('acidic - basic', 109), ('basic - basic', 99), ('amide - basic', 96), ('hydrophobic - aromatic', 81), ('aromatic - basic', 72), ('acidic - acidic', 72), ('acidic - amide', 66), ('aromatic - acidic', 54), ('amide - amide', 45), ('aromatic - amide', 32), ('aromatic - aromatic', 22)]

==> Euteleostomi.txt <==

[('nucleophilic - hydrophobic', 420), ('nucleophilic - nucleophilic', 281), ('nucleophilic - basic', 277), ('hydrophobic - basic', 275), ('nucleophilic - acidic', 254), ('hydrophobic - hydrophobic', 209), ('hydrophobic - acidic', 196), ('nucleophilic - amide', 185), ('hydrophobic - aromatic', 163), ('hydrophobic - amide', 162), ('nucleophilic - aromatic', 162), ('acidic - basic', 156), ('basic - basic', 124), ('acidic - acidic', 111), ('amide - basic', 105), ('aromatic - basic', 95), ('acidic - amide', 81), ('aromatic - acidic', 71), ('aromatic - amide', 47), ('aromatic - aromatic', 32), ('amide - amide', 24)]

==> Eutheria.txt <==

[('nucleophilic - hydrophobic', 361), ('nucleophilic - nucleophilic', 280), ('hydrophobic - hydrophobic', 250), ('hydrophobic - basic', 232), ('nucleophilic - basic', 224), ('nucleophilic - acidic', 210), ('hydrophobic - acidic', 209), ('nucleophilic - amide', 167), ('nucleophilic - aromatic', 165), ('hydrophobic - amide', 154), ('hydrophobic - aromatic', 129), ('acidic - basic', 120), ('acidic - amide', 101), ('aromatic - basic', 95), ('acidic - acidic', 86), ('aromatic - acidic', 78), ('amide - basic', 75), ('basic - basic', 59), ('aromatic - amide', 51), ('amide - amide', 34), ('aromatic - aromatic', 32)]

==> Euzebyales.txt <==

[('nucleophilic - hydrophobic', 176), ('hydrophobic - acidic', 145), ('nucleophilic - acidic', 115), ('hydrophobic - hydrophobic', 86), ('nucleophilic - nucleophilic', 82), ('nucleophilic - aromatic', 65), ('hydrophobic - aromatic', 61), ('aromatic - acidic', 60), ('acidic - acidic', 58), ('acidic - basic', 56),

('hydrophobic - amide', 54), ('nucleophilic - basic', 52), ('hydrophobic - basic', 51), ('nucleophilic - amide', 43), ('acidic - amide', 32), ('aromatic - basic', 20), ('aromatic - amide', 16), ('amide - basic', 15), ('basic - basic', 12), ('aromatic - aromatic', 11), ('amide - amide', 6)]

==> Felidae.txt <==

[('nucleophilic - nucleophilic', 168), ('nucleophilic - hydrophobic', 152), ('nucleophilic - basic', 108), ('nucleophilic - acidic', 97), ('hydrophobic - hydrophobic', 83), ('nucleophilic - amide', 82), ('hydrophobic - acidic', 81), ('nucleophilic - aromatic', 75), ('hydrophobic - basic', 72), ('hydrophobic - amide', 54), ('hydrophobic - aromatic', 44), ('acidic - basic', 43), ('aromatic - acidic', 38), ('aromatic - basic', 33), ('acidic - amide', 32), ('acidic - acidic', 31), ('basic - basic', 30), ('amide - basic', 28), ('amide - amide', 16), ('aromatic - amide', 14), ('aromatic - aromatic', 12)]

==> Feliformia.txt <==

[('nucleophilic - nucleophilic', 161), ('nucleophilic - hydrophobic', 143), ('nucleophilic - basic', 111), ('nucleophilic - acidic', 95), ('hydrophobic - acidic', 85), ('nucleophilic - amide', 83), ('nucleophilic - aromatic', 80), ('hydrophobic - basic', 75), ('hydrophobic - hydrophobic', 72), ('hydrophobic - amide', 56), ('acidic - basic', 46), ('hydrophobic - aromatic', 42), ('aromatic - acidic', 34), ('aromatic - basic', 33), ('acidic - acidic', 31), ('acidic - amide', 27), ('basic - basic', 27), ('amide - basic', 25), ('aromatic - amide', 19), ('aromatic - aromatic', 16), ('amide - amide', 15)]

==> Finegoldia.txt <==

[('hydrophobic - basic', 372), ('hydrophobic - acidic', 371), ('nucleophilic - hydrophobic', 288), ('hydrophobic - amide', 256), ('acidic - basic', 247), ('hydrophobic - hydrophobic', 244), ('hydrophobic - aromatic', 222), ('nucleophilic - basic', 183), ('aromatic - basic', 178), ('aromatic - acidic', 174), ('nucleophilic - acidic', 163), ('acidic - amide', 147), ('nucleophilic - aromatic', 140), ('amide - basic', 129), ('nucleophilic - amide', 114), ('aromatic - amide', 100), ('basic - basic', 98), ('acidic - acidic', 89), ('nucleophilic - nucleophilic', 77), ('aromatic - aromatic', 57), ('amide - amide', 46)]

==> Firmicutes.txt <==

[('nucleophilic - hydrophobic', 118), ('hydrophobic - acidic', 107), ('hydrophobic - amide', 83), ('hydrophobic - hydrophobic', 80), ('hydrophobic - basic', 72), ('nucleophilic - acidic', 60), ('nucleophilic - amide', 54), ('acidic - basic', 53), ('acidic - amide', 42), ('nucleophilic - basic', 41), ('hydrophobic - aromatic', 35), ('amide - basic', 30), ('nucleophilic - nucleophilic', 30), ('basic - basic', 26), ('nucleophilic - aromatic', 25), ('aromatic - basic', 25), ('acidic - acidic', 22), ('aromatic - amide', 21), ('aromatic - acidic', 20), ('amide - amide', 15), ('aromatic - aromatic', 4)]

==> Flavobacteriaceae.txt <==

[('nucleophilic - acidic', 176), ('hydrophobic - acidic', 153), ('nucleophilic - hydrophobic', 144), ('hydrophobic - aromatic', 136), ('hydrophobic - hydrophobic', 107), ('hydrophobic - amide', 103), ('acidic - acidic', 99), ('acidic - amide', 89), ('hydrophobic - basic', 82), ('nucleophilic - amide', 82), ('nucleophilic - aromatic', 76), ('aromatic - acidic', 70), ('nucleophilic - nucleophilic', 67), ('aromatic - amide', 66), ('aromatic - aromatic', 55), ('aromatic - basic', 50), ('acidic - basic', 50), ('amide - basic', 44), ('nucleophilic - basic', 42), ('amide - amide', 36), ('basic - basic', 9)]

==> Flavobacteriales.txt <==

[('nucleophilic - hydrophobic', 112), ('hydrophobic - acidic', 111), ('nucleophilic - acidic', 99), ('hydrophobic - amide', 91), ('hydrophobic - aromatic', 82), ('acidic - amide', 77), ('acidic - basic', 71), ('nucleophilic - aromatic', 70), ('aromatic - acidic', 70), ('acidic - acidic', 70), ('nucleophilic - amide', 68), ('hydrophobic - hydrophobic', 67), ('hydrophobic - basic', 64), ('aromatic - amide', 60), ('nucleophilic - nucleophilic', 56), ('aromatic - aromatic', 38), ('nucleophilic - basic', 37), ('amide - basic', 32), ('aromatic - basic', 32), ('amide - amide', 30), ('basic - basic', 20)]

==> Flavobacteriia.txt <==

[('nucleophilic - hydrophobic', 112), ('hydrophobic - acidic', 111), ('nucleophilic - acidic', 99), ('hydrophobic - amide', 91), ('hydrophobic - aromatic', 82), ('acidic - amide', 77), ('acidic - basic', 71), ('nucleophilic -

aromatic', 70), ('aromatic - acidic', 70), ('acidic - acidic', 70), ('nucleophilic - amide', 68), ('hydrophobic - hydrophobic', 67), ('hydrophobic - basic', 64), ('aromatic - amide', 60), ('nucleophilic - nucleophilic', 56), ('aromatic - aromatic', 38), ('nucleophilic - basic', 37), ('amide - basic', 32), ('aromatic - basic', 32), ('amide - amide', 30), ('basic - basic', 20)]

==> Galliformes.txt <==

[('nucleophilic - hydrophobic', 168), ('nucleophilic - nucleophilic', 158), ('hydrophobic - hydrophobic', 126), ('nucleophilic - acidic', 114), ('hydrophobic - basic', 96), ('hydrophobic - acidic', 94), ('nucleophilic - basic', 91), ('nucleophilic - aromatic', 79), ('nucleophilic - amide', 78), ('hydrophobic - aromatic', 70), ('hydrophobic - amide', 67), ('acidic - basic', 54), ('acidic - amide', 53), ('acidic - acidic', 39), ('aromatic - acidic', 37), ('amide - basic', 33), ('aromatic - basic', 30), ('aromatic - amide', 26), ('basic - basic', 21), ('aromatic - aromatic', 16), ('amide - amide', 9)]

==> Galloanserae.txt <==

[('nucleophilic - hydrophobic', 294), ('nucleophilic - acidic', 231), ('nucleophilic - nucleophilic', 227), ('hydrophobic - acidic', 211), ('hydrophobic - hydrophobic', 206), ('hydrophobic - basic', 202), ('nucleophilic - basic', 186), ('nucleophilic - aromatic', 172), ('hydrophobic - amide', 145), ('acidic - basic', 135), ('hydrophobic - aromatic', 131), ('nucleophilic - amide', 127), ('aromatic - acidic', 102), ('acidic - amide', 87), ('acidic - acidic', 87), ('aromatic - basic', 86), ('amide - basic', 69), ('aromatic - amide', 59), ('basic - basic', 59), ('amide - amide', 26), ('aromatic - aromatic', 25)]

==> Gammaproteobacteria.txt <==

[('nucleophilic - hydrophobic', 981), ('hydrophobic - acidic', 495), ('hydrophobic - hydrophobic', 393), ('hydrophobic - amide', 380), ('nucleophilic - acidic', 369), ('nucleophilic - nucleophilic', 302), ('nucleophilic - amide', 251), ('hydrophobic - aromatic', 184), ('acidic - acidic', 183), ('nucleophilic - aromatic', 178), ('acidic - amide', 151), ('hydrophobic - basic', 137), ('aromatic - acidic', 134), ('aromatic - amide', 99), ('nucleophilic - basic', 89), ('amide - amide', 67), ('acidic - basic', 65), ('amide - basic', 56), ('aromatic - basic', 41), ('aromatic - aromatic', 26), ('basic - basic', 17)]

==> Gekkonidae.txt <==

[('nucleophilic - hydrophobic', 156), ('nucleophilic - nucleophilic', 136), ('hydrophobic - hydrophobic', 99), ('nucleophilic - basic', 99), ('nucleophilic - amide', 94), ('nucleophilic - acidic', 93), ('hydrophobic - basic', 91), ('hydrophobic - acidic', 86), ('nucleophilic - aromatic', 76), ('hydrophobic - amide', 65), ('hydrophobic - aromatic', 54), ('acidic - basic', 44), ('acidic - amide', 41), ('basic - basic', 38), ('amide - basic', 36), ('aromatic - acidic', 34), ('acidic - acidic', 27), ('aromatic - basic', 26), ('amide - amide', 22), ('aromatic - aromatic', 9), ('aromatic - amide', 8)]

==> Gekkoninae.txt <==

[('nucleophilic - hydrophobic', 152), ('nucleophilic - nucleophilic', 132), ('hydrophobic - hydrophobic', 96), ('nucleophilic - basic', 95), ('nucleophilic - amide', 91), ('nucleophilic - acidic', 91), ('hydrophobic - basic', 82), ('hydrophobic - acidic', 82), ('nucleophilic - aromatic', 73), ('hydrophobic - amide', 64), ('hydrophobic - aromatic', 48), ('acidic - basic', 42), ('amide - basic', 38), ('acidic - amide', 37), ('basic - basic', 34), ('aromatic - acidic', 32), ('aromatic - basic', 29), ('acidic - acidic', 24), ('amide - amide', 22), ('aromatic - aromatic', 9), ('aromatic - amide', 8)]

