Python file: **XOs\_Tourn**  (from Mariana parallel with original fitness)

Testing Crossovers

**Fixed:** tournament\_sel swap\_mutation Pop=500 Gens =300

Running time aprox 20-30 min

A graph of different colored lines

Description automatically generated

Run #1, Generation #300: Best Fitness: 124, Time: 66.74 seconds

Run #1, Generation #300: Best Fitness: 125, Time: 67.77 seconds

Run #1, Generation #300: Best Fitness: 38, Time: 84.03 seconds

Run #2, Generation #300: Best Fitness: 122, Time: 48.22 seconds

Run #2, Generation #300: Best Fitness: 121, Time: 48.95 seconds

Run #1, Generation #300: Best Fitness: 635, Time: 117.91 seconds

Run #2, Generation #300: Best Fitness: 35, Time: 65.96 seconds

Run #3, Generation #300: Best Fitness: 132, Time: 51.1 seconds

Run #3, Generation #300: Best Fitness: 108, Time: 51.78 seconds

Run #4, Generation #300: Best Fitness: 134, Time: 94.02 seconds

Run #4, Generation #300: Best Fitness: 118, Time: 94.15 seconds

Run #3, Generation #300: Best Fitness: 39, Time: 114.41 seconds

Run #2, Generation #300: Best Fitness: 639, Time: 148.28 seconds

Run #5, Generation #300: Best Fitness: 132, Time: 55.93 seconds

Run #5, Generation #300: Best Fitness: 109, Time: 56.76 seconds

Run #4, Generation #300: Best Fitness: 39, Time: 77.47 seconds

Run #6, Generation #300: Best Fitness: 126, Time: 62.74 seconds

Run #6, Generation #300: Best Fitness: 111, Time: 62.52 seconds

Run #3, Generation #300: Best Fitness: 639, Time: 121.22 seconds

Run #5, Generation #300: Best Fitness: 38, Time: 80.39 seconds

Run #7, Generation #300: Best Fitness: 129, Time: 55.15 seconds

Run #7, Generation #300: Best Fitness: 112, Time: 54.86 seconds

Run #8, Generation #300: Best Fitness: 119, Time: 53.69 seconds

Run #8, Generation #300: Best Fitness: 117, Time: 54.08 seconds

Run #6, Generation #300: Best Fitness: 39, Time: 72.83 seconds

Run #4, Generation #300: Best Fitness: 637, Time: 109.78 seconds

Run #9, Generation #300: Best Fitness: 131, Time: 54.14 seconds

Run #9, Generation #300: Best Fitness: 118, Time: 54.7 seconds

Run #7, Generation #300: Best Fitness: 40, Time: 73.23 seconds

Run #10, Generation #300: Best Fitness: 132, Time: 54.06 seconds

Run #10, Generation #300: Best Fitness: 121, Time: 54.35 seconds

Run #5, Generation #300: Best Fitness: 643, Time: 110.34 seconds

Run #8, Generation #300: Best Fitness: **33**, Time: 75.73 seconds

Run #9, Generation #300: Best Fitness: 38, Time: 78.96 seconds

Run #6, Generation #300: Best Fitness: 633, Time: 116.07 seconds

Run #1, Generation #300: Best Fitness: 564, Time: 148.63 seconds

Run #1, Generation #300: Best Fitness: 706, Time: 160.52 seconds

Run #10, Generation #300: Best Fitness: 37, Time: 80.31 seconds

Run #7, Generation #300: Best Fitness: 640, Time: 113.27 seconds

Run #2, Generation #300: Best Fitness: 565, Time: 141.16 seconds

Run #2, Generation #300: Best Fitness: 669, Time: 150.78 seconds

Run #1, Generation #300: Best Fitness: 389, Time: 129.72 seconds

Run #8, Generation #300: Best Fitness: 636, Time: 100.58 seconds

Run #3, Generation #300: Best Fitness: 568, Time: 136.18 seconds

Run #9, Generation #300: Best Fitness: 627, Time: 106.7 seconds

Run #3, Generation #300: Best Fitness: 695, Time: 147.33 seconds

Run #2, Generation #300: Best Fitness: 412, Time: 142.83 seconds

Run #10, Generation #300: Best Fitness: 637, Time: 101.93 seconds

Run #4, Generation #300: Best Fitness: 566, Time: 131.34 seconds

Run #4, Generation #300: Best Fitness: 633, Time: 136.44 seconds

Run #3, Generation #300: Best Fitness: 404, Time: 128.23 seconds

Run #5, Generation #300: Best Fitness: 574, Time: 115.34 seconds

Run #5, Generation #300: Best Fitness: 619, Time: 147.69 seconds

Run #4, Generation #300: Best Fitness: 398, Time: 139.12 seconds

Run #6, Generation #300: Best Fitness: 571, Time: 136.42 seconds

Run #5, Generation #300: Best Fitness: 389, Time: 114.07 seconds

Run #6, Generation #300: Best Fitness: 584, Time: 119.94 seconds

Run #7, Generation #300: Best Fitness: 571, Time: 109.96 seconds

Run #6, Generation #300: Best Fitness: 401, Time: 114.85 seconds

Run #7, Generation #300: Best Fitness: 686, Time: 118.74 seconds

Run #8, Generation #300: Best Fitness: 573, Time: 114.9 seconds

Run #7, Generation #300: Best Fitness: 395, Time: 120.59 seconds

Run #8, Generation #300: Best Fitness: 709, Time: 136.52 seconds

Run #9, Generation #300: Best Fitness: 564, Time: 124.58 seconds

Run #8, Generation #300: Best Fitness: 367, Time: 122.29 seconds

Run #9, Generation #300: Best Fitness: 633, Time: 121.81 seconds

Run #10, Generation #300: Best Fitness: 578, Time: 108.27 seconds

Run #9, Generation #300: Best Fitness: 388, Time: 108.04 seconds

Run #10, Generation #300: Best Fitness: 695, Time: 115.93 seconds

Run #10, Generation #300: Best Fitness: 428, Time: 158.98 seconds