

Data for algorithm validation. This file gives the expected output for each case in the datasets Set\_A and Set\_B. Both Giftwrap algorithm and Graham-scan algorithm should produce the outputs given below.

## **Set A**

A\_3000.dat

[(72.0, 15.0), (979.3, 560.0), (432.0, 993.0)]

A\_6000.dat

[(944.0, 22.52), (944.0, 996.0), (1.91, 22.52)]

A\_9000.dat

[(964.0, 20.0), (621.0, 991.0), (13.0, 991.0)]

A\_12000.dat

[(40.0, 19.0), (971.66, 81.41), (762.0, 982.0), (19.0, 938.0)]

A\_15000.dat

[(632.0, 25.0), (982.0, 983.0), (1.0, 983.0), (187.0, 25.0)]

A\_18000.dat

[(465.0, 15.0), (987.83, 567.0), (455.0, 996.0), (14.0, 545.0)]

A\_21000.dat

[(453.0, 6.0), (980.0, 817.0), (451.0, 996.0), (5.0, 800.0)]

A\_24000.dat

[(833.0, 20.11), (982.0, 610.0), (179.0, 993.0), (15.0, 939.0), (43.0, 62.0)]

A\_27000.dat

[(439.0, 8.0), (984.0, 480.0), (743.92, 997.06), (234.39, 997.06), (9.0, 474.0)]

A\_30000.dat

[(966.0, 14.0), (966.0, 990.0), (106.0, 988.0), (18.0, 960.0), (18.0, 14.0)]

## **Set B**

### **B\_3000.dat**

[(475.4, 30.61), (573.53, 35.76), (668.44, 61.19), (756.0, 105.8), (832.36, 167.64), (894.2, 244.0), (938.81, 331.56), (964.24, 426.47), (969.39, 524.6), (954.02, 621.65), (918.8, 713.39), (865.28, 795.8), (795.8, 865.28), (713.39, 918.8), (621.65, 954.02), (524.6, 969.39), (426.47, 964.24), (331.56, 938.81), (244.0, 894.2), (167.64, 832.36), (105.8, 756.0), (61.19, 668.44), (35.76, 573.53), (30.61, 475.4), (45.98, 378.35), (81.2, 286.61), (134.72, 204.2), (204.2, 134.72), (286.61, 81.2), (378.35, 45.98)]

### **B\_6000.dat**

[(500.0, 29.47), (549.18, 32.05), (597.83, 39.76), (645.4, 52.5), (691.38, 70.15), (735.26, 92.51), (776.57, 119.34), (814.84, 150.33), (849.67, 185.16), (880.66, 223.43), (907.49, 264.74), (929.85, 308.62), (947.5, 354.6), (960.24, 402.17), (967.95, 450.82), (970.53, 500.0), (967.95, 549.18), (960.24, 597.83), (947.5, 645.4), (929.85, 691.38), (907.49, 735.26), (880.66, 776.57), (849.67, 814.84), (814.84, 849.67), (776.57, 880.66), (735.26, 907.49), (691.38, 929.85), (645.4, 947.5), (597.83, 960.24), (549.18, 967.95), (500.0, 970.53), (450.82, 967.95), (402.17, 960.24), (354.6, 947.5), (308.62, 929.85), (264.74, 907.49), (223.43, 880.66), (185.16, 849.67), (150.33, 814.84), (119.34, 776.57), (92.51, 735.26), (70.15, 691.38), (52.5, 645.4), (39.76, 597.83), (32.05, 549.18), (29.47, 500.0), (32.05, 450.82), (39.76, 402.17), (52.5, 354.6), (70.15, 308.62), (92.51, 264.74), (119.34, 223.43), (150.33, 185.16), (185.16, 150.33), (223.43, 119.34), (264.74, 92.51), (308.62, 70.15), (354.6, 52.5), (402.17, 39.76), (450.82, 32.05)]