==> Gekkota.txt <==

[('nucleophilic - nucleophilic', 153), ('nucleophilic - hydrophobic', 152), ('nucleophilic - basic', 102), ('hydrophobic - hydrophobic', 101), ('nucleophilic - amide', 95), ('hydrophobic - basic', 89), ('nucleophilic - acidic', 89), ('hydrophobic - acidic', 88), ('nucleophilic - aromatic', 68), ('hydrophobic - amide', 67), ('hydrophobic - aromatic', 56), ('acidic - basic', 36), ('basic - basic', 34), ('acidic - amide', 33), ('amide - basic', 32), ('aromatic - basic', 31), ('aromatic - acidic', 30), ('acidic - acidic', 26), ('amide - amide', 19), ('aromatic - amide', 11), ('aromatic - aromatic', 10)]

==> Glires.txt <==

[('nucleophilic - hydrophobic', 359), ('nucleophilic - nucleophilic', 325), ('nucleophilic - basic', 198),

('nucleophilic - acidic', 196), ('hydrophobic - acidic', 179), ('hydrophobic - hydrophobic', 178), ('hydrophobic - basic', 169), ('nucleophilic - amide', 168), ('hydrophobic - amide', 166), ('nucleophilic - aromatic', 131), ('hydrophobic - aromatic', 110), ('amide - basic', 79), ('acidic - basic', 72), ('acidic - amide', 60), ('aromatic - acidic', 59), ('aromatic - basic', 56), ('basic - basic', 47), ('aromatic - amide', 31), ('acidic - acidic', 29), ('amide - amide', 28), ('aromatic - aromatic', 17)]

==> Haemosporida.txt <==

[('acidic - basic', 123), ('nucleophilic - amide', 121), ('nucleophilic - hydrophobic', 119), ('amide - amide', 111), ('hydrophobic - basic', 97), ('hydrophobic - aromatic', 97), ('hydrophobic - hydrophobic', 97), ('hydrophobic - acidic', 93), ('hydrophobic - amide', 85), ('nucleophilic - aromatic', 84), ('nucleophilic - basic', 82), ('nucleophilic - acidic', 78), ('acidic - acidic', 73), ('nucleophilic - nucleophilic', 72), ('basic - basic', 70), ('acidic - amide', 67), ('aromatic - basic', 60), ('amide - basic', 56), ('aromatic - acidic', 53), ('aromatic - amide', 48), ('aromatic - aromatic', 30)]

==> Haplorrhini.txt <==

[('nucleophilic - hydrophobic', 359), ('nucleophilic - nucleophilic', 240), ('hydrophobic - basic', 207), ('hydrophobic - hydrophobic', 203), ('hydrophobic - acidic', 202), ('nucleophilic - basic', 198), ('nucleophilic - acidic', 197), ('nucleophilic - amide', 175), ('hydrophobic - amide', 158), ('nucleophilic - aromatic', 141), ('hydrophobic - aromatic', 137), ('acidic - basic', 103), ('acidic - amide', 87), ('acidic - acidic', 75), ('amide - basic', 72), ('aromatic - basic', 72), ('basic - basic', 71), ('aromatic - acidic', 67), ('aromatic - amide', 46), ('amide - amide', 29), ('aromatic - aromatic', 25)]

==> Herbiconiux.txt <==

[('nucleophilic - hydrophobic', 137), ('hydrophobic - acidic', 94), ('hydrophobic - hydrophobic', 84), ('nucleophilic - acidic', 77), ('hydrophobic - aromatic', 59), ('nucleophilic - nucleophilic', 53), ('nucleophilic - aromatic', 47), ('nucleophilic - basic', 39), ('hydrophobic - basic', 37), ('nucleophilic - amide', 28), ('hydrophobic - amide', 28), ('acidic - basic', 28), ('aromatic - acidic', 27), ('acidic - acidic', 18), ('aromatic - basic', 18), ('acidic - amide', 17), ('aromatic - amide', 15), ('aromatic - aromatic', 12), ('amide - basic', 8), ('basic - basic', 6), ('amide - amide', 6)]

==> Hexapoda.txt <==

[('nucleophilic - hydrophobic', 263), ('nucleophilic - acidic', 259), ('hydrophobic - acidic', 216), ('nucleophilic - nucleophilic', 179), ('acidic - acidic', 164), ('acidic - basic', 152), ('nucleophilic - basic', 147), ('hydrophobic - hydrophobic', 144), ('hydrophobic - basic', 140), ('nucleophilic - amide', 138), ('acidic - amide', 129), ('hydrophobic - amide', 114), ('nucleophilic - aromatic', 99), ('hydrophobic - aromatic', 84), ('amide - basic', 67), ('basic - basic', 61), ('aromatic - basic', 59), ('aromatic - acidic', 54), ('aromatic - amide', 42), ('amide - amide', 32), ('aromatic - aromatic', 14)]

==> Holometabola.txt <==

[('nucleophilic - hydrophobic', 239), ('nucleophilic - acidic', 209), ('nucleophilic - nucleophilic', 185), ('hydrophobic - acidic', 143), ('nucleophilic - basic', 142), ('hydrophobic - basic', 138), ('nucleophilic - amide', 120), ('acidic - basic', 102), ('hydrophobic - amide', 99), ('acidic - acidic', 92), ('hydrophobic - hydrophobic', 88), ('nucleophilic - aromatic', 82), ('acidic - amide', 80), ('hydrophobic - aromatic', 60), ('aromatic - basic', 56), ('amide - basic', 52), ('aromatic - acidic', 45), ('basic - basic', 36), ('aromatic - amide', 33), ('amide - amide', 23), ('aromatic - aromatic', 12)]

==> Hominidae.txt <==

[('nucleophilic - hydrophobic', 273), ('hydrophobic - acidic', 174), ('nucleophilic - nucleophilic', 162), ('hydrophobic - basic', 156), ('nucleophilic - acidic', 156), ('hydrophobic - hydrophobic', 153), ('nucleophilic - basic', 142), ('nucleophilic - amide', 133), ('nucleophilic - aromatic', 122), ('hydrophobic - aromatic', 111), ('hydrophobic - amide', 101), ('acidic - basic', 72), ('acidic - acidic', 72), ('acidic - amide', 69), ('amide - basic', 54), ('aromatic - acidic', 51), ('aromatic - basic', 50), ('basic - basic', 41), ('aromatic - amide', 39), ('amide - amide', 28), ('aromatic - aromatic', 26)]

==> Homo.txt <==

[('nucleophilic - hydrophobic', 179), ('nucleophilic - nucleophilic', 143), ('hydrophobic - acidic', 135), ('nucleophilic - acidic', 133), ('nucleophilic - basic', 119), ('hydrophobic - aromatic', 108), ('hydrophobic - hydrophobic', 103), ('nucleophilic - amide', 102), ('hydrophobic - basic', 100), ('hydrophobic - amide', 94), ('nucleophilic - aromatic', 89), ('acidic - basic', 51), ('acidic - amide', 47), ('aromatic - amide', 47), ('acidic - acidic', 44), ('amide - basic', 44), ('aromatic - basic', 42), ('basic - basic', 39), ('aromatic - acidic', 34), ('amide - amide', 20), ('aromatic - aromatic', 20)]

==> Hystricomorpha.txt <==

[('nucleophilic - nucleophilic', 184), ('nucleophilic - hydrophobic', 169), ('nucleophilic - acidic', 110), ('nucleophilic - basic', 108), ('hydrophobic - hydrophobic', 106), ('hydrophobic - basic', 100), ('hydrophobic - acidic', 98), ('nucleophilic - aromatic', 95), ('nucleophilic - amide', 92), ('hydrophobic - amide', 74), ('hydrophobic - aromatic', 63), ('acidic - basic', 53), ('aromatic - basic', 40), ('aromatic - acidic', 32), ('aromatic - amide', 32), ('amide - basic', 31), ('acidic - amide', 29), ('basic - basic', 28), ('acidic - acidic', 27), ('amide - amide', 16), ('aromatic - aromatic', 15)]

==> Insecta.txt <==

[('nucleophilic - nucleophilic', 174), ('nucleophilic - hydrophobic', 170), ('nucleophilic - acidic', 137), ('hydrophobic - acidic', 128), ('hydrophobic - basic', 115), ('nucleophilic - amide', 96), ('nucleophilic - basic', 93), ('acidic - basic', 89), ('hydrophobic - hydrophobic', 85), ('hydrophobic - amide', 74), ('acidic - amide', 61), ('nucleophilic - aromatic', 60), ('hydrophobic - aromatic', 59), ('aromatic - acidic', 51), ('aromatic - basic', 44), ('basic - basic', 39), ('amide - basic', 37), ('amide - amide', 36), ('acidic - acidic', 35), ('aromatic - amide', 28), ('aromatic - aromatic', 13)]

==> Kineosporiaceae.txt <==

[('nucleophilic - hydrophobic', 76), ('nucleophilic - nucleophilic', 47), ('hydrophobic - acidic', 37), ('hydrophobic - hydrophobic', 34), ('nucleophilic - acidic', 29), ('nucleophilic - amide', 23), ('nucleophilic - basic', 19), ('hydrophobic - basic', 12), ('acidic - basic', 12), ('hydrophobic - amide', 11), ('hydrophobic - aromatic', 10), ('acidic - acidic', 10), ('acidic - amide', 10), ('nucleophilic - aromatic', 9), ('aromatic - acidic', 6), ('aromatic - aromatic', 4), ('amide - basic', 4), ('aromatic - amide', 4), ('amide - amide', 4), ('aromatic - basic', 3)]

==> Kineosporiales.txt <==

[('nucleophilic - hydrophobic', 76), ('nucleophilic - nucleophilic', 47), ('hydrophobic - acidic', 37), ('hydrophobic - hydrophobic', 34), ('nucleophilic - acidic', 29), ('nucleophilic - amide', 23), ('nucleophilic - basic', 19), ('hydrophobic - basic', 12), ('acidic - basic', 12), ('hydrophobic - amide', 11), ('hydrophobic - aromatic', 10), ('acidic - acidic', 10), ('acidic - amide', 10), ('nucleophilic - aromatic', 9), ('aromatic - acidic', 6), ('aromatic - aromatic', 4), ('amide - basic', 4), ('aromatic - amide', 4), ('amide - amide', 4), ('aromatic - basic', 3)]

==> Lactacaseibacillus.txt <==

[('nucleophilic - acidic', 158), ('nucleophilic - basic', 90), ('nucleophilic - hydrophobic', 73), ('acidic - basic', 66), ('nucleophilic - amide', 57), ('nucleophilic - nucleophilic', 49), ('hydrophobic - basic', 37), ('hydrophobic - amide', 34), ('hydrophobic - acidic', 29), ('basic - basic', 20), ('hydrophobic - hydrophobic', 19), ('acidic - amide', 18), ('nucleophilic - aromatic', 16), ('acidic - acidic', 16), ('amide - basic', 15), ('aromatic - basic', 10), ('hydrophobic - aromatic', 8), ('amide - amide', 6), ('aromatic - amide', 6), ('aromatic - acidic', 4)]

==> Lactobacillaceae.txt <==

[('nucleophilic - acidic', 214), ('nucleophilic - basic', 107), ('acidic - basic', 95), ('nucleophilic - hydrophobic', 93), ('nucleophilic - nucleophilic', 90), ('nucleophilic - amide', 70), ('hydrophobic - acidic', 47), ('hydrophobic - basic', 44), ('basic - basic', 34), ('hydrophobic - amide', 29), ('acidic - acidic', 23), ('amide - basic', 21), ('nucleophilic - aromatic', 20), ('hydrophobic - hydrophobic', 18), ('acidic - amide', 14), ('aromatic - basic', 13), ('aromatic - amide', 10), ('amide - amide', 8), ('hydrophobic - aromatic', 8), ('aromatic - acidic', 5), ('aromatic - aromatic', 3)]



