

**Results for Breast Cancer
BioConsert Project – February 2011**

GS=Gold Standard, BI=Bioggle, IE= In Edge, PR = Page Rank and PC = Path Count

1. Using reduced data sets

a. Rankings given as input

GS_c:=[[1, 2, 3, 4, 5, 6], [10, 11, 15, 16, 19, 20, 21, 22, 23, 24, 26, 27, 28, 30, 31, 32, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 59, 61, 62, 63, 64, 67, 68, 73, 74, 76, 77, 78, 80, 81, 85, 87, 93, 94, 97, 99, 100, 102, 104, 105, 106, 107, 108, 109, 110, 112, 113, 114, 127, 128, 129, 135, 136, 137, 138, 140, 144, 149, 152, 157, 158, 159, 161, 162, 163, 164, 166, 167, 168, 169, 171, 174, 176, 181, 182, 183, 184, 187, 207, 208, 210, 213, 215, 217, 218, 220, 221, 224, 227, 231, 233, 241, 242, 244, 245, 246, 248, 250, 251, 254, 256, 259, 260, 261, 267, 268, 269, 271, 273, 274, 276, 280, 283, 285, 287, 288, 289, 294, 297, 301, 303, 307, 311, 312, 314, 316, 321, 322, 324, 329, 330, 333, 339, 344, 350, 352, 356, 357, 358, 359, 360, 362, 363, 364, 367, 369, 370, 375, 376, 377, 380, 381, 383, 386, 387, 388, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 410, 411, 412, 413, 416, 417, 418, 419, 426, 431, 432, 435, 436, 437, 439, 445, 447, 450, 455, 456, 457, 458, 461, 467, 473, 481, 483, 484, 485, 491, 494, 496, 497, 503, 505, 507, 509, 512, 513, 514, 515, 517, 522, 523, 524, 529, 534, 536, 547, 549, 550, 551, 554, 555, 561, 564, 565, 566, 567, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 595, 605, 607, 608, 619, 629, 631, 634, 648, 652, 654, 655, 661, 663, 664, 668, 670, 671, 672, 673, 676, 679, 682, 684, 685, 686, 687, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 709, 710, 711, 712, 713, 714, 719, 721, 722, 723, 725, 726, 735, 739, 744, 747, 748, 750, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 778, 780, 781, 782, 783, 784, 785, 788, 789, 791, 793, 794, 795, 796, 799, 808, 809, 817, 819, 820, 822, 823, 832, 834, 835, 838, 839, 842, 846, 847, 852, 856, 857, 859, 864, 865, 866, 868, 872, 873, 874, 879, 881, 892, 902, 904, 905, 907, 909, 911, 912, 913, 914, 915, 916, 918, 919]]

BI_c:=[[2], [1], [6], [20], [5, 682], [3, 36], [28], [112, 565], [668], [76], [94, 711], [22], [457], [655], [455], [664], [747], [663, 671], [456], [661], [529], [654], [450, 748], [564, 673], [672], [21], [670], [712], [4, 791], [522], [722], [785], [287, 687], [267, 505], [514, 817], [595, 874], [129], [187], [233], [550], [45, 127, 271, 714, 842, 915], [913], [99, 333], [536], [268], [15, 435], [162, 330], [38, 171, 721], [303], [159, 631, 634], [648], [16], [114, 739], [10, 11, 19, 24, 31, 35, 37, 41, 43, 46, 49, 50, 51, 52, 53, 54, 55, 61, 63, 64, 77, 80, 81, 97, 102, 108, 113, 128, 135, 137, 138, 157, 174, 220, 231, 244, 250, 254, 260, 261, 269, 280, 297, 301, 307, 322, 363, 367, 369, 376, 383, 387, 390, 392, 394, 396, 398, 400, 401, 403, 412, 436, 437, 503, 507, 509, 523, 524, 572, 588, 591, 593, 605, 676, 679, 685, 689, 703, 707, 710, 719, 726, 744, 759, 760, 762, 764, 765, 788, 808, 809, 822, 838, 865, 866, 907, 912, 919], [259], [210], [551], [274], [381], [388], [39, 152, 410], [276, 555, 686], [380, 447], [358], [218, 256, 360], [23, 163, 213, 567], [27, 30, 32, 42, 44, 47, 59, 62, 67, 68, 78, 87, 93, 104, 105, 106, 107, 109, 110, 136, 140, 144, 149, 158, 161, 164, 166, 167, 168, 169, 176, 181, 182, 184, 207, 208, 217, 221, 224, 227, 241, 242, 245, 246, 248, 251, 273, 283, 285, 288, 289, 294, 311, 312, 314, 321, 324, 329, 350, 352, 356, 359, 362, 364, 370, 375, 377, 386, 393, 399, 408, 411, 413, 417, 418, 419,

