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AI Program 1

CSCE 420

3/2/2015

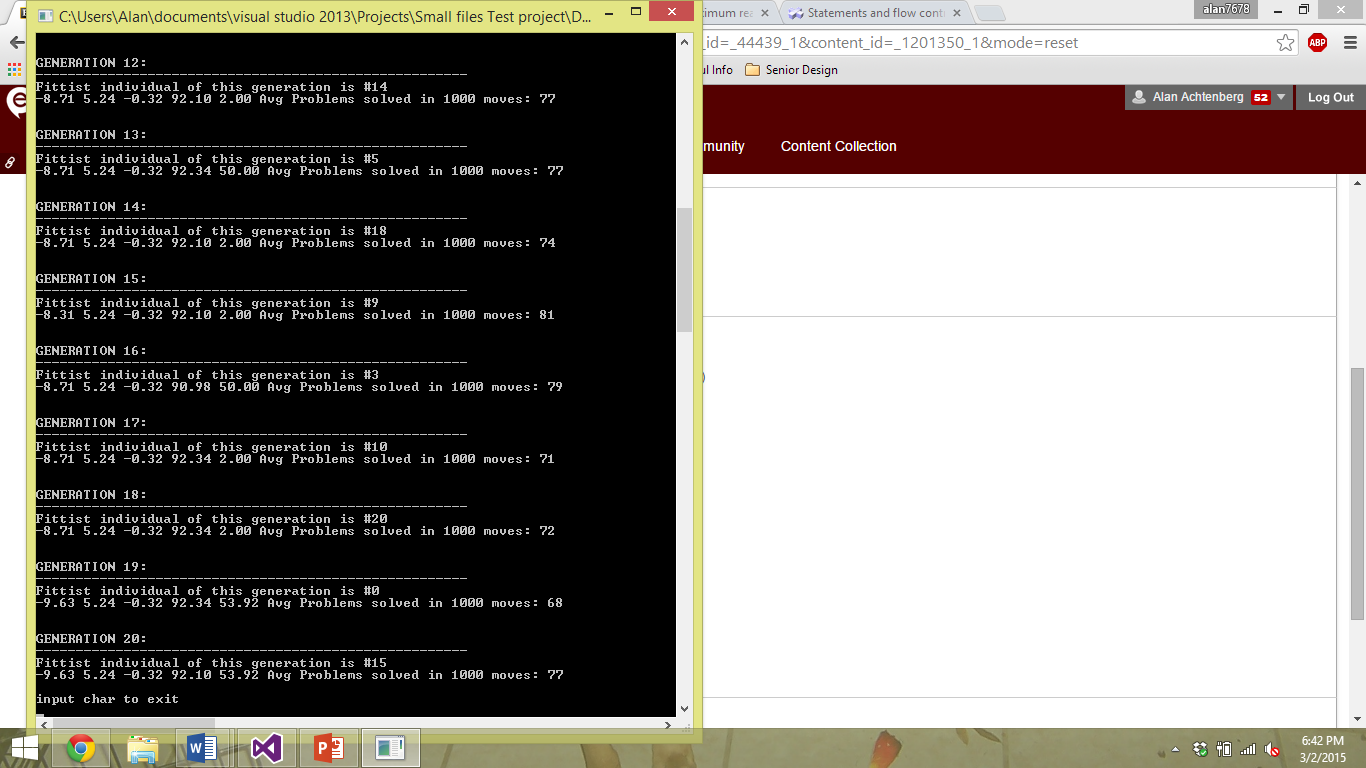
A.) Yes the values perform marginally better than pandamats original values. They are much different in terms of scale, but they are only slightly different in terms of ratio’s between the values

B.) Instead of setting values for the gains which modify the connections, you could set the values of the individual connections/volumes directly, this would greatly increase the number of genes an individual has however. Essentially you would replace the 5 float values in Jeffs\_Code with a array of all the connection values. When pandamat runs you would need to use these values instead of modifying the demons connections with the gains.

Comparison

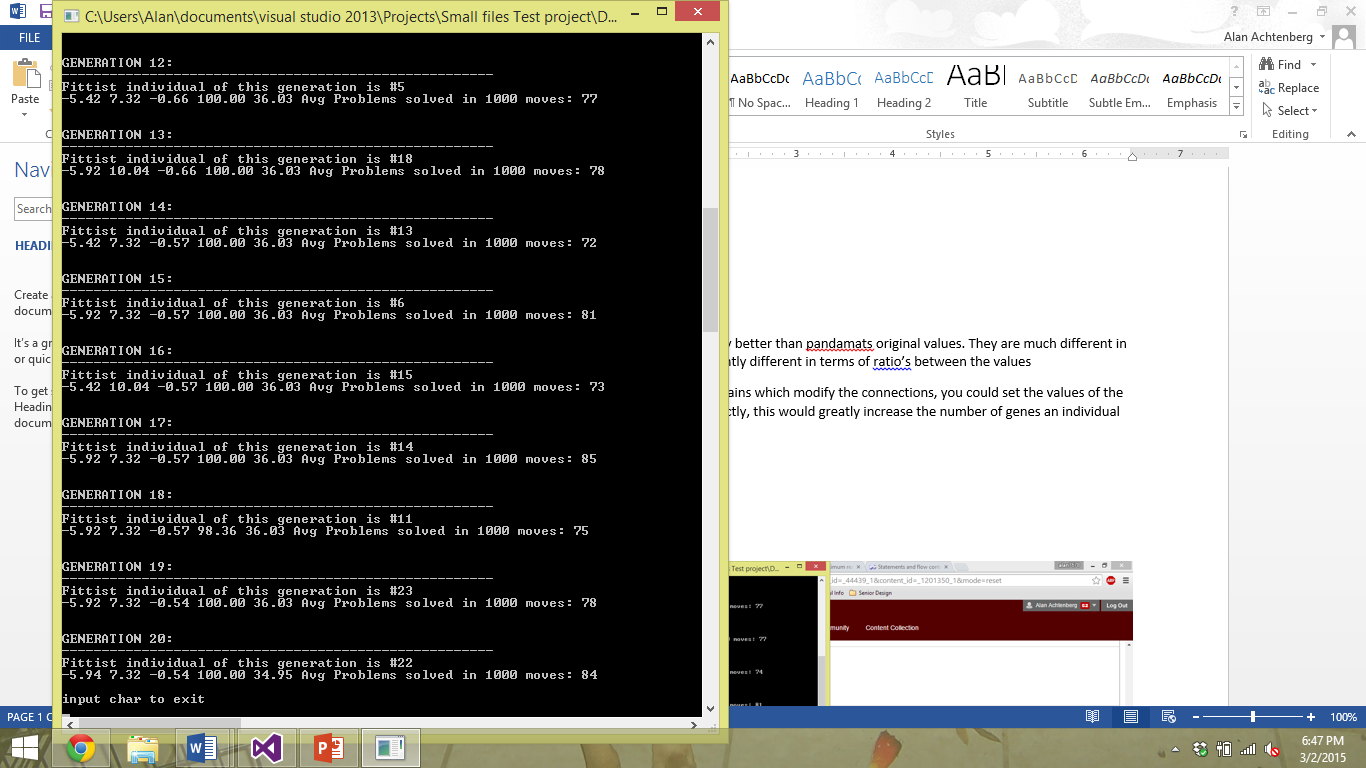
Seed (3)