==> Lactobacillales.txt <==

[('nucleophilic - acidic', 113), ('nucleophilic - basic', 80), ('nucleophilic - hydrophobic', 74), ('acidic - basic', 57), ('nucleophilic - nucleophilic', 48), ('nucleophilic - amide', 46), ('hydrophobic - hydrophobic', 40), ('hydrophobic - amide', 37), ('hydrophobic - basic', 31), ('hydrophobic - acidic', 26), ('acidic - acidic', 21), ('basic - basic', 17), ('acidic - amide', 16), ('amide - basic', 16), ('hydrophobic - aromatic', 9), ('amide - amide', 8), ('nucleophilic - aromatic', 7), ('aromatic - acidic', 6), ('aromatic - amide', 5), ('aromatic - basic', 4)]

==> Laurasiatheria.txt <==

[('nucleophilic - hydrophobic', 313), ('nucleophilic - nucleophilic', 237), ('hydrophobic - hydrophobic', 184), ('nucleophilic - basic', 176), ('hydrophobic - acidic', 174), ('hydrophobic - basic', 171), ('nucleophilic - acidic', 167), ('nucleophilic - amide', 154), ('nucleophilic - aromatic', 130), ('hydrophobic - amide', 110), ('hydrophobic - aromatic', 108), ('acidic - basic', 92), ('acidic - amide', 80), ('aromatic - acidic', 66), ('acidic - acidic', 62), ('amide - basic', 58), ('aromatic - basic', 54), ('basic - basic', 49), ('aromatic - amide', 38), ('amide - amide', 22), ('aromatic - aromatic', 21)]

==> Leifsonia.txt <==

[('nucleophilic - hydrophobic', 69), ('hydrophobic - hydrophobic', 54), ('nucleophilic - acidic', 45), ('nucleophilic - nucleophilic', 41), ('hydrophobic - basic', 40), ('nucleophilic - aromatic', 39), ('hydrophobic - acidic', 38), ('nucleophilic - basic', 31), ('aromatic - acidic', 27), ('hydrophobic - aromatic', 23), ('acidic - basic', 21), ('hydrophobic - amide', 21), ('acidic - amide', 18), ('nucleophilic - amide', 18), ('aromatic - aromatic', 16), ('aromatic - basic', 14), ('acidic - acidic', 13), ('amide - basic', 8), ('basic - basic', 7), ('aromatic - amide', 7), ('amide - amide', 4)]

==> Lepidosauria.txt <==

[('nucleophilic - nucleophilic', 175), ('nucleophilic - hydrophobic', 169), ('nucleophilic - acidic', 120), ('nucleophilic - amide', 110), ('hydrophobic - acidic', 101), ('hydrophobic - basic', 101), ('nucleophilic - basic', 99), ('hydrophobic - hydrophobic', 97), ('nucleophilic - aromatic', 94), ('hydrophobic - aromatic', 70), ('acidic - basic', 69), ('hydrophobic - amide', 60), ('aromatic - acidic', 48), ('aromatic - basic', 45), ('basic - basic', 40), ('amide - basic', 38), ('acidic - acidic', 37), ('acidic - amide', 32), ('aromatic - amide', 23), ('aromatic - aromatic', 15), ('amide - amide', 13)]

==> Lophotrochozoa.txt <==

[('nucleophilic - aromatic', 167), ('nucleophilic - nucleophilic', 112), ('hydrophobic - aromatic', 110), ('nucleophilic - hydrophobic', 100), ('aromatic - aromatic', 66), ('nucleophilic - basic', 63), ('hydrophobic - hydrophobic', 51), ('aromatic - basic', 51), ('hydrophobic - basic', 48), ('nucleophilic - amide', 35), ('hydrophobic - amide', 27), ('nucleophilic - acidic', 27), ('aromatic - amide', 26), ('hydrophobic - acidic', 25), ('acidic - basic', 25), ('aromatic - acidic', 20), ('amide - basic', 19), ('basic - basic', 17), ('amide - amide', 13), ('acidic - acidic', 13), ('acidic - amide', 11)]

==> Mammalia.txt <==

[('nucleophilic - hydrophobic', 325), ('nucleophilic - nucleophilic', 324), ('hydrophobic - hydrophobic', 202), ('hydrophobic - basic', 187), ('nucleophilic - basic', 187), ('nucleophilic - acidic', 176), ('nucleophilic - amide', 175), ('hydrophobic - acidic', 164), ('hydrophobic - amide', 152), ('nucleophilic - aromatic', 125), ('hydrophobic - aromatic', 101), ('acidic - basic', 86), ('amide - basic', 70), ('acidic - acidic', 63), ('acidic - amide', 62), ('aromatic - basic', 56), ('basic - basic', 55), ('aromatic - acidic', 54), ('aromatic - amide', 51), ('amide - amide', 34), ('aromatic - aromatic', 26)]

==> Metazoa.txt <==

[('nucleophilic - hydrophobic', 809), ('nucleophilic - nucleophilic', 603), ('nucleophilic - basic', 535), ('hydrophobic - basic', 528), ('nucleophilic - acidic', 514), ('hydrophobic - acidic', 482), ('hydrophobic - hydrophobic', 451), ('nucleophilic - amide', 381), ('hydrophobic - amide', 338), ('nucleophilic - aromatic', 323), ('hydrophobic - aromatic', 318), ('acidic - basic', 302), ('amide - basic', 228), ('basic - basic', 209), ('acidic - amide', 186), ('aromatic - basic', 181), ('acidic - acidic', 169), ('aromatic - acidic', 154), ('aromatic - amide', 110), ('amide - amide', 81), ('aromatic - aromatic', 47)]

==> Microbacteriaceae.txt <==

[('nucleophilic - hydrophobic', 92), ('hydrophobic - acidic', 85), ('hydrophobic - hydrophobic', 66), ('nucleophilic - acidic', 66), ('hydrophobic - basic', 51), ('hydrophobic - aromatic', 41), ('nucleophilic - nucleophilic', 40), ('nucleophilic - basic', 36), ('nucleophilic - aromatic', 33), ('aromatic - acidic', 27), ('hydrophobic - amide', 24), ('nucleophilic - amide', 24), ('acidic - basic', 23), ('acidic - amide', 17), ('acidic - acidic', 17), ('aromatic - amide', 13), ('amide - basic', 12), ('aromatic - basic', 12), ('basic - basic', 10), ('aromatic - aromatic', 9), ('amide - amide', 8)]

==> Microbacterium.txt <==

[('nucleophilic - hydrophobic', 99), ('hydrophobic - acidic', 98), ('hydrophobic - hydrophobic', 82), ('nucleophilic - acidic', 64), ('hydrophobic - basic', 63), ('hydrophobic - aromatic', 61), ('aromatic - acidic', 45), ('nucleophilic - aromatic', 40), ('acidic - basic', 35), ('hydrophobic - amide', 35), ('nucleophilic - basic', 33), ('aromatic - basic', 33), ('aromatic - amide', 31), ('nucleophilic - nucleophilic', 24), ('nucleophilic - amide', 24), ('acidic - acidic', 23), ('acidic - amide', 20), ('basic - basic', 18), ('aromatic - aromatic', 17), ('amide - basic', 12), ('amide - amide', 7)]

==> Microchiroptera.txt <==

[('nucleophilic - hydrophobic', 212), ('nucleophilic - nucleophilic', 209), ('nucleophilic - acidic', 163), ('hydrophobic - acidic', 129), ('nucleophilic - basic', 119), ('hydrophobic - hydrophobic', 107), ('nucleophilic - aromatic', 99), ('nucleophilic - amide', 99), ('hydrophobic - basic', 89), ('hydrophobic - amide', 70), ('hydrophobic - aromatic', 56), ('aromatic - acidic', 44), ('acidic - basic', 42), ('acidic - amide', 42), ('aromatic - basic', 37), ('acidic - acidic', 34), ('amide - basic', 29), ('basic - basic', 23), ('aromatic - amide', 20), ('amide - amide', 13), ('aromatic - aromatic', 12)]

==> Micrococcales.txt <==

[('nucleophilic - hydrophobic', 131), ('hydrophobic - acidic', 122), ('hydrophobic - hydrophobic', 70), ('hydrophobic - basic', 59), ('nucleophilic - acidic', 56), ('nucleophilic - nucleophilic', 52), ('hydrophobic - aromatic', 50), ('nucleophilic - aromatic', 48), ('nucleophilic - basic', 47), ('acidic - basic', 38), ('hydrophobic - amide', 35), ('aromatic - acidic', 31), ('acidic - acidic', 30), ('nucleophilic - amide', 30), ('basic - basic', 23), ('aromatic - basic', 19), ('acidic - amide', 19), ('aromatic - amide', 17), ('amide - basic', 11), ('aromatic - aromatic', 10), ('amide - amide', 7)]

==> Mobiluncus.txt <==

[('nucleophilic - hydrophobic', 215), ('hydrophobic - acidic', 134), ('hydrophobic - basic', 113), ('nucleophilic - acidic', 100), ('hydrophobic - hydrophobic', 96), ('nucleophilic - basic', 90), ('nucleophilic - nucleophilic', 89), ('nucleophilic - aromatic', 69), ('hydrophobic - amide', 66), ('nucleophilic - amide', 64), ('acidic - basic', 60), ('amide - basic', 55), ('hydrophobic - aromatic', 52), ('acidic - amide', 37), ('aromatic - basic', 34), ('basic - basic', 33), ('aromatic - amide', 30), ('aromatic - acidic', 29), ('acidic - acidic', 21), ('amide - amide', 13), ('aromatic - aromatic', 13)]

==> Mollusca.txt <==

[('nucleophilic - aromatic', 192), ('nucleophilic - hydrophobic', 179), ('hydrophobic - aromatic', 173), ('hydrophobic - basic', 58), ('hydrophobic - hydrophobic', 51), ('nucleophilic - nucleophilic', 47), ('basic - basic', 43), ('nucleophilic - basic', 43), ('aromatic - basic', 41), ('aromatic - aromatic', 32), ('nucleophilic - amide', 22), ('hydrophobic - acidic', 21), ('nucleophilic - acidic', 20), ('aromatic - amide', 18), ('hydrophobic - amide', 11), ('aromatic - acidic', 10), ('acidic - basic', 8), ('amide - basic', 6), ('acidic - amide', 5), ('acidic - acidic', 4), ('amide - amide', 4)]

==> Multicrustacea.txt <==

[('nucleophilic - hydrophobic', 68), ('nucleophilic - basic', 55), ('nucleophilic - nucleophilic', 55), ('nucleophilic - aromatic', 48), ('hydrophobic - basic', 41), ('hydrophobic - hydrophobic', 39), ('hydrophobic - aromatic', 28), ('nucleophilic - acidic', 28), ('hydrophobic - acidic', 27), ('acidic - basic', 23), ('aromatic - acidic', 22), ('basic - basic', 22), ('aromatic - basic', 20), ('nucleophilic - amide', 19), ('aromatic - aromatic', 16), ('acidic - amide', 16), ('hydrophobic - amide', 13), ('acidic - acidic', 12), ('aromatic - amide', 11),

('amide - basic', 3), ('amide - amide', 2)]

==> Muridae.txt <==

[('nucleophilic - hydrophobic', 266), ('nucleophilic - nucleophilic', 186), ('hydrophobic - basic', 170), ('hydrophobic - acidic', 154), ('hydrophobic - hydrophobic', 150), ('acidic - basic', 149), ('nucleophilic - basic', 143), ('nucleophilic - acidic', 127), ('hydrophobic - amide', 127), ('nucleophilic - amide', 108), ('nucleophilic - aromatic', 96), ('hydrophobic - aromatic', 92), ('amide - basic', 77), ('acidic - amide', 67), ('aromatic - acidic', 51), ('aromatic - basic', 49), ('acidic - acidic', 32), ('aromatic - amide', 29), ('basic - basic', 28), ('amide - amide', 26), ('aromatic - aromatic', 19)]