431, 432, 439, 445, 458, 461, 467, 513, 515, 517, 534, 547, 549, 554, 561, 566, 570, 574, 578, 584, 585, 589, 590, 607, 608, 619, 629, 652, 690, 691, 694, 696, 697, 699, 702, 709, 713, 723, 725, 735, 750, 753, 757, 763, 773, 776, 777, 778, 780, 781, 782, 783, 784, 789, 793, 794, 795, 796, 799, 819, 820, 823, 832, 834, 835, 839, 846, 847, 852, 856, 857, 859, 864, 868, 872, 873, 879, 892, 902, 904, 905, 909, 911, 914, 916, 918], [26, 56, 73, 74, 85, 473, 481, 483, 484, 485, 491], [512], [357, 416, 426, 494, 496, 497, 684], [100, 339, 344], [316], [215], [183], [881]]

IE_c:=[[99, 259, 333, 512, 536], [15, 16, 20, 23, 114, 129, 163, 187, 210, 213, 218, 233, 256, 268, 287, 357, 358, 360, 416, 426, 435, 494, 496, 497, 550, 551, 567, 668, 684, 687, 739, 913], [1, 2, 3, 4, 5, 6, 10, 11, 19, 24, 27, 28, 30, 31, 32, 35, 36, 37, 38, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 59, 61, 62, 63, 64, 67, 68, 76, 77, 78, 80, 81, 87, 93, 94, 97, 100, 102, 104, 105, 106, 107, 108, 109, 110, 112, 113, 127, 128, 135, 136, 137, 138, 140, 144, 149, 157, 158, 161, 162, 164, 166, 167, 168, 169, 171, 174, 176, 181, 182, 183, 184, 207, 208, 215, 217, 220, 221, 224, 227, 231, 241, 242, 244, 245, 246, 248, 250, 251, 254, 260, 261, 267, 269, 271, 273, 280, 283, 285, 288, 289, 294, 297, 301, 303, 307, 311, 312, 314, 316, 321, 322, 324, 329, 330, 339, 344, 350, 352, 356, 359, 362, 363, 364, 367, 369, 370, 375, 376, 377, 383, 386, 387, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 411, 412, 413, 417, 418, 419, 431, 432, 436, 437, 439, 445, 458, 461, 467, 503, 505, 507, 509, 513, 514, 515, 517, 522, 523, 524, 534, 547, 549, 554, 561, 565, 566, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 595, 605, 607, 608, 619, 629, 652, 676, 679, 682, 685, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 709, 710, 711, 712, 713, 714, 719, 721, 722, 723, 725, 726, 735, 744, 750, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 778, 780, 781, 782, 783, 784, 785, 788, 789, 791, 793, 794, 795, 796, 799, 808, 809, 817, 819, 820, 822, 823, 832, 834, 835, 838, 839, 842, 846, 847, 852, 856, 857, 859, 864, 865, 866, 868, 872, 873, 874, 879, 892, 902, 904, 905, 907, 909, 911, 912, 914, 915, 916, 918, 919], [21, 22, 26, 39, 56, 73, 74, 85, 152, 159, 274, 276, 380, 381, 388, 410, 447, 450, 455, 456, 457, 473, 481, 483, 484, 485, 491, 529, 555, 564, 631, 634, 648, 654, 655, 661, 663, 664, 670, 671, 672, 673, 686, 747, 748, 881]]