### **B\_9000.dat**

[(491.53, 14.67), (525.4, 15.26), (559.16, 18.21), (592.62, 23.51), (625.63, 31.13), (658.03, 41.04), (689.66, 53.18), (720.37, 67.5), (750.0, 83.93), (778.42, 102.38), (805.48, 122.77), (831.05, 145.0), (855.0, 168.95), (877.23, 194.52), (897.62, 221.58), (916.07, 250.0), (932.5, 279.63), (946.82, 310.34), (958.96, 341.97), (968.87, 374.37), (976.49, 407.38), (981.79, 440.84), (984.74, 474.6), (985.33, 508.47), (983.56, 542.31), (979.43, 575.93), (972.96, 609.19), (964.2, 641.92), (953.16, 673.95), (939.93, 705.14), (924.54, 735.33), (907.09, 764.37), (887.66, 792.12), (866.34, 818.45), (843.23, 843.23), (818.45, 866.34), (792.12, 887.66), (764.37, 907.09), (735.33, 924.54), (705.14, 939.93), (673.95, 953.16), (641.92, 964.2), (609.19, 972.96), (575.93, 979.43), (542.31, 983.56), (508.47, 985.33), (474.6, 984.74), (440.84, 981.79), (407.38, 976.49), (374.37, 968.87), (341.97, 958.96), (310.34, 946.82), (279.63, 932.5), (250.0, 916.07), (221.58, 897.62), (194.52, 877.23), (168.95, 855.0), (145.0, 831.05), (122.77, 805.48), (102.38, 778.42), (83.93, 750.0), (67.5, 720.37), (53.18, 689.66), (41.04, 658.03), (31.13, 625.63), (23.51, 592.62), (18.21, 559.16), (15.26, 525.4), (14.67, 491.53), (16.44, 457.69), (20.57, 424.07), (27.04, 390.81), (35.8, 358.08), (46.84, 326.05), (60.07, 294.86), (75.46, 264.67), (92.91, 235.63), (112.34, 207.88), (133.66, 181.55), (156.77, 156.77), (181.55, 133.66), (207.88, 112.34), (235.63, 92.91), (264.67, 75.46), (294.86, 60.07), (326.05, 46.84), (358.08, 35.8), (390.81, 27.04), (424.07, 20.57), (457.69, 16.44)]

### **B\_12000.dat**

[(500.0, 22.01), (525.02, 22.67), (549.96, 24.63), (574.77, 27.9), (599.38, 32.46), (623.71, 38.3), (647.71, 45.4), (671.3, 53.76), (694.42, 63.33), (717.0, 74.11), (738.99, 86.05), (760.33, 99.12), (780.96, 113.3), (800.81, 128.53), (819.84, 144.78), (837.99, 162.01), (855.22, 180.16), (871.47, 199.19), (886.7, 219.04), (900.88, 239.67), (913.95, 261.01), (925.89, 283.0), (936.67, 305.58), (946.24, 328.7), (954.6, 352.29), (961.7, 376.29), (967.54, 400.62), (972.1, 425.23), (975.37, 450.04), (977.33, 474.98), (977.99, 500.0), (977.33, 525.02), (975.37, 549.96), (972.1, 574.77), (967.54, 599.38), (961.7, 623.71), (954.6, 647.71), (946.24, 671.3), (936.67, 694.42), (925.89, 717.0), (913.95, 738.99), (900.88, 760.33), (886.7, 780.96), (871.47, 800.81), (855.22,

(819.84), (837.99, 837.99), (819.84, 855.22), (800.81, 871.47), (780.96, 886.7), (760.33, 900.88), (738.99, 913.95), (717.0, 925.89), (694.42, 936.67), (671.3, 946.24), (647.71, 954.6), (623.71, 961.7), (599.38, 967.54), (574.77, 972.1), (549.96, 975.37), (525.02, 977.33), (500.0, 977.99), (474.98, 977.33), (450.04, 975.37), (425.23, 972.1), (400.62, 967.54), (376.29, 961.7), (352.29, 954.6), (328.7, 946.24), (305.58, 936.67), (283.0, 925.89), (261.01, 913.95), (239.67, 900.88), (219.04, 886.7), (199.19, 871.47), (180.16, 855.22), (162.01, 837.99), (144.78, 819.84), (128.53, 800.81), (113.3, 780.96), (99.12, 760.33), (86.05, 738.99), (74.11, 717.0), (63.33, 694.42), (53.76, 671.3), (45.4, 647.71), (38.3, 623.71), (32.46, 599.38), (27.9, 574.77), (24.63, 549.96), (22.67, 525.02), (22.01, 500.0), (22.67, 474.98), (24.63, 450.04), (27.9, 425.23), (32.46, 400.62), (38.3, 376.29), (45.4, 352.29), (53.76, 328.7), (63.33, 305.58), (74.11, 283.0), (86.05, 261.01), (99.12, 239.67), (113.3, 219.04), (128.53, 199.19), (144.78, 180.16), (162.01, 162.01), (180.16, 144.78), (199.19, 128.53), (219.04, 113.3), (239.67, 99.12), (261.01, 86.05), (283.0, 74.11), (305.58, 63.33), (328.7, 53.76), (352.29, 45.4), (376.29, 38.3), (400.62, 32.46), (425.23, 27.9), (450.04, 24.63), (474.98, 22.67)]