==> Murinae.txt <==

[('nucleophilic - hydrophobic', 296), ('nucleophilic - nucleophilic', 201), ('hydrophobic - hydrophobic', 168), ('acidic - basic', 161), ('hydrophobic - acidic', 153), ('hydrophobic - basic', 142), ('nucleophilic - acidic', 136), ('nucleophilic - amide', 129), ('hydrophobic - amide', 122), ('nucleophilic - basic', 121), ('hydrophobic - aromatic', 114), ('nucleophilic - aromatic', 93), ('amide - basic', 66), ('acidic - amide', 60), ('aromatic - acidic', 50), ('aromatic - basic', 42), ('aromatic - amide', 41), ('acidic - acidic', 37), ('amide - amide', 24), ('basic - basic', 19), ('aromatic - aromatic', 16)]

==> Muroidea.txt <==

[('nucleophilic - hydrophobic', 260), ('nucleophilic - nucleophilic', 192), ('hydrophobic - hydrophobic', 177), ('nucleophilic - acidic', 175), ('hydrophobic - acidic', 156), ('nucleophilic - basic', 134), ('hydrophobic - basic', 126), ('nucleophilic - aromatic', 120), ('nucleophilic - amide', 114), ('hydrophobic - amide', 105), ('hydrophobic - aromatic', 102), ('acidic - basic', 75), ('aromatic - acidic', 58), ('aromatic - basic', 53), ('amide - basic', 48), ('acidic - acidic', 42), ('acidic - amide', 40), ('aromatic - amide', 37), ('basic - basic', 30), ('aromatic - aromatic', 23), ('amide - amide', 21)]

==> Mus.txt <==

[('nucleophilic - hydrophobic', 315), ('nucleophilic - nucleophilic', 209), ('hydrophobic - acidic', 172), ('hydrophobic - basic', 169), ('nucleophilic - acidic', 152), ('hydrophobic - hydrophobic', 150), ('hydrophobic - amide', 135), ('nucleophilic - basic', 125), ('hydrophobic - aromatic', 124), ('nucleophilic - amide', 120), ('nucleophilic - aromatic', 101), ('acidic - basic', 75), ('aromatic - basic', 74), ('aromatic - acidic', 62), ('acidic - acidic', 60), ('amide - basic', 57), ('acidic - amide', 49), ('aromatic - amide', 37), ('basic - basic', 31), ('amide - amide', 20), ('aromatic - aromatic', 20)]

==> Myomorpha.txt <==

[('nucleophilic - hydrophobic', 356), ('nucleophilic - nucleophilic', 273), ('hydrophobic - hydrophobic', 191), ('nucleophilic - acidic', 182), ('nucleophilic - basic', 179), ('acidic - basic', 170), ('hydrophobic - basic', 164), ('hydrophobic - acidic', 154), ('hydrophobic - amide', 131), ('nucleophilic - amide', 127), ('nucleophilic - aromatic', 122), ('hydrophobic - aromatic', 104), ('amide - basic', 82), ('acidic - amide', 64), ('aromatic - basic', 50), ('aromatic - acidic', 46), ('aromatic - amide', 42), ('acidic - acidic', 37), ('basic - basic', 34), ('amide - amide', 20), ('aromatic - aromatic', 18)]

==> Mytilidae.txt <==

[('nucleophilic - aromatic', 274), ('basic - basic', 245), ('aromatic - basic', 213), ('nucleophilic - basic', 189), ('hydrophobic - basic', 186), ('hydrophobic - hydrophobic', 51), ('hydrophobic - amide', 48), ('amide - basic', 45), ('nucleophilic - amide', 42), ('nucleophilic - nucleophilic', 41), ('nucleophilic - hydrophobic', 32), ('aromatic - aromatic', 31), ('hydrophobic - acidic', 21), ('hydrophobic - aromatic', 20), ('nucleophilic - acidic', 19), ('acidic - amide', 15), ('aromatic - amide', 14), ('acidic - basic', 11), ('aromatic - acidic', 10), ('acidic - acidic', 9), ('amide - amide', 4)]

==> Mytilinae.txt <==

[('nucleophilic - aromatic', 274), ('basic - basic', 245), ('aromatic - basic', 213), ('nucleophilic - basic', 189), ('hydrophobic - basic', 186), ('hydrophobic - hydrophobic', 51), ('hydrophobic - amide', 48), ('amide - basic', 45), ('nucleophilic - amide', 42), ('nucleophilic - nucleophilic', 41), ('nucleophilic - hydrophobic', 32), ('aromatic - aromatic', 31), ('hydrophobic - acidic', 21), ('hydrophobic - aromatic', 20), ('nucleophilic -

acidic', 19), ('acidic - amide', 15), ('aromatic - amide', 14), ('acidic - basic', 11), ('aromatic - acidic', 10), ('acidic - acidic', 9), ('amide - amide', 4)]

==> Mytiloidea.txt <==

[('nucleophilic - aromatic', 274), ('basic - basic', 245), ('aromatic - basic', 213), ('nucleophilic - basic', 189), ('hydrophobic - basic', 186), ('hydrophobic - hydrophobic', 51), ('hydrophobic - amide', 48), ('amide - basic', 45), ('nucleophilic - amide', 42), ('nucleophilic - nucleophilic', 41), ('nucleophilic - hydrophobic', 32), ('aromatic - aromatic', 31), ('hydrophobic - acidic', 21), ('hydrophobic - aromatic', 20), ('nucleophilic - acidic', 19), ('acidic - amide', 15), ('aromatic - amide', 14), ('acidic - basic', 11), ('aromatic - acidic', 10), ('acidic - acidic', 9), ('amide - amide', 4)]

==> Mytiloidea.txt <==

[('nucleophilic - aromatic', 274), ('basic - basic', 245), ('aromatic - basic', 213), ('nucleophilic - basic', 189), ('hydrophobic - basic', 186), ('hydrophobic - hydrophobic', 51), ('hydrophobic - amide', 48), ('amide - basic', 45), ('nucleophilic - amide', 42), ('nucleophilic - nucleophilic', 41), ('nucleophilic - hydrophobic', 32), ('aromatic - aromatic', 31), ('hydrophobic - acidic', 21), ('hydrophobic - aromatic', 20), ('nucleophilic - acidic', 19), ('acidic - amide', 15), ('aromatic - amide', 14), ('acidic - basic', 11), ('aromatic - acidic', 10), ('acidic - acidic', 9), ('amide - amide', 4)]

==> Mytilus.txt <==

[('basic - basic', 245), ('nucleophilic - aromatic', 203), ('hydrophobic - basic', 202), ('aromatic - basic', 145), ('nucleophilic - basic', 127), ('hydrophobic - amide', 61), ('hydrophobic - hydrophobic', 55), ('amide - basic', 47), ('nucleophilic - amide', 46), ('nucleophilic - hydrophobic', 43), ('nucleophilic - nucleophilic', 37), ('aromatic - aromatic', 32), ('nucleophilic - acidic', 29), ('hydrophobic - aromatic', 22), ('hydrophobic - acidic', 20), ('acidic - amide', 19), ('acidic - basic', 18), ('aromatic - amide', 17), ('aromatic - acidic', 16), ('acidic - acidic', 13), ('amide - amide', 6)]

==> Myxococcaceae.txt <==

[('nucleophilic - hydrophobic', 123), ('hydrophobic - hydrophobic', 65), ('nucleophilic - acidic', 63), ('nucleophilic - nucleophilic', 56), ('acidic - acidic', 48), ('hydrophobic - acidic', 44), ('hydrophobic - basic', 40), ('nucleophilic - aromatic', 38), ('hydrophobic - amide', 37), ('nucleophilic - basic', 33), ('nucleophilic - amide', 33), ('acidic - amide', 29), ('hydrophobic - aromatic', 29), ('acidic - basic', 26), ('aromatic - acidic', 23), ('aromatic - basic', 18), ('amide - basic', 15), ('basic - basic', 11), ('amide - amide', 9), ('aromatic - amide', 8), ('aromatic - aromatic', 5)]

==> Myxococcales.txt <==

[('acidic - acidic', 89), ('nucleophilic - acidic', 77), ('nucleophilic - hydrophobic', 72), ('hydrophobic - acidic', 62), ('nucleophilic - nucleophilic', 48), ('hydrophobic - hydrophobic', 39), ('hydrophobic - basic', 38), ('acidic - amide', 32), ('hydrophobic - aromatic', 30), ('nucleophilic - aromatic', 26), ('nucleophilic - amide', 26), ('hydrophobic - amide', 23), ('nucleophilic - basic', 21), ('acidic - basic', 17), ('aromatic - basic', 15), ('aromatic - acidic', 15), ('amide - basic', 11), ('basic - basic', 10), ('amide - amide', 8), ('aromatic - aromatic', 6), ('aromatic - amide', 4)]

==> Neognathae.txt <==

[('nucleophilic - hydrophobic', 369), ('nucleophilic - acidic', 280), ('nucleophilic - nucleophilic', 254), ('hydrophobic - hydrophobic', 241), ('hydrophobic - acidic', 241), ('hydrophobic - basic', 224), ('nucleophilic - basic', 219), ('nucleophilic - aromatic', 155), ('nucleophilic - amide', 151), ('hydrophobic - amide', 150), ('hydrophobic - aromatic', 145), ('acidic - basic', 128), ('acidic - acidic', 99), ('aromatic - basic', 91), ('acidic - amide', 90), ('aromatic - acidic', 85), ('amide - basic', 82), ('aromatic - amide', 71), ('basic - basic', 61), ('amide - amide', 33), ('aromatic - aromatic', 32)]

==> Neoptera.txt <==

[('nucleophilic - nucleophilic', 174), ('nucleophilic - hydrophobic', 170), ('nucleophilic - acidic', 137), ('hydrophobic - acidic', 128), ('hydrophobic - basic', 115), ('nucleophilic - amide', 96), ('nucleophilic - basic', 93), ('acidic - basic', 89), ('hydrophobic - hydrophobic', 85), ('hydrophobic - amide', 74), ('acidic -

amide', 61), ('nucleophilic - aromatic', 60), ('hydrophobic - aromatic', 59), ('aromatic - acidic', 51), ('aromatic - basic', 44), ('basic - basic', 39), ('amide - basic', 37), ('amide - amide', 36), ('acidic - acidic', 35), ('aromatic - amide', 28), ('aromatic - aromatic', 13)]

==> Neopterygii.txt <==

[('nucleophilic - basic', 199), ('nucleophilic - hydrophobic', 197), ('nucleophilic - nucleophilic', 197), ('hydrophobic - basic', 163), ('nucleophilic - acidic', 161), ('acidic - basic', 138), ('hydrophobic - acidic', 129), ('nucleophilic - amide', 109), ('hydrophobic - hydrophobic', 102), ('hydrophobic - amide', 101), ('nucleophilic - aromatic', 98), ('basic - basic', 86), ('acidic - acidic', 84), ('hydrophobic - aromatic', 78), ('amide - basic', 65), ('aromatic - basic', 57), ('acidic - amide', 48), ('aromatic - acidic', 42), ('amide - amide', 36), ('aromatic - amide', 33), ('aromatic - aromatic', 15)]

==> Neoteleostei.txt <==

[('nucleophilic - nucleophilic', 288), ('nucleophilic - hydrophobic', 286), ('nucleophilic - acidic', 252), ('nucleophilic - basic', 244), ('hydrophobic - basic', 229), ('acidic - basic', 194), ('nucleophilic - aromatic', 188), ('hydrophobic - acidic', 183), ('hydrophobic - hydrophobic', 163), ('hydrophobic - aromatic', 147), ('acidic - acidic', 143), ('nucleophilic - amide', 140), ('hydrophobic - amide', 139), ('basic - basic', 125), ('aromatic - basic', 95), ('amide - basic', 80), ('aromatic - acidic', 74), ('acidic - amide', 73), ('aromatic - amide', 64), ('amide - amide', 39), ('aromatic - aromatic', 29)]