Max fitness 81



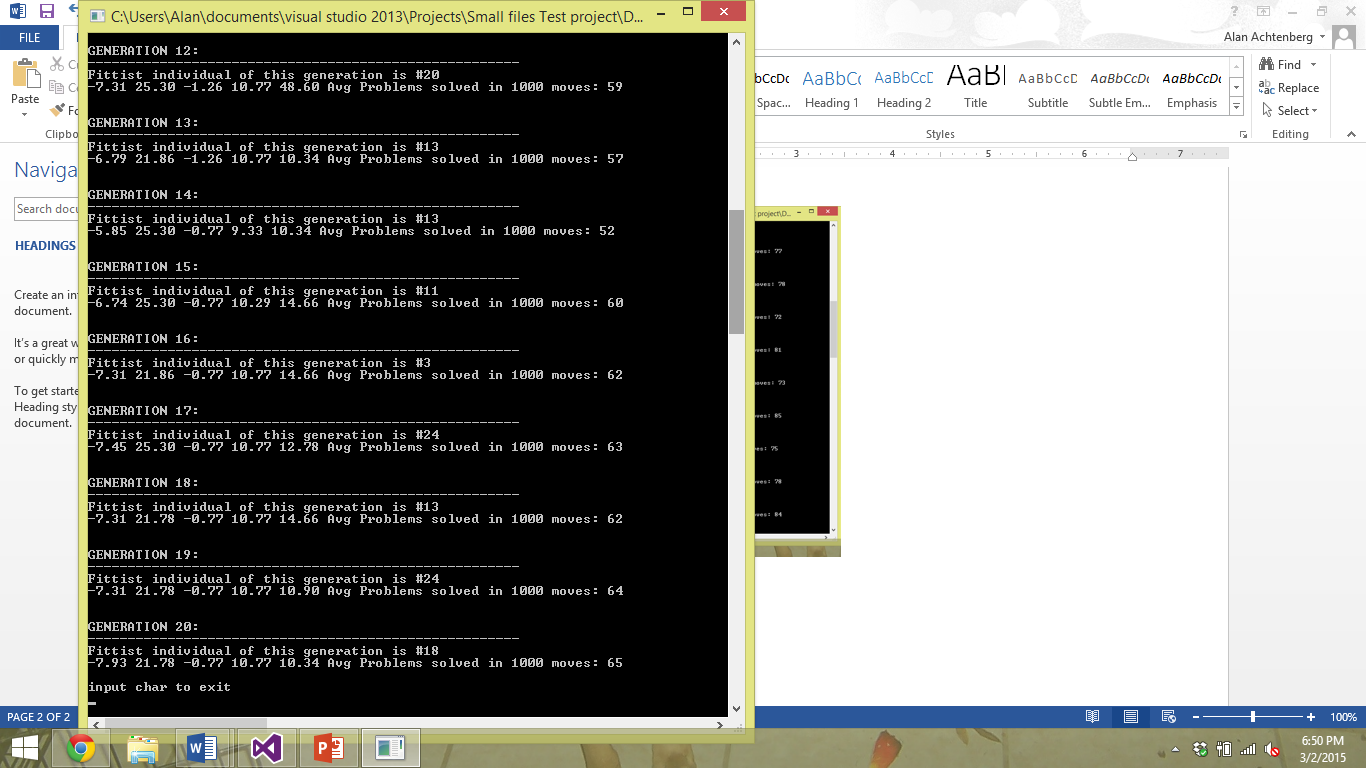
Seed(123)

Max fitness 84



Seed(123424)

Max fitness 65



Comparison:

With all of the seed values the fitness performance greatly increases from the initial value, however better initial fitness yields better final results. This is most likely due to the fact that the genetic algorithm tends to converge to local maxima. To prevent this we use our mutation function. However if the gap between the maxima are too far it simply will not make a large enough change to get away from the current maxima. Increasing the mutation rate will allow us to search more of the problem space however it will also greatly increase the amount of time required for it to converge to a solution. Tuning this Genetic Algorithm is a fine line between balancing the number of mutations, generations, and amount you mutate a gene by.