Assignment 4
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For Burma 14: (SWAP mutation, proportionate selection)
Optimal Tour length: 30
Closest Tour length: 30.87
Tour:
8,9,0,1,13,2,3,4,5,11,6,12,7,10

Min Average Tour Length: 37
Optimal Tour/Min Avg Tour length=80.41%

Maximum Tour Length=44.54

% of times, tour length was better than average tour lenght=52.7%
% of times, tour length was within 90% of optimal tour lenght=11.1%

Average Convergence loop:243

Lessons:
1) Increasing probability of mutation doesn't significantly improve the chances of better children.
2) Higher crossover probability seems to help to reach better results.
3) Results are highly random, in that, with the change of random seed good results are achieved sometimes, while the same may not apply again. Affected by high degree of randomness.
4) Since I tried with a wide range of values of parameters values of pm, px, population size, the answer didn't converge to the same optimal tour length many times. This experiment helped to see how the result varies for different combination of parameters.

Berlin52 Tour: (SWAP mutation, (mu+lambda) selection-for all the tours after this)
Optimal Tour length: 7542
Closest Tour length: 8622

Min Average Tour Length: 10247
Optimal Tour/Min Avg Tour length=73.6%
Maximum Tour Length=13520

% of times, tour length was better than average tour length=60%
% of times, tour length was within 80% of optimal tour length=16.67%

1) If we use tournament selection, it converges really fast, and the results are worse compared to (mu+lambda) or this.

Eil51Tour:
Optimal Tour length: 426
Closest Tour length: 511

Min Average Tour Length: 606.35
Optimal Tour/Min Avg Tour length=
Maximum Tour Length=70.29%

Since I tried with a wide range of values of parameters values of pm, px, population size, the answer didn't converge to the same optimal tour length many times.

% of times, tour length was better than average tour length=50%

Eil76 Tour
Optimal Tour length: 538
Closest Tour length: 744

Min Average Tour Length: 953.93
Optimal Tour/Min Avg Tour length=56.45%
Maximum Tour Length=1313

Since I tried with a wide range of values of parameters values of pm, px, population size, the answer didn't converge to the same optimal tour length many times.

% of times, tour length was better than average tour length=56%

Eil76 Tour
Optimal Tour length: 538
Closest Tour length: 744

Min Average Tour Length: 953.93
Optimal Tour/Min Avg Tour length=56.45%
Maximum Tour Length=1313

Since I tried with a wide range of values of parameters values of pm, px, population size, the answer didn’t converge to the same optimal tour length many times.

% of times, tour length was better than average tour length=56%

lin318 tour:
Very random and worse result
Didn’t perform many simulations