==> Nitriliruptoria.txt <==

[('hydrophobic - acidic', 162), ('nucleophilic - hydrophobic', 160), ('nucleophilic - acidic', 143), ('hydrophobic - hydrophobic', 88), ('nucleophilic - nucleophilic', 74), ('acidic - acidic', 67), ('aromatic - acidic', 57), ('acidic - basic', 53), ('hydrophobic - basic', 50), ('nucleophilic - basic', 45), ('acidic - amide', 45), ('hydrophobic - aromatic', 44), ('nucleophilic - aromatic', 43), ('nucleophilic - amide', 38), ('hydrophobic - amide', 33), ('aromatic - basic', 16), ('aromatic - amide', 16), ('amide - basic', 10), ('basic - basic', 9), ('aromatic - aromatic', 8), ('amide - amide', 4)]

==> Oceanospirillales.txt <==

[('nucleophilic - hydrophobic', 365), ('nucleophilic - acidic', 330), ('hydrophobic - acidic', 311), ('acidic - acidic', 238), ('hydrophobic - hydrophobic', 200), ('nucleophilic - nucleophilic', 168), ('hydrophobic - amide', 163), ('hydrophobic - aromatic', 149), ('aromatic - acidic', 146), ('nucleophilic - aromatic', 144), ('acidic - amide', 140), ('nucleophilic - amide', 140), ('hydrophobic - basic', 100), ('nucleophilic - basic', 77), ('acidic - basic', 63), ('aromatic - amide', 59), ('aromatic - basic', 48), ('aromatic - aromatic', 43), ('amide - basic', 38), ('amide - amide', 38), ('basic - basic', 13)]

==> Odontoceti.txt <==

[('nucleophilic - hydrophobic', 295), ('nucleophilic - nucleophilic', 278), ('nucleophilic - acidic', 202), ('hydrophobic - acidic', 184), ('nucleophilic - basic', 127), ('hydrophobic - hydrophobic', 125), ('nucleophilic - amide', 111), ('nucleophilic - aromatic', 109), ('hydrophobic - basic', 89), ('hydrophobic - amide', 69), ('acidic - basic', 68), ('hydrophobic - aromatic', 57), ('acidic - acidic', 55), ('aromatic - acidic', 55), ('aromatic - basic', 40), ('amide - basic', 39), ('basic - basic', 37), ('acidic - amide', 36), ('aromatic - amide', 27), ('amide - amide', 18), ('aromatic - aromatic', 15)]

==> Oncorhynchus.txt <==

[('nucleophilic - hydrophobic', 167), ('nucleophilic - nucleophilic', 149), ('nucleophilic - aromatic', 88), ('nucleophilic - basic', 78), ('nucleophilic - amide', 77), ('nucleophilic - acidic', 76), ('hydrophobic - basic', 72), ('hydrophobic - hydrophobic', 67), ('hydrophobic - aromatic', 60), ('hydrophobic - acidic', 51), ('hydrophobic - amide', 43), ('aromatic - basic', 33), ('amide - basic', 31), ('aromatic - acidic', 30), ('acidic - basic', 28), ('aromatic - amide', 20), ('aromatic - aromatic', 18), ('basic - basic', 18), ('acidic - amide', 17), ('acidic - acidic', 12), ('amide - amide', 5)]

==> Ornithinimicrobiaceae.txt <==

[('nucleophilic - hydrophobic', 181), ('hydrophobic - hydrophobic', 172), ('hydrophobic - acidic', 160), ('hydrophobic - basic', 94), ('hydrophobic - aromatic', 81), ('nucleophilic - acidic', 80), ('nucleophilic -

aromatic', 63), ('aromatic - acidic', 56), ('nucleophilic - nucleophilic', 55), ('acidic - acidic', 53), ('hydrophobic - amide', 50), ('nucleophilic - basic', 42), ('acidic - basic', 42), ('acidic - amide', 34), ('nucleophilic - amide', 34), ('aromatic - basic', 31), ('aromatic - amide', 21), ('basic - basic', 20), ('amide - basic', 15), ('aromatic - aromatic', 11), ('amide - amide', 8)]

==> Ornithinimicrobium.txt <==

[('nucleophilic - hydrophobic', 135), ('hydrophobic - hydrophobic', 116), ('hydrophobic - acidic', 107), ('nucleophilic - acidic', 64), ('hydrophobic - basic', 59), ('nucleophilic - aromatic', 58), ('hydrophobic - aromatic', 55), ('hydrophobic - amide', 48), ('aromatic - acidic', 42), ('acidic - acidic', 38), ('nucleophilic - nucleophilic', 35), ('acidic - amide', 26), ('nucleophilic - basic', 25), ('acidic - basic', 25), ('nucleophilic - amide', 24), ('aromatic - basic', 22), ('aromatic - amide', 15), ('basic - basic', 14), ('amide - basic', 11), ('aromatic - aromatic', 11), ('amide - amide', 8)]

==> Ostariophysa.txt <==

[('nucleophilic - hydrophobic', 129), ('hydrophobic - basic', 109), ('nucleophilic - nucleophilic', 108), ('acidic - basic', 97), ('nucleophilic - basic', 95), ('basic - basic', 83), ('nucleophilic - acidic', 76), ('hydrophobic - aromatic', 71), ('nucleophilic - aromatic', 61), ('hydrophobic - acidic', 55), ('hydrophobic - hydrophobic', 50), ('nucleophilic - amide', 45), ('hydrophobic - amide', 34), ('aromatic - basic', 29), ('aromatic - acidic', 23), ('amide - basic', 22), ('acidic - amide', 21), ('acidic - acidic', 17), ('aromatic - aromatic', 13), ('aromatic - amide', 12), ('amide - amide', 9)]

==> Ovalentaria.txt <==

[('nucleophilic - nucleophilic', 190), ('nucleophilic - hydrophobic', 181), ('nucleophilic - acidic', 144), ('nucleophilic - basic', 128), ('acidic - basic', 114), ('nucleophilic - aromatic', 111), ('hydrophobic - acidic', 103), ('hydrophobic - basic', 98), ('nucleophilic - amide', 92), ('hydrophobic - hydrophobic', 79), ('hydrophobic - amide', 79), ('hydrophobic - aromatic', 74), ('basic - basic', 71), ('aromatic - acidic', 57), ('acidic - acidic', 55), ('aromatic - basic', 54), ('acidic - amide', 48), ('amide - basic', 45), ('aromatic - amide', 32), ('amide - amide', 22), ('aromatic - aromatic', 14)]

==> Passeriformes.txt <==

[('nucleophilic - hydrophobic', 319), ('nucleophilic - nucleophilic', 265), ('nucleophilic - acidic', 243), ('nucleophilic - basic', 168), ('hydrophobic - acidic', 163), ('hydrophobic - hydrophobic', 163), ('hydrophobic - basic', 137), ('nucleophilic - amide', 129), ('nucleophilic - aromatic', 118), ('acidic - basic', 105), ('hydrophobic - amide', 95), ('hydrophobic - aromatic', 89), ('acidic - acidic', 70), ('acidic - amide', 65), ('aromatic - acidic', 62), ('basic - basic', 53), ('amide - basic', 43), ('aromatic - basic', 39), ('aromatic - amide', 30), ('amide - amide', 25), ('aromatic - aromatic', 17)]

==> Pecora.txt <==

[('nucleophilic - hydrophobic', 199), ('nucleophilic - nucleophilic', 190), ('nucleophilic - basic', 132), ('hydrophobic - hydrophobic', 115), ('nucleophilic - acidic', 115), ('hydrophobic - acidic', 112), ('hydrophobic - basic', 100), ('nucleophilic - amide', 99), ('nucleophilic - aromatic', 93), ('hydrophobic - amide', 81), ('hydrophobic - aromatic', 57), ('acidic - basic', 55), ('acidic - amide', 40), ('aromatic - basic', 40), ('aromatic - acidic', 39), ('amide - basic', 35), ('basic - basic', 32), ('acidic - acidic', 32), ('amide - amide', 11), ('aromatic - amide', 11), ('aromatic - aromatic', 9)]

==> Peptococcaceae.txt <==

[('nucleophilic - hydrophobic', 274), ('hydrophobic - hydrophobic', 135), ('hydrophobic - amide', 132), ('nucleophilic - nucleophilic', 132), ('hydrophobic - acidic', 117), ('nucleophilic - acidic', 112), ('nucleophilic - amide', 107), ('nucleophilic - aromatic', 104), ('hydrophobic - aromatic', 98), ('hydrophobic - basic', 78), ('nucleophilic - basic', 65), ('acidic - amide', 50), ('aromatic - acidic', 41), ('aromatic - amide', 40), ('aromatic - basic', 35), ('acidic - basic', 31), ('amide - amide', 26), ('amide - basic', 25), ('acidic - acidic', 25), ('basic - basic', 21), ('aromatic - aromatic', 12)]

==> Peptoniphilaceae.txt <==

[('hydrophobic - basic', 326), ('hydrophobic - acidic', 305), ('acidic - basic', 238), ('nucleophilic -

hydrophobic', 227), ('hydrophobic - hydrophobic', 213), ('hydrophobic - amide', 196), ('hydrophobic - aromatic', 191), ('aromatic - acidic', 160), ('aromatic - basic', 150), ('nucleophilic - basic', 141), ('nucleophilic - acidic', 133), ('acidic - amide', 126), ('amide - basic', 116), ('nucleophilic - aromatic', 102), ('acidic - acidic', 91), ('basic - basic', 90), ('aromatic - amide', 89), ('nucleophilic - amide', 81), ('nucleophilic - nucleophilic', 63), ('aromatic - aromatic', 55), ('amide - amide', 34)]

==> Peptostreptococcaceae.txt <==

[('nucleophilic - hydrophobic', 122), ('hydrophobic - basic', 118), ('hydrophobic - acidic', 104), ('hydrophobic - hydrophobic', 81), ('hydrophobic - aromatic', 63), ('hydrophobic - amide', 62), ('nucleophilic - basic', 57), ('acidic - basic', 54), ('acidic - amide', 54), ('nucleophilic - acidic', 52), ('aromatic - basic', 48), ('amide - basic', 43), ('aromatic - acidic', 43), ('basic - basic', 41), ('nucleophilic - aromatic', 39), ('nucleophilic - nucleophilic', 36), ('nucleophilic - amide', 34), ('aromatic - amide', 31), ('acidic - acidic', 23), ('amide - amide', 16), ('aromatic - aromatic', 9)]

==> Peptostreptococcus.txt <==

[('hydrophobic - basic', 154), ('nucleophilic - hydrophobic', 139), ('hydrophobic - acidic', 132), ('acidic - basic', 119), ('hydrophobic - aromatic', 99), ('hydrophobic - amide', 92), ('nucleophilic - acidic', 87), ('aromatic - basic', 83), ('nucleophilic - basic', 80), ('amide - basic', 80), ('aromatic - acidic', 77), ('hydrophobic - hydrophobic', 75), ('nucleophilic - aromatic', 74), ('acidic - amide', 69), ('basic - basic', 49), ('nucleophilic - amide', 48), ('aromatic - amide', 47), ('acidic - acidic', 36), ('nucleophilic - nucleophilic', 35), ('aromatic - aromatic', 22), ('amide - amide', 17)]

==> Perciformes.txt <==

[('nucleophilic - hydrophobic', 107), ('nucleophilic - nucleophilic', 106), ('acidic - basic', 99), ('nucleophilic - acidic', 86), ('nucleophilic - basic', 82), ('nucleophilic - amide', 79), ('acidic - acidic', 73), ('hydrophobic - basic', 64), ('nucleophilic - aromatic', 62), ('hydrophobic - amide', 62), ('hydrophobic - acidic', 60), ('amide - basic', 52), ('hydrophobic - aromatic', 52), ('hydrophobic - hydrophobic', 48), ('aromatic - amide', 46), ('basic - basic', 44), ('amide - amide', 42), ('aromatic - acidic', 37), ('acidic - amide', 33), ('aromatic - basic', 31), ('aromatic - aromatic', 10)]