PR_c:=[[1], [2], [6], [28, 36, 565], [3], [5], [112], [682], [712], [94], [76, 711], [791], [514, 722], [330], [505], [129], [721], [785], [20], [817], [162], [267], [522, 551], [15, 435], [38, 303], [287, 687], [10, 11, 19, 24, 26, 27, 30, 31, 32, 41, 42, 43, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 59, 61, 62, 63, 64, 67, 68, 73, 74, 77, 78, 80, 81, 85, 87, 93, 97, 102, 104, 106, 107, 108, 109, 110, 113, 127, 128, 135, 136, 137, 138, 140, 144, 149, 157, 158, 161, 163, 164, 166, 167, 168, 169, 171, 176, 181, 182, 184, 207, 208, 210, 215, 220, 221, 224, 227, 241, 242, 244, 245, 246, 248, 250, 251, 254, 260, 261, 280, 285, 288, 289, 294, 297, 307, 311, 312, 314, 321, 322, 324, 350, 352, 356, 357, 358, 362, 367, 369, 370, 375, 376, 377, 383, 386, 387, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 411, 412, 413, 417, 418, 419, 426, 431, 432, 436, 437, 439, 458, 461, 467, 473, 481, 483, 484, 485, 491, 494, 496, 497, 503, 507, 509, 513, 515, 517, 524, 534, 547, 549, 554, 561, 566, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 595, 605, 607, 608, 629, 652, 676, 679, 685, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 710, 713, 714, 719, 723, 725, 726, 735, 744, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 780, 781, 782, 783, 784, 788, 789, 794, 795, 796, 799, 808, 809, 820, 822, 823, 832, 834, 835, 838, 839, 842, 846, 847, 852, 856, 857, 859, 864, 865,

866, 868, 873, 874, 879, 881, 892, 902, 904, 905, 907, 909, 911, 912, 914, 915, 916, 918], [668], [4], [213, 512, 550, 567], [23, 360], [187, 233], [256], [16, 35, 174, 217, 218, 231, 269, 271, 283, 301, 329, 359, 363, 364, 416, 445, 523, 619, 684, 709, 739, 750, 778, 793, 819, 872, 919], [913], [44, 105, 273], [316], [99], [536], [37], [333], [259], [114], [268], [21, 22, 450, 455, 456, 457, 529, 564, 654, 655, 661, 663, 664, 670, 671, 672, 673, 747, 748], [100], [183], [159, 631, 634, 648], [39, 152, 274, 276, 380, 381, 388, 410, 447, 555, 686], [339, 344]]

PC_c:=[[20], [550], [99, 333, 668], [1, 2, 3, 5, 6, 15, 16, 28, 36, 45, 76, 94, 112, 127, 129, 187, 210, 233, 259, 268, 271, 287, 435, 512, 522, 551, 565, 595, 682, 687, 711, 712, 714, 722, 785, 842, 874, 915], [21, 22, 23, 100, 114, 159, 163, 213, 218, 256, 316, 339, 344, 357, 360, 416, 426, 450, 455, 456, 457, 494, 496, 497, 529, 536, 564, 567, 631, 634, 648, 654, 655, 661, 663, 664, 670, 671, 672, 673, 684, 739, 747, 748, 913], [4, 10, 11, 19, 24, 27, 30, 31, 32, 35, 37, 38, 39, 41, 42, 43, 44, 46, 47, 49, 50, 51, 52, 53, 54, 55, 59, 61, 62, 63, 64, 67, 68, 77, 78, 80, 81, 87, 93, 97, 102, 104, 105, 106, 107, 108, 109, 110, 113, 128, 135, 136, 137, 138, 140, 144, 149, 152, 157, 158, 161, 162, 164, 166, 167, 168, 169, 171, 174, 176, 181, 182, 183, 184, 207, 208, 215, 217, 220, 221, 224, 227, 231, 241, 242, 244, 245, 246, 248, 250, 251, 254, 260, 261, 267, 269, 273, 274, 276, 280, 283, 285, 288, 289, 294, 297, 301, 307, 311, 312, 314, 321, 322, 324, 329, 330, 350, 352, 356, 358, 359, 362, 363, 364, 367, 369, 370, 375, 376, 377, 380, 381, 383, 386, 387, 388, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 410, 411, 412, 413, 417, 418, 419, 431, 432, 436, 437, 439, 445, 447, 458, 461, 467, 503, 505, 507, 509, 513, 514, 515, 517, 523, 524, 534, 547, 549, 554, 555, 561, 566, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 605, 607, 608, 619, 629, 652, 676, 679, 685, 686, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 709, 710, 713, 719, 721, 723, 725, 726, 735, 744, 750, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 778, 780, 781, 782, 783, 784, 788, 789, 791, 793, 794, 795, 796, 799, 808, 809, 817, 819, 820, 822, 823, 832, 834, 835, 838, 839, 846, 847, 852, 856, 857, 859, 864, 865, 866, 868, 872, 873, 879, 892, 902, 904, 905, 907, 909, 911, 912, 914, 916, 918, 919], [26, 56, 73, 74, 85, 303, 473, 481, 483, 484, 485, 491, 881]]