## B\_15000.dat

[(495.02, 24.79), (514.93, 25.0), (534.8, 26.04), (554.62, 27.91), (574.34, 30.62), (593.93, 34.14), (613.36, 38.48), (632.58, 43.63), (651.58, 49.59), (670.31, 56.33), (688.74, 63.85), (706.83, 72.14), (724.57, 81.17), (741.91, 90.94), (758.83, 101.43), (775.29, 112.62), (791.27, 124.49), (806.74, 137.02), (821.67, 150.18), (836.04, 163.96), (849.82, 178.32), (862.98, 193.25), (875.51, 208.72), (887.38, 224.7), (898.56, 241.17), (909.05, 258.08), (918.82, 275.42), (927.86, 293.16), (936.15, 311.26), (943.67, 329.69), (950.41, 348.42), (956.36, 367.41), (961.52, 386.64), (965.86, 406.06), (969.38, 425.65), (972.09, 445.37), (973.96, 465.19), (975.0, 485.07), (975.21, 504.97), (974.58, 524.87), (973.13, 544.72), (970.84, 564.49), (967.73, 584.15), (963.79, 603.66), (959.04, 623.0), (953.49, 642.11), (947.14, 660.98), (940.01, 679.56), (932.1, 697.83), (923.44, 715.75), (914.03, 733.29), (903.9, 750.43), (893.06, 767.12), (881.53, 783.35), (869.33, 799.08), (856.48, 814.28), (843.01, 828.93), (828.93, 843.01), (814.28, 856.48), (799.08, 869.33), (783.35, 881.53), (767.12, 893.06), (750.43, 903.9), (733.29, 914.03), (715.75, 923.44), (697.83, 932.1), (679.56, 940.01), (660.98, 947.14), (642.11, 953.49), (623.0, 959.04), (603.67, 963.79), (584.16, 967.72), (564.5, 970.84), (544.72, 973.13), (524.87, 974.58), (504.98, 975.21), (485.07, 975.0), (465.19, 973.96), (445.38, 972.09), (425.66, 969.38), (406.07, 965.86), (386.64, 961.52), (367.41, 956.37), (348.42, 950.41), (329.69, 943.67), (311.26, 936.15), (293.16, 927.86), (275.43, 918.83), (258.09, 909.05), (241.17, 898.57), (224.7, 887.38), (208.72, 875.51), (193.26, 862.98), (178.32, 849.82), (163.96, 836.04), (150.18, 821.68), (137.02, 806.74), (124.49, 791.28), (112.62, 775.29), (101.43, 758.83), (90.94, 741.91), (81.17, 724.57), (72.14, 706.84), (63.85, 688.74), (56.33, 670.31), (49.59, 651.58), (43.63, 632.59), (38.48, 613.36), (34.14, 593.93), (30.62, 574.34), (27.91, 554.62), (26.04, 534.81), (25.0, 514.93), (24.79, 495.02), (25.42, 475.13), (26.87, 455.28), (29.16, 435.5), (32.28, 415.84), (36.21, 396.33), (40.96, 377.0), (46.51, 357.89), (52.86, 339.02), (59.99, 320.44), (67.9, 302.17), (76.56, 284.25), (85.97, 266.71), (96.1, 249.57), (106.94, 232.88), (118.47, 216.65), (130.67, 200.93), (143.52, 185.72), (156.99, 171.07), (171.07, 157.0), (185.72, 143.52), (200.92, 130.67), (216.65, 118.47), (232.88, 106.94), (249.57, 96.1), (266.7, 85.97), (284.25, 76.56), (302.17, 67.9), (320.43, 59.99), (339.02, 52.86), (357.88, 46.51), (377.0, 40.96), (396.33, 36.21), (415.84, 32.28), (435.5, 29.16), (455.27, 26.87), (475.13, 25.42)]