==> Piroplasmida.txt <==

[('nucleophilic - hydrophobic', 176), ('hydrophobic - aromatic', 127), ('hydrophobic - hydrophobic', 123), ('hydrophobic - basic', 119), ('hydrophobic - acidic', 119), ('nucleophilic - acidic', 112), ('hydrophobic - amide', 94), ('acidic - acidic', 88), ('aromatic - acidic', 87), ('nucleophilic - basic', 85), ('acidic - basic', 83), ('nucleophilic - nucleophilic', 76), ('acidic - amide', 74), ('nucleophilic - aromatic', 72), ('aromatic - basic', 69), ('nucleophilic - amide', 65), ('amide - basic', 50), ('basic - basic', 41), ('aromatic - amide', 35), ('aromatic - aromatic', 35), ('amide - amide', 12)]

==> Planococcaceae.txt <==

[('nucleophilic - hydrophobic', 104), ('hydrophobic - acidic', 81), ('hydrophobic - hydrophobic', 74), ('hydrophobic - basic', 65), ('hydrophobic - amide', 45), ('nucleophilic - basic', 44), ('nucleophilic - aromatic', 44), ('hydrophobic - aromatic', 43), ('nucleophilic - acidic', 39), ('aromatic - acidic', 35), ('nucleophilic - nucleophilic', 31), ('acidic - amide', 29), ('nucleophilic - amide', 25), ('acidic - basic', 22), ('aromatic - basic', 22), ('amide - basic', 15), ('acidic - acidic', 15), ('aromatic - amide', 12), ('basic - basic', 10), ('aromatic - aromatic', 10), ('amide - amide', 8)]

==> Plasmodiidae.txt <==

[('acidic - basic', 123), ('nucleophilic - amide', 121), ('nucleophilic - hydrophobic', 119), ('amide - amide', 111), ('hydrophobic - basic', 97), ('hydrophobic - aromatic', 97), ('hydrophobic - hydrophobic', 97), ('hydrophobic - acidic', 93), ('hydrophobic - amide', 85), ('nucleophilic - aromatic', 84), ('nucleophilic - basic', 82), ('nucleophilic - acidic', 78), ('acidic - acidic', 73), ('nucleophilic - nucleophilic', 72), ('basic - basic', 70), ('acidic - amide', 67), ('aromatic - basic', 60), ('amide - basic', 56), ('aromatic - acidic', 53), ('aromatic - amide', 48), ('aromatic - aromatic', 30)]

==> Plasmodium (Laverania).txt <==

[('acidic - basic', 289), ('hydrophobic - acidic', 221), ('hydrophobic - basic', 212), ('hydrophobic - amide', 166), ('basic - basic', 161), ('nucleophilic - basic', 155), ('nucleophilic - hydrophobic', 149), ('acidic - amide', 144), ('acidic - acidic', 142), ('amide - basic', 137), ('hydrophobic - aromatic', 131), ('hydrophobic - hydrophobic', 129), ('nucleophilic - acidic', 114), ('nucleophilic - amide', 109), ('nucleophilic - aromatic', 97), ('aromatic - basic', 91), ('aromatic - acidic', 88), ('amide - amide', 81), ('aromatic - amide', 72), ('nucleophilic - nucleophilic', 66), ('aromatic - aromatic', 19)]

==> Plasmodium (Plasmodium).txt <==

[('nucleophilic - hydrophobic', 192), ('hydrophobic - basic', 172), ('hydrophobic - acidic', 153), ('hydrophobic - hydrophobic', 141), ('hydrophobic - aromatic', 136), ('acidic - basic', 134), ('hydrophobic - amide', 112), ('nucleophilic - basic', 111), ('basic - basic', 103), ('nucleophilic - acidic', 96), ('nucleophilic - aromatic', 86), ('amide - basic', 83), ('acidic - amide', 79), ('acidic - acidic', 76), ('nucleophilic - nucleophilic', 68), ('aromatic - basic', 65), ('nucleophilic - amide', 61), ('aromatic - acidic', 58), ('aromatic - amide', 45), ('aromatic - aromatic', 31), ('amide - amide', 26)]

==> Plasmodium.txt <==

[('nucleophilic - hydrophobic', 149), ('acidic - basic', 128), ('hydrophobic - acidic', 113), ('hydrophobic - aromatic', 113), ('hydrophobic - basic', 110), ('hydrophobic - amide', 102), ('nucleophilic - aromatic', 90), ('hydrophobic - hydrophobic', 89), ('nucleophilic - basic', 87), ('nucleophilic - acidic', 80), ('acidic - amide', 80), ('amide - amide', 78), ('nucleophilic - amide', 74), ('nucleophilic - nucleophilic', 72), ('basic - basic', 67), ('amide - basic', 65), ('aromatic - basic', 54), ('acidic - acidic', 51), ('aromatic - acidic', 51), ('aromatic - amide', 49), ('aromatic - aromatic', 28)]

==> Primates.txt <==

[('nucleophilic - hydrophobic', 378), ('hydrophobic - acidic', 235), ('hydrophobic - basic', 231), ('nucleophilic - acidic', 227), ('hydrophobic - hydrophobic', 217), ('nucleophilic - nucleophilic', 213), ('nucleophilic - basic', 205), ('nucleophilic - amide', 183), ('hydrophobic - amide', 166), ('nucleophilic - aromatic', 139), ('hydrophobic - aromatic', 127), ('acidic - basic', 109), ('amide - basic', 93), ('aromatic - basic', 81), ('acidic - amide', 80), ('acidic - acidic', 77), ('aromatic - acidic', 73), ('basic - basic', 55), ('aromatic - amide', 42), ('amide - amide', 38), ('aromatic - aromatic', 23)]

==> Propionibacteriaceae.txt <==

[('nucleophilic - hydrophobic', 142), ('hydrophobic - acidic', 113), ('hydrophobic - hydrophobic', 83), ('hydrophobic - basic', 83), ('nucleophilic - acidic', 81), ('hydrophobic - amide', 74), ('nucleophilic - amide', 54), ('nucleophilic - basic', 50), ('nucleophilic - nucleophilic', 49), ('aromatic - acidic', 47), ('acidic - amide', 47), ('acidic - basic', 45), ('nucleophilic - aromatic', 43), ('hydrophobic - aromatic', 39), ('acidic - acidic', 37), ('aromatic - amide', 30), ('aromatic - basic', 29), ('amide - basic', 23), ('basic - basic', 15), ('aromatic - aromatic', 15), ('amide - amide', 12)]

==> Propionibacteriales.txt <==

[('nucleophilic - hydrophobic', 128), ('hydrophobic - basic', 84), ('nucleophilic - acidic', 75), ('hydrophobic - acidic', 68), ('hydrophobic - hydrophobic', 66), ('nucleophilic - basic', 60), ('nucleophilic - nucleophilic', 51), ('hydrophobic - amide', 48), ('nucleophilic - amide', 44), ('acidic - basic', 43), ('nucleophilic - aromatic', 41), ('hydrophobic - aromatic', 35), ('acidic - acidic', 28), ('aromatic - acidic', 25), ('aromatic - amide', 22), ('aromatic - basic', 22), ('acidic - amide', 21), ('amide - basic', 13), ('basic - basic', 12), ('aromatic - aromatic', 10), ('amide - amide', 7)]

==> Protacanthopterygii.txt <==

[('nucleophilic - hydrophobic', 160), ('nucleophilic - nucleophilic', 150), ('hydrophobic - hydrophobic', 102), ('nucleophilic - aromatic', 94), ('nucleophilic - acidic', 82), ('nucleophilic - basic', 77), ('acidic - basic', 75), ('hydrophobic - acidic', 72), ('hydrophobic - aromatic', 69), ('nucleophilic - amide', 60), ('hydrophobic - basic', 57), ('hydrophobic - amide', 55), ('acidic - acidic', 33), ('aromatic - basic', 30), ('aromatic - acidic', 30), ('acidic - amide', 29), ('amide - basic', 25), ('basic - basic', 23), ('aromatic - amide', 23), ('aromatic - aromatic', 19), ('amide - amide', 8)]



==> Proteobacteria.txt <==

[('nucleophilic - hydrophobic', 651), ('hydrophobic - acidic', 341), ('nucleophilic - acidic', 277), ('hydrophobic - hydrophobic', 271), ('hydrophobic - amide', 252), ('nucleophilic - nucleophilic', 222), ('nucleophilic - amide', 158), ('hydrophobic - aromatic', 149), ('nucleophilic - aromatic', 132), ('acidic - acidic', 131), ('hydrophobic - basic', 118), ('acidic - amide', 110), ('aromatic - acidic', 95), ('nucleophilic - basic', 69), ('aromatic - amide', 66), ('acidic - basic', 63), ('amide - amide', 52), ('amide - basic', 40), ('aromatic - basic', 36), ('aromatic - aromatic', 24), ('basic - basic', 16)]

==> Pseudomonadaceae.txt <==

[('nucleophilic - hydrophobic', 1151), ('hydrophobic - acidic', 452), ('hydrophobic - amide', 334), ('nucleophilic - acidic', 321), ('hydrophobic - hydrophobic', 312), ('nucleophilic - nucleophilic', 277), ('nucleophilic - amide', 239), ('acidic - amide', 164), ('hydrophobic - basic', 134), ('hydrophobic - aromatic', 130), ('acidic - acidic', 115), ('nucleophilic - aromatic', 107), ('aromatic - acidic', 99), ('acidic - basic', 82), ('aromatic - amide', 76), ('nucleophilic - basic', 60), ('amide - amide', 49), ('amide - basic', 48), ('aromatic - basic', 28), ('aromatic - aromatic', 12), ('basic - basic', 11)]

==> Pseudomonadales.txt <==

[('nucleophilic - hydrophobic', 1156), ('hydrophobic - acidic', 501), ('hydrophobic - amide', 380), ('hydrophobic - hydrophobic', 374), ('nucleophilic - acidic', 358), ('nucleophilic - nucleophilic', 297), ('nucleophilic - amide', 264), ('acidic - amide', 164), ('acidic - acidic', 159), ('hydrophobic - aromatic', 151), ('nucleophilic - aromatic', 125), ('hydrophobic - basic', 122), ('aromatic - acidic', 114), ('acidic - basic', 89), ('aromatic - amide', 89), ('nucleophilic - basic', 63), ('amide - amide', 58), ('aromatic - basic', 45), ('amide - basic', 37), ('aromatic - aromatic', 14), ('basic - basic', 11)]

==> Pseudomonas.txt <==

[('nucleophilic - hydrophobic', 1151), ('hydrophobic - acidic', 452), ('hydrophobic - amide', 334), ('nucleophilic - acidic', 321), ('hydrophobic - hydrophobic', 312), ('nucleophilic - nucleophilic', 277), ('nucleophilic - amide', 239), ('acidic - amide', 164), ('hydrophobic - basic', 134), ('hydrophobic - aromatic', 130), ('acidic - acidic', 115), ('nucleophilic - aromatic', 107), ('aromatic - acidic', 99), ('acidic - basic', 82), ('aromatic - amide', 76), ('nucleophilic - basic', 60), ('amide - amide', 49), ('amide - basic', 48), ('aromatic - basic', 28), ('aromatic - aromatic', 12), ('basic - basic', 11)]

==> Pteriomorphia.txt <==

[('nucleophilic - aromatic', 259), ('hydrophobic - aromatic', 234), ('nucleophilic - hydrophobic', 232), ('hydrophobic - hydrophobic', 115), ('nucleophilic - nucleophilic', 114), ('nucleophilic - basic', 69), ('aromatic - basic', 64), ('hydrophobic - basic', 39), ('aromatic - aromatic', 35), ('nucleophilic - amide', 23), ('hydrophobic - acidic', 22), ('nucleophilic - acidic', 18), ('basic - basic', 14), ('aromatic - amide', 13), ('aromatic - acidic', 12), ('amide - basic', 12), ('hydrophobic - amide', 12), ('acidic - amide', 6), ('acidic - acidic', 4), ('amide - amide', 3), ('acidic - basic', 2)]