Using BioConsert

M1:=[[20], [668], [550], [1, 2, 6], [99, 333], [3, 5, 28, 36, 76, 94, 112, 565, 682, 711, 712], [791], [522, 722, 785], [129, 287, 687], [267, 505, 514, 817], [15, 187, 233, 435, 551], [45, 127, 210, 271, 595, 714, 842, 874, 915], [512], [536], [16, 268], [259], [38, 162, 330, 721], [23, 114, 163, 213, 218, 256, 357, 360, 416, 426, 494, 496, 497, 567, 684, 739, 913], [303], [4, 10, 11, 19, 24, 27, 30, 31, 32, 35, 37, 41, 42, 43, 44, 46, 47, 49, 50, 51, 52, 53, 54, 55, 59, 61, 62, 63, 64, 67, 68, 77, 78, 80, 81, 87, 93, 97, 102, 104, 105, 106, 107, 108, 109, 110, 113, 128, 135, 136, 137, 138, 140, 144, 149, 157, 158, 161, 164, 166, 167, 168, 169, 171, 174, 176, 181, 182, 184, 207, 208, 215, 217, 220, 221, 224, 227, 231, 241, 242, 244, 245, 246, 248, 250, 251, 254, 260, 261, 269, 273, 280, 283, 285, 288, 289, 294, 297, 301, 307, 311, 312, 314, 321, 322, 324, 329, 350, 352, 356, 358, 359, 362, 363, 364, 367, 369, 370, 375, 376, 377, 383, 386, 387, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 411, 412, 413, 417, 418, 419, 431, 432, 436, 437, 439, 445, 458, 461, 467, 503, 507, 509, 513, 515, 517, 523, 524, 534, 547, 549, 554, 561, 566, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 605, 607, 608,

619, 629, 652, 676, 679, 685, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 709, 710, 713, 719, 723, 725, 726, 735, 744, 750, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 778, 780, 781, 782, 783, 784, 788, 789, 793, 794, 795, 796, 799, 808, 809, 819, 820, 822, 823, 832, 834, 835, 838, 839, 846, 847, 852, 856, 857, 859, 864, 865, 866, 868, 872, 873, 879, 892, 902, 904, 905, 907, 909, 911, 912, 914, 916, 918, 919], [316], [21, 22, 159, 450, 455, 456, 457, 529, 564, 631, 634, 648, 654, 655, 661, 663, 664, 670, 671, 672, 673, 747, 748], [100, 339, 344], [183], [39, 152, 274, 276, 380, 381, 388, 410, 447, 555, 686], [26, 56, 73, 74, 85, 473, 481, 483, 484, 485, 491, 881]];