## B\_18000.dat

[(500.0, 6.85), (517.21, 7.16), (534.4, 8.06), (551.55, 9.56), (568.63, 11.65), (585.63, 14.35), (602.53, 17.63), (619.3, 21.5), (635.93, 25.96), (652.39, 30.99), (668.67, 36.6), (684.74, 42.76), (700.58, 49.49), (716.18, 56.76), (731.52, 64.58), (746.57, 72.92), (761.33, 81.79), (775.76, 91.16), (789.86, 101.04), (803.61, 111.4), (816.99, 122.23), (829.98, 133.52), (842.57, 145.26), (854.74, 157.43), (866.48, 170.02), (877.77, 183.01), (888.6, 196.39), (898.96, 210.14), (908.84, 224.24), (918.21, 238.67), (927.08, 253.43), (935.42, 268.48), (943.24, 283.82), (950.51, 299.42), (957.24, 315.26), (963.4, 331.33), (969.01, 347.61), (974.04, 364.07), (978.5, 380.7), (982.37, 397.47), (985.65, 414.37), (988.35, 431.37), (990.44, 448.45), (991.94, 465.6), (992.84, 482.79), (993.15, 500.0), (992.84, 517.21), (991.94, 534.4), (990.44, 551.55), (988.35, 568.63), (985.65, 585.63), (982.37, 602.53), (978.5, 619.3), (974.04, 635.93), (969.01, 652.39), (963.4, 668.67), (957.24, 684.74), (950.51, 700.58), (943.24, 716.18), (935.42, 731.52), (927.08, 746.57), (918.21, 761.33), (908.84, 775.76), (898.96, 789.86), (888.6, 803.61), (877.77, 816.99), (866.48, 829.98), (854.74, 842.57), (842.57, 854.74), (829.98, 866.48), (816.99, 877.77), (803.61, 888.6), (789.86, 898.96), (775.76, 908.84), (761.33, 918.21), (746.57, 927.08), (731.52, 935.42), (716.18, 943.24), (700.58, 950.51), (684.74, 957.24), (668.67, 963.4), (652.39, 969.01), (635.93, 974.04), (619.3, 978.5), (602.53, 982.37), (585.63, 985.65), (568.63, 988.35), (551.55,

990.44), (534.4, 991.94), (517.21, 992.84), (500.0, 993.15), (482.79, 992.84), (465.6, 991.94), (448.45, 990.44), (431.37, 988.35), (414.37, 985.65), (397.47, 982.37), (380.7, 978.5), (364.07, 974.04), (347.61, 969.01), (331.33, 963.4), (315.26, 957.24), (299.42, 950.51), (283.82, 943.24), (268.48, 935.42), (253.43, 927.08), (238.67, 918.21), (224.24, 908.84), (210.14, 898.96), (196.39, 888.6), (183.01, 877.77), (170.02, 866.48), (157.43, 854.74), (145.26, 842.57), (133.52, 829.98), (122.23, 816.99), (111.4, 803.61), (101.04, 789.86), (91.16, 775.76), (81.79, 761.33), (72.92, 746.57), (64.58, 731.52), (56.76, 716.18), (49.49, 700.58), (42.76, 684.74), (36.6, 668.67), (30.99, 652.39), (25.96, 635.93), (21.5, 619.3), (17.63, 602.53), (14.35, 585.63), (11.65, 568.63), (9.56, 551.55), (8.06, 534.4), (7.16, 517.21), (6.85, 500.0), (7.16, 482.79), (8.06, 465.6), (9.56, 448.45), (11.65, 431.37), (14.35, 414.37), (17.63, 397.47), (21.5, 380.7), (25.96, 364.07), (30.99, 347.61), (36.6, 331.33), (42.76, 315.26), (49.49, 299.42), (56.76, 283.82), (64.58, 268.48), (72.92, 253.43), (81.79, 238.67), (91.16, 224.24), (101.04, 210.14), (111.4, 196.39), (122.23, 183.01), (133.52, 170.02), (145.26, 157.43), (157.43, 145.26), (170.02, 133.52), (183.01, 122.23), (196.39, 111.4), (210.14, 101.04), (224.24, 91.16), (238.67, 81.79), (253.43, 72.92), (268.48, 64.58), (283.82, 56.76), (299.42, 49.49), (315.26, 42.76), (331.33, 36.6), (347.61, 30.99), (364.07, 25.96), (380.7, 21.5), (397.47, 17.63), (414.37, 14.35), (431.37, 11.65), (448.45, 9.56), (465.6, 8.06), (482.79, 7.16)]

## B\_21000.dat

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