==> Pterygota.txt <==

[('nucleophilic - nucleophilic', 174), ('nucleophilic - hydrophobic', 170), ('nucleophilic - acidic', 137), ('hydrophobic - acidic', 128), ('hydrophobic - basic', 115), ('nucleophilic - amide', 96), ('nucleophilic - basic', 93), ('acidic - basic', 89), ('hydrophobic - hydrophobic', 85), ('hydrophobic - amide', 74), ('acidic - amide', 61), ('nucleophilic - aromatic', 60), ('hydrophobic - aromatic', 59), ('aromatic - acidic', 51), ('aromatic - basic', 44), ('basic - basic', 39), ('amide - basic', 37), ('amide - amide', 36), ('acidic - acidic', 35), ('aromatic - amide', 28), ('aromatic - aromatic', 13)]

==> Rathayibacter.txt <==

[('nucleophilic - hydrophobic', 71), ('nucleophilic - nucleophilic', 38), ('hydrophobic - basic', 32), ('hydrophobic - acidic', 28), ('hydrophobic - aromatic', 27), ('hydrophobic - hydrophobic', 25), ('nucleophilic - acidic', 23), ('hydrophobic - amide', 21), ('nucleophilic - basic', 20), ('nucleophilic - aromatic', 20), ('aromatic - acidic', 20), ('nucleophilic - amide', 16), ('aromatic - basic', 15), ('acidic - amide', 11), ('acidic - basic', 10), ('aromatic - amide', 8), ('amide - basic', 6), ('acidic - acidic', 6), ('aromatic - aromatic', 6), ('basic - basic', 4), ('amide - amide', 3)]

==> Rodentia.txt <==

[('nucleophilic - hydrophobic', 369), ('nucleophilic - nucleophilic', 298), ('hydrophobic - basic', 164), ('nucleophilic - basic', 163), ('hydrophobic - hydrophobic', 161), ('nucleophilic - acidic', 158), ('nucleophilic - amide', 137), ('hydrophobic - acidic', 127), ('hydrophobic - amide', 126), ('nucleophilic - aromatic', 113), ('hydrophobic - aromatic', 106), ('acidic - basic', 65), ('amide - basic', 53), ('aromatic - basic', 49), ('acidic - amide', 44), ('aromatic - acidic', 38), ('acidic - acidic', 38), ('basic - basic', 35), ('aromatic - amide', 30), ('amide - amide', 28), ('aromatic - aromatic', 19)]

==> Ruminantia.txt <==

[('nucleophilic - hydrophobic', 199), ('nucleophilic - nucleophilic', 190), ('nucleophilic - basic', 132), ('hydrophobic - hydrophobic', 115), ('nucleophilic - acidic', 115), ('hydrophobic - acidic', 112), ('hydrophobic - basic', 100), ('nucleophilic - amide', 99), ('nucleophilic - aromatic', 93), ('hydrophobic - amide', 81), ('hydrophobic - aromatic', 57), ('acidic - basic', 55), ('acidic - amide', 40), ('aromatic - basic', 40), ('aromatic - acidic', 39), ('amide - basic', 35), ('basic - basic', 32), ('acidic - acidic', 32), ('amide - amide', 11), ('aromatic - amide', 11), ('aromatic - aromatic', 9)]

==> Salmonidae.txt <==

[('nucleophilic - hydrophobic', 165), ('nucleophilic - nucleophilic', 164), ('hydrophobic - hydrophobic', 89), ('nucleophilic - aromatic', 86), ('nucleophilic - acidic', 84), ('nucleophilic - basic', 79), ('hydrophobic - aromatic', 73), ('hydrophobic - basic', 65), ('hydrophobic - acidic', 63), ('nucleophilic - amide', 63), ('acidic - basic', 38), ('aromatic - basic', 37), ('aromatic - acidic', 36), ('hydrophobic - amide', 35), ('amide - basic', 21), ('acidic - amide', 21), ('acidic - acidic', 18), ('aromatic - amide', 14), ('aromatic - aromatic', 14), ('basic - basic', 9), ('amide - amide', 7)]

==> Salmoniformes.txt <==

[('nucleophilic - hydrophobic', 165), ('nucleophilic - nucleophilic', 164), ('hydrophobic - hydrophobic', 89), ('nucleophilic - aromatic', 86), ('nucleophilic - acidic', 84), ('nucleophilic - basic', 79), ('hydrophobic - aromatic', 73), ('hydrophobic - basic', 65), ('hydrophobic - acidic', 63), ('nucleophilic - amide', 63), ('acidic - basic', 38), ('aromatic - basic', 37), ('aromatic - acidic', 36), ('hydrophobic - amide', 35), ('amide - basic', 21), ('acidic - amide', 21), ('acidic - acidic', 18), ('aromatic - amide', 14), ('aromatic - aromatic', 14), ('basic - basic', 9), ('amide - amide', 7)]

==> Salmoninae.txt <==

[('nucleophilic - hydrophobic', 165), ('nucleophilic - nucleophilic', 164), ('hydrophobic - hydrophobic', 89), ('nucleophilic - aromatic', 86), ('nucleophilic - acidic', 84), ('nucleophilic - basic', 79), ('hydrophobic - aromatic', 73), ('hydrophobic - basic', 65), ('hydrophobic - acidic', 63), ('nucleophilic - amide', 63), ('acidic - basic', 38), ('aromatic - basic', 37), ('aromatic - acidic', 36), ('hydrophobic - amide', 35), ('amide - basic', 21), ('acidic - amide', 21), ('acidic - acidic', 18), ('aromatic - amide', 14), ('aromatic - aromatic', 14), ('basic - basic', 9), ('amide - amide', 7)]

==> Sar.txt <==

[('nucleophilic - hydrophobic', 207), ('hydrophobic - basic', 177), ('hydrophobic - acidic', 162), ('acidic - basic', 160), ('hydrophobic - aromatic', 151), ('hydrophobic - hydrophobic', 143), ('nucleophilic - acidic', 136), ('nucleophilic - nucleophilic', 132), ('hydrophobic - amide', 125), ('nucleophilic - aromatic', 122), ('nucleophilic - basic', 120), ('acidic - amide', 103), ('acidic - acidic', 99), ('aromatic - acidic', 87), ('basic - basic', 85), ('nucleophilic - amide', 81), ('aromatic - basic', 76), ('amide - basic', 73), ('aromatic - amide', 60), ('amide - amide', 45), ('aromatic - aromatic', 38)]

==> Sarcocystidae.txt <==

[('nucleophilic - hydrophobic', 259), ('hydrophobic - basic', 181), ('nucleophilic - acidic', 163), ('hydrophobic - acidic', 163), ('hydrophobic - hydrophobic', 161), ('nucleophilic - basic', 141), ('nucleophilic - nucleophilic', 130), ('hydrophobic - aromatic', 116), ('nucleophilic - aromatic', 104), ('nucleophilic - amide', 99), ('acidic - basic', 98), ('hydrophobic - amide', 93), ('acidic - acidic', 69), ('acidic - amide', 61), ('aromatic - basic', 59), ('basic - basic', 56), ('aromatic - acidic', 53), ('amide - basic', 51), ('aromatic -

aromatic', 36), ('aromatic - amide', 34), ('amide - amide', 15)]

==> Saurischia.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - acidic', 229), ('nucleophilic - nucleophilic', 227), ('nucleophilic - basic', 205), ('hydrophobic - hydrophobic', 201), ('hydrophobic - basic', 184), ('hydrophobic - acidic', 180), ('nucleophilic - aromatic', 129), ('nucleophilic - amide', 127), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 113), ('acidic - basic', 97), ('acidic - acidic', 85), ('aromatic - acidic', 73), ('amide - basic', 70), ('acidic - amide', 69), ('basic - basic', 56), ('aromatic - basic', 50), ('aromatic - amide', 45), ('amide - amide', 27), ('aromatic - aromatic', 27)]

==> Spermatophyta.txt <==

[('aromatic - basic', 120), ('nucleophilic - aromatic', 100), ('nucleophilic - hydrophobic', 98), ('hydrophobic - basic', 93), ('nucleophilic - basic', 88), ('aromatic - aromatic', 75), ('hydrophobic - acidic', 65), ('nucleophilic - acidic', 58), ('hydrophobic - hydrophobic', 55), ('nucleophilic - nucleophilic', 55), ('hydrophobic - aromatic', 52), ('acidic - basic', 49), ('basic - basic', 49), ('aromatic - acidic', 48), ('hydrophobic - amide', 43), ('aromatic - amide', 40), ('acidic - amide', 36), ('nucleophilic - amide', 29), ('acidic - acidic', 26), ('amide - basic', 24), ('amide - amide', 16)]

==> Spiralia.txt <==

[('nucleophilic - aromatic', 167), ('nucleophilic - nucleophilic', 112), ('hydrophobic - aromatic', 110), ('nucleophilic - hydrophobic', 100), ('aromatic - aromatic', 66), ('nucleophilic - basic', 63), ('hydrophobic - hydrophobic', 51), ('aromatic - basic', 51), ('hydrophobic - basic', 48), ('nucleophilic - amide', 35), ('hydrophobic - amide', 27), ('nucleophilic - acidic', 27), ('aromatic - amide', 26), ('hydrophobic - acidic', 25), ('acidic - basic', 25), ('aromatic - acidic', 20), ('amide - basic', 19), ('basic - basic', 17), ('amide - amide', 13), ('acidic - acidic', 13), ('acidic - amide', 11)]

==> Squamata.txt <==

[('nucleophilic - nucleophilic', 175), ('nucleophilic - hydrophobic', 169), ('nucleophilic - acidic', 120), ('nucleophilic - amide', 110), ('hydrophobic - acidic', 101), ('hydrophobic - basic', 101), ('nucleophilic - basic', 99), ('hydrophobic - hydrophobic', 97), ('nucleophilic - aromatic', 94), ('hydrophobic - aromatic', 70), ('acidic - basic', 69), ('hydrophobic - amide', 60), ('aromatic - acidic', 48), ('aromatic - basic', 45), ('basic - basic', 40), ('amide - basic', 38), ('acidic - acidic', 37), ('acidic - amide', 32), ('aromatic - amide', 23), ('aromatic - aromatic', 15), ('amide - amide', 13)]

==> Streptomycetaceae.txt <==

[('nucleophilic - hydrophobic', 55), ('nucleophilic - acidic', 42), ('nucleophilic - nucleophilic', 42), ('hydrophobic - hydrophobic', 40), ('hydrophobic - aromatic', 39), ('hydrophobic - basic', 37), ('hydrophobic - acidic', 35), ('nucleophilic - aromatic', 32), ('nucleophilic - basic', 31), ('aromatic - acidic', 18), ('hydrophobic - amide', 17), ('acidic - basic', 14), ('nucleophilic - amide', 12), ('acidic - amide', 11), ('aromatic - aromatic', 11), ('aromatic - basic', 11), ('aromatic - amide', 10), ('basic - basic', 9), ('acidic - acidic', 8), ('amide - basic', 7)]

==> Streptomycetales.txt <==

[('nucleophilic - hydrophobic', 57), ('nucleophilic - nucleophilic', 54), ('nucleophilic - acidic', 37), ('hydrophobic - hydrophobic', 36), ('nucleophilic - aromatic', 35), ('hydrophobic - aromatic', 34), ('hydrophobic - basic', 33), ('hydrophobic - acidic', 32), ('nucleophilic - basic', 26), ('hydrophobic - amide', 21), ('nucleophilic - amide', 17), ('aromatic - acidic', 14), ('aromatic - basic', 14), ('amide - basic', 11), ('acidic - amide', 11), ('aromatic - aromatic', 9), ('acidic - basic', 8), ('basic - basic', 6), ('aromatic - amide', 5), ('acidic - acidic', 3), ('amide - amide', 2)]