Distance to [Bl_c,IE_c,PR_c,PC_c] = 79 027

Using Fagin's approach

Fagin1:=[[1], [2], [20], [6], [3], [5], [28], [36], [112], [565], [668], [682], [76], [94], [711], [129], [551], [15], [435], [287], [687], [712], [99], [333], [722], [785], [522], [187], [550], [233], [268], [16], [913], [536], [114], [739], [210], [259], [45], [127], [595], [714], [791], [842], [874], [915], [163], [267], [271], [357], [426], [494], [496], [497], [505], [514], [817], [23], [38], [162], [213], [218], [256], [303], [330], [360], [567], [721], [512], [10], [11], [19], [24], [31], [41], [43], [46], [49], [50], [51], [52], [53], [54], [55], [61], [63], [64], [77], [80], [81], [97], [102], [108], [113], [128], [135], [137], [138], [157], [171], [220], [244], [250], [254], [260], [261], [280], [297], [307], [322], [358], [367], [369], [376], [383], [387], [390], [392], [394], [396], [398], [400], [401], [403], [412], [436], [437], [503], [507], [509], [524], [572], [588], [591], [593], [605], [676], [679], [685], [689], [703], [707], [710], [719], [726], [744], [759], [760], [762], [764], [765], [788], [808], [809], [822], [838], [865], [866], [907], [912], [416], [684], [4], [21], [22], [27], [30], [32], [35], [37], [42], [47], [59], [62], [67], [68], [78], [87], [93], [104], [106], [107], [109], [110], [136], [140], [144], [149], [158], [161], [164], [166], [167], [168], [169], [174], [176], [181], [182], [184], [207], [208], [215], [221], [224], [227], [231], [241], [242], [245], [246], [248], [251], [269], [285], [288], [289], [294], [301], [311], [312], [314], [321], [324], [350], [352], [356], [362], [363], [370], [375], [377], [386], [393], [399], [408], [411], [413], [417], [418], [419], [431], [432], [439], [450], [455], [456], [457], [458], [461], [467], [513], [515], [517], [523], [529], [534], [547], [549], [554], [561], [564], [566], [570], [574], [578], [584], [585], [589], [590], [607], [608], [629], [652], [654], [655], [661], [663], [664], [670], [671], [672], [673], [690], [691], [694], [696], [697], [699], [702], [713], [723], [725], [735], [747], [748], [753], [757], [763], [773], [776], [777], [780], [781], [782], [783], [784], [789], [794], [795], [796], [799], [820], [823], [832], [834], [835], [839], [846], [847], [852], [856], [857], [859], [864], [868], [873], [879], [892], [902], [904], [905], [909], [911], [914], [916], [918], [919], [159], [631], [634], [648], [44], [105], [217], [273], [283], [316], [329], [359], [364], [445], [619], [709], [750], [778], [793], [819], [872], [100], [339], [344], [39], [152], [183], [274], [276], [380], [381], [388], [410], [447], [555], [686], [26], [56], [73], [74], [85], [473], [481], [483], [484], [485], [491], [881]]

Distance to [Bl_c,IE_c,PR_c,PC_c] = 174 217

Fagin2:= [[1], [2, 3, 5, 6, 20, 28, 36, 112], [76, 94, 129, 551, 565, 668, 682, 711], [15], [99, 287, 333, 435, 687, 712, 722, 785], [16, 45, 114, 127, 187, 210, 233, 259, 268, 522,

536, 550, 739, 913], [163, 267, 271, 595, 714, 791, 842, 874, 915], [357, 426, 494, 496, 497, 505, 514], [23, 38, 162, 213, 218, 256, 303, 330, 360, 567, 817], [10, 11, 19, 24, 31, 41, 43, 46, 49, 50, 51, 52, 53, 54, 55, 61, 63, 64, 512, 721], [77, 80, 81, 97, 102, 108], [113], [128, 135, 137, 138, 157, 171, 220, 244, 250, 254, 260, 261], [280, 297, 307, 322, 358, 367, 369, 376, 383, 387, 390, 392, 394, 396, 398], [400, 401, 403, 412, 436, 437, 503, 507, 509], [524, 572, 588, 591, 593, 605, 676, 679, 685], [689, 703, 707, 710, 719, 726, 744], [759, 760, 762], [764, 765], [788, 808, 809, 822, 838, 865, 866], [4, 21, 22, 416, 684, 907, 912], [27, 30, 32, 35, 37, 42, 47, 59, 62, 67, 68, 78, 87, 93, 104], [106, 107, 109, 110, 136, 140, 144], [149, 158, 161, 164, 166, 167, 168, 169, 174, 176, 181, 182, 184, 207, 208], [215, 221, 224, 227, 231, 241, 242, 245, 246, 248, 251, 269], [285, 288, 289, 294, 301, 311, 312, 314, 321, 324, 350, 352, 356, 362, 363, 370, 375], [377, 386, 393, 399, 408, 411, 413, 417, 418, 419], [431, 432, 439, 450, 455, 456], [457, 458, 461, 467], [513, 515, 517, 523, 529, 534], [547, 549, 554, 561, 564, 566, 570, 574, 578, 584, 585, 589, 590, 607, 608], [629, 652, 654, 655, 661, 663, 664, 670, 671, 672, 673, 690, 691, 694, 696, 697], [699, 702, 713, 723], [725, 735, 747, 748, 753], [757, 763, 773, 776, 777, 780], [781, 782, 783, 784, 789, 794, 795, 796, 799, 820, 823, 832, 834, 835, 839, 846], [847, 852], [856, 857, 859, 864], [868, 873, 879, 892, 902, 904, 905, 909, 911, 914, 916, 918, 919], [159, 631, 634, 648], [44], [105, 217, 273, 283, 316, 329], [359, 364, 445, 619, 709, 750, 778, 793, 819, 872], [39, 100, 152, 183, 274, 276, 339, 344, 380, 381, 388], [410, 447], [26, 555, 686], [56, 73, 74, 85, 473, 481, 483, 484, 485, 491, 881]]