==> Streptophyta.txt <==

[('aromatic - basic', 122), ('nucleophilic - basic', 101), ('nucleophilic - aromatic', 97), ('aromatic - aromatic', 90), ('nucleophilic - hydrophobic', 89), ('hydrophobic - basic', 88), ('nucleophilic - nucleophilic', 81), ('hydrophobic - aromatic', 57), ('hydrophobic - hydrophobic', 51), ('nucleophilic - acidic', 51), ('hydrophobic - acidic', 51), ('basic - basic', 43), ('acidic - basic', 33), ('aromatic - acidic', 32), ('acidic - amide', 25),

('amide - basic', 24), ('hydrophobic - amide', 22), ('nucleophilic - amide', 18), ('acidic - acidic', 14), ('amide - amide', 11), ('aromatic - amide', 11)]

==> Teleostei.txt <==

[('nucleophilic - hydrophobic', 230), ('nucleophilic - nucleophilic', 182), ('nucleophilic - basic', 177), ('hydrophobic - basic', 157), ('nucleophilic - acidic', 134), ('nucleophilic - aromatic', 99), ('hydrophobic - acidic', 97), ('hydrophobic - hydrophobic', 82), ('acidic - basic', 79), ('hydrophobic - amide', 77), ('basic - basic', 77), ('nucleophilic - amide', 76), ('hydrophobic - aromatic', 73), ('amide - basic', 50), ('acidic - amide', 47), ('acidic - acidic', 44), ('aromatic - basic', 41), ('aromatic - acidic', 33), ('aromatic - amide', 30), ('amide - amide', 21), ('aromatic - aromatic', 19)]

==> Theropoda.txt <==

[('nucleophilic - hydrophobic', 305), ('nucleophilic - acidic', 229), ('nucleophilic - nucleophilic', 227), ('nucleophilic - basic', 205), ('hydrophobic - hydrophobic', 201), ('hydrophobic - basic', 184), ('hydrophobic - acidic', 180), ('nucleophilic - aromatic', 129), ('nucleophilic - amide', 127), ('hydrophobic - amide', 125), ('hydrophobic - aromatic', 113), ('acidic - basic', 97), ('acidic - acidic', 85), ('aromatic - acidic', 73), ('amide - basic', 70), ('acidic - amide', 69), ('basic - basic', 56), ('aromatic - basic', 50), ('aromatic - amide', 45), ('amide - amide', 27), ('aromatic - aromatic', 27)]

==> Tissierellales.txt <==

[('hydrophobic - basic', 301), ('hydrophobic - acidic', 264), ('nucleophilic - hydrophobic', 217), ('acidic - basic', 197), ('hydrophobic - aromatic', 187), ('hydrophobic - hydrophobic', 177), ('hydrophobic - amide', 172), ('aromatic - acidic', 145), ('nucleophilic - acidic', 142), ('nucleophilic - basic', 140), ('aromatic - basic', 130), ('acidic - amide', 110), ('amide - basic', 107), ('nucleophilic - aromatic', 106), ('basic - basic', 83), ('nucleophilic - amide', 83), ('acidic - acidic', 74), ('aromatic - amide', 72), ('nucleophilic - nucleophilic', 64), ('aromatic - aromatic', 49), ('amide - amide', 36)]

==> Tissierellia.txt <==

[('hydrophobic - acidic', 316), ('hydrophobic - basic', 308), ('nucleophilic - hydrophobic', 233), ('acidic - basic', 224), ('hydrophobic - hydrophobic', 212), ('hydrophobic - amide', 202), ('hydrophobic - aromatic', 188), ('aromatic - basic', 156), ('aromatic - acidic', 155), ('nucleophilic - acidic', 131), ('nucleophilic - basic', 126), ('nucleophilic - aromatic', 123), ('acidic - amide', 116), ('amide - basic', 111), ('basic - basic', 90), ('nucleophilic - amide', 87), ('acidic - acidic', 81), ('aromatic - amide', 80), ('aromatic - aromatic', 65), ('nucleophilic - nucleophilic', 53), ('amide - amide', 42)]

==> Tracheophyta.txt <==

[('aromatic - basic', 122), ('nucleophilic - basic', 101), ('nucleophilic - aromatic', 97), ('aromatic - aromatic', 90), ('nucleophilic - hydrophobic', 89), ('hydrophobic - basic', 88), ('nucleophilic - nucleophilic', 81), ('hydrophobic - aromatic', 57), ('hydrophobic - hydrophobic', 51), ('nucleophilic - acidic', 51), ('hydrophobic - acidic', 51), ('basic - basic', 43), ('acidic - basic', 33), ('aromatic - acidic', 32), ('acidic - amide', 25), ('amide - basic', 24), ('hydrophobic - amide', 22), ('nucleophilic - amide', 18), ('acidic - acidic', 14), ('amide - amide', 11), ('aromatic - amide', 11)]

==> Unidentata.txt <==

[('nucleophilic - nucleophilic', 153), ('nucleophilic - hydrophobic', 140), ('nucleophilic - acidic', 134), ('nucleophilic - amide', 104), ('hydrophobic - hydrophobic', 103), ('hydrophobic - basic', 83), ('hydrophobic - acidic', 80), ('nucleophilic - basic', 78), ('nucleophilic - aromatic', 72), ('hydrophobic - aromatic', 59), ('hydrophobic - amide', 56), ('aromatic - acidic', 49), ('acidic - basic', 48), ('acidic - acidic', 43), ('aromatic - basic', 35), ('acidic - amide', 29), ('aromatic - amide', 29), ('amide - basic', 28), ('basic - basic', 20), ('aromatic - aromatic', 17), ('amide - amide', 10)]

==> Vertebrata.txt <==

[('nucleophilic - hydrophobic', 341), ('nucleophilic - nucleophilic', 230), ('hydrophobic - basic', 206), ('nucleophilic - acidic', 206), ('nucleophilic - basic', 198), ('hydrophobic - acidic', 194), ('hydrophobic - hydrophobic', 190), ('nucleophilic - amide', 150), ('nucleophilic - aromatic', 145), ('hydrophobic - aromatic',

141), ('hydrophobic - amide', 132), ('acidic - basic', 128), ('amide - basic', 84), ('acidic - acidic', 74), ('basic - basic', 70), ('aromatic - acidic', 68), ('acidic - amide', 68), ('aromatic - basic', 64), ('aromatic - amide', 50), ('amide - amide', 24), ('aromatic - aromatic', 22)]

==> Vespertilionidae.txt <==

[('nucleophilic - hydrophobic', 236), ('nucleophilic - nucleophilic', 203), ('nucleophilic - acidic', 171), ('hydrophobic - acidic', 129), ('hydrophobic - hydrophobic', 120), ('nucleophilic - aromatic', 105), ('nucleophilic - basic', 101), ('nucleophilic - amide', 99), ('hydrophobic - basic', 86), ('hydrophobic - amide', 61), ('hydrophobic - aromatic', 58), ('acidic - basic', 47), ('aromatic - acidic', 42), ('aromatic - basic', 41), ('acidic - acidic', 41), ('acidic - amide', 33), ('amide - basic', 29), ('basic - basic', 25), ('aromatic - amide', 22), ('amide - amide', 13), ('aromatic - aromatic', 11)]

==> Vibrio.txt <==

[('hydrophobic - acidic', 134), ('nucleophilic - hydrophobic', 127), ('nucleophilic - acidic', 101), ('acidic - acidic', 94), ('hydrophobic - aromatic', 80), ('aromatic - acidic', 72), ('hydrophobic - hydrophobic', 70), ('nucleophilic - nucleophilic', 69), ('hydrophobic - amide', 66), ('hydrophobic - basic', 64), ('nucleophilic - aromatic', 64), ('acidic - amide', 59), ('acidic - basic', 52), ('aromatic - amide', 50), ('nucleophilic - amide', 48), ('nucleophilic - basic', 44), ('aromatic - basic', 36), ('aromatic - aromatic', 27), ('amide - amide', 21), ('amide - basic', 15), ('basic - basic', 7)]

==> Vibrionaceae.txt <==

[('nucleophilic - hydrophobic', 161), ('hydrophobic - acidic', 153), ('nucleophilic - acidic', 134), ('acidic - acidic', 104), ('nucleophilic - aromatic', 94), ('aromatic - acidic', 93), ('hydrophobic - amide', 91), ('hydrophobic - aromatic', 85), ('hydrophobic - hydrophobic', 84), ('acidic - amide', 77), ('hydrophobic - basic', 73), ('nucleophilic - nucleophilic', 67), ('nucleophilic - amide', 66), ('acidic - basic', 55), ('aromatic - basic', 49), ('nucleophilic - basic', 43), ('aromatic - amide', 39), ('aromatic - aromatic', 26), ('amide - basic', 20), ('amide - amide', 16), ('basic - basic', 6)]

==> Vibrionales.txt <==

[('nucleophilic - hydrophobic', 161), ('hydrophobic - acidic', 153), ('nucleophilic - acidic', 134), ('acidic - acidic', 104), ('nucleophilic - aromatic', 94), ('aromatic - acidic', 93), ('hydrophobic - amide', 91), ('hydrophobic - aromatic', 85), ('hydrophobic - hydrophobic', 84), ('acidic - amide', 77), ('hydrophobic - basic', 73), ('nucleophilic - nucleophilic', 67), ('nucleophilic - amide', 66), ('acidic - basic', 55), ('aromatic - basic', 49), ('nucleophilic - basic', 43), ('aromatic - amide', 39), ('aromatic - aromatic', 26), ('amide - basic', 20), ('amide - amide', 16), ('basic - basic', 6)]

==> Viridiplantae.txt <==

[('aromatic - basic', 124), ('aromatic - aromatic', 97), ('nucleophilic - basic', 92), ('nucleophilic - aromatic', 92), ('nucleophilic - hydrophobic', 85), ('hydrophobic - basic', 84), ('nucleophilic - nucleophilic', 75), ('hydrophobic - aromatic', 59), ('nucleophilic - acidic', 53), ('basic - basic', 51), ('hydrophobic - hydrophobic', 47), ('hydrophobic - acidic', 47), ('acidic - basic', 34), ('aromatic - acidic', 33), ('acidic - amide', 29), ('aromatic - amide', 27), ('amide - basic', 26), ('hydrophobic - amide', 26), ('nucleophilic - amide', 22), ('acidic - acidic', 12), ('amide - amide', 11)]

==> Whippomorpha.txt <==

[('nucleophilic - nucleophilic', 270), ('nucleophilic - hydrophobic', 268), ('nucleophilic - acidic', 203), ('nucleophilic - basic', 142), ('hydrophobic - acidic', 142), ('hydrophobic - hydrophobic', 119), ('nucleophilic - amide', 109), ('nucleophilic - aromatic', 107), ('hydrophobic - basic', 101), ('acidic - basic', 70), ('hydrophobic - amide', 69), ('hydrophobic - aromatic', 58), ('aromatic - acidic', 49), ('acidic - acidic', 45), ('acidic - amide', 42), ('aromatic - basic', 41), ('amide - basic', 40), ('aromatic - amide', 38), ('basic - basic', 36), ('amide - amide', 21), ('aromatic - aromatic', 11)]

==> unclassified Euzebya.txt <==

[('hydrophobic - acidic', 186), ('nucleophilic - hydrophobic', 177), ('nucleophilic - acidic', 147), ('hydrophobic - hydrophobic', 109), ('nucleophilic - nucleophilic', 105), ('hydrophobic - basic', 68),

('nucleophilic - aromatic', 68), ('nucleophilic - basic', 67), ('hydrophobic - aromatic', 53), ('hydrophobic - amide', 53), ('aromatic - acidic', 50), ('acidic - basic', 48), ('nucleophilic - amide', 47), ('acidic - acidic', 47), ('acidic - amide', 34), ('aromatic - basic', 17), ('amide - basic', 16), ('basic - basic', 13), ('aromatic - amide', 12), ('amide - amide', 10), ('aromatic - aromatic', 3)]