Distance to [Bl_c,IE_c,PR_c,PC_c] = 169 264

Fagin 3:=[[1], [2, 3, 4, 5, 6, 10, 11, 15, 16, 19, 20, 21, 22, 23, 24, 26, 27, 28, 30, 31, 32, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 59, 61, 62, 63, 64, 67, 68, 73, 74, 76, 77, 78, 80, 81, 85, 87, 93, 94, 97, 99, 100, 102, 104, 105, 106, 107, 108, 109, 110, 112, 113, 114, 127, 128, 129, 135, 136, 137, 138, 140, 144, 149, 152, 157, 158, 159, 161, 162, 163, 164, 166, 167, 168, 169, 171, 174, 176, 181, 182, 183, 184, 187, 207, 208, 210, 213, 215, 217, 218, 220, 221, 224, 227, 231, 233, 241, 242, 244, 245, 246, 248, 250, 251, 254, 256, 259, 260, 261, 267, 268, 269, 271, 273, 274, 276, 280, 283, 285, 287, 288, 289, 294, 297, 301, 303, 307, 311, 312, 314, 316, 321, 322, 324, 329, 330, 333, 339, 344, 350, 352, 356, 357, 358, 359, 360, 362, 363, 364, 367, 369, 370, 375, 376, 377, 380, 381, 383, 386, 387, 388, 390, 392, 393, 394, 396, 398, 399, 400, 401, 403, 408, 410, 411, 412, 413, 416, 417, 418, 419, 426, 431, 432, 435, 436, 437, 439, 445, 447, 450, 455, 456, 457, 458, 461, 467, 473, 481, 483, 484, 485, 491, 494, 496, 497, 503, 505, 507, 509, 512, 513, 514, 515, 517, 522, 523, 524, 529, 534, 536, 547, 549, 550, 551, 554, 555, 561, 564, 565, 566, 567, 570, 572, 574, 578, 584, 585, 588, 589, 590, 591, 593, 595, 605, 607, 608, 619, 629, 631, 634, 648, 652, 654, 655, 661, 663, 664, 668, 670, 671, 672, 673, 676, 679, 682, 684, 685, 686, 687, 689, 690, 691, 694, 696, 697, 699, 702, 703, 707, 709, 710, 711, 712, 713, 714, 719, 721, 722, 723, 725, 726, 735, 739, 744, 747, 748, 750, 753, 757, 759, 760, 762, 763, 764, 765, 773, 776, 777, 778, 780, 781, 782, 783, 784, 785, 788, 789, 791, 793, 794, 795, 796, 799, 808, 809, 817, 819, 820, 822, 823, 832, 834, 835, 838, 839, 842, 846, 847, 852, 856, 857, 859, 864, 865, 866, 868, 872, 873, 874, 879, 881, 892, 902, 904, 905, 907, 909, 911, 912, 913, 914, 915, 916, 918, 919]]

Distance to [Bl_c,IE_c,PR_c,PC_c] = 153617