Team Members - Chase Townson, Kushagra Kushagra, Mousumi Akter
COMP 6970 Project 3 Fall 2020

Method	**KNN**	**SVM_L**	**SVM_R**	**MLP**
Baseline	0.70560	0.71036	0.73557	0.75462
SSGA	0.84313	0.836974	0.81092	0.88235
SEDA	0.84537	0.846218	0.84958	0.857142

- KNN has shown to be taken the least time. MLP has given the best results but has taken a larger amount of time, relatively.
- KNN always fluctuated between 0.84 and 0.86 for fitness. KNN was very similar between both.
- SVML improves fitness a slight amount but lot more time, and MLP went down in both time and fitness but it could have been to do with how many iterations we used.
- SVMr fitness/accuracy went up and went faster with SEDA compared to SSGA.
- For MLP, even with an increase in replacement of the worst fitness individuals in the population, there was not significant improvement. This was more noticeable in SEDA.

Runtimes/Time Taken for each Method given below (in minutes) -

Method	**KNN**	**SVM_L**	**SVM_R**	**MLP**
SSGA	30.643	62.5611	592.0555	1887.589
SEDA	31.343	377.3341	109.958	119.1724

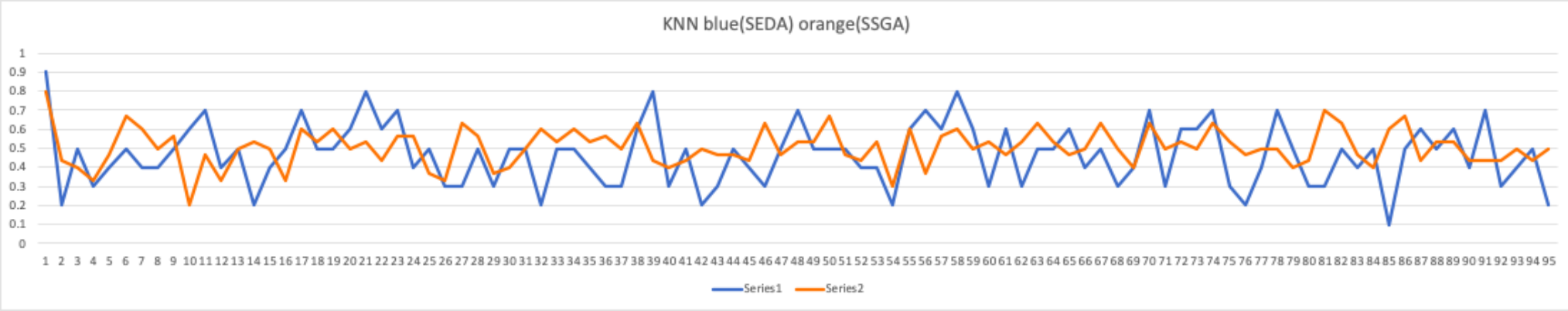
Population size(s) used for the models are as follows -

Method	**KNN**	**SVM_L**	**SVM_R**	**MLP**
SSGA	20	50	50	50
SEDA	20	50	50	50

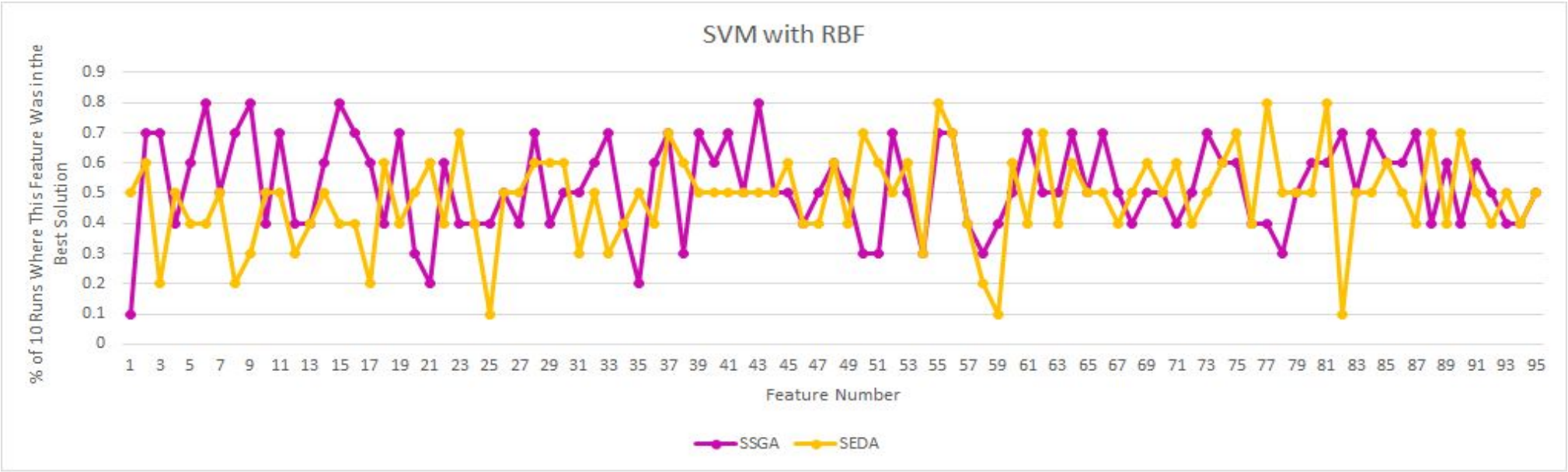
Mutation amounts for all models -

Method	KNN	SVM_L	SVM_R	MLP
SSGA	0.2	0.05	0.05	0.05
SEDA	0.2	0.05	0.05	0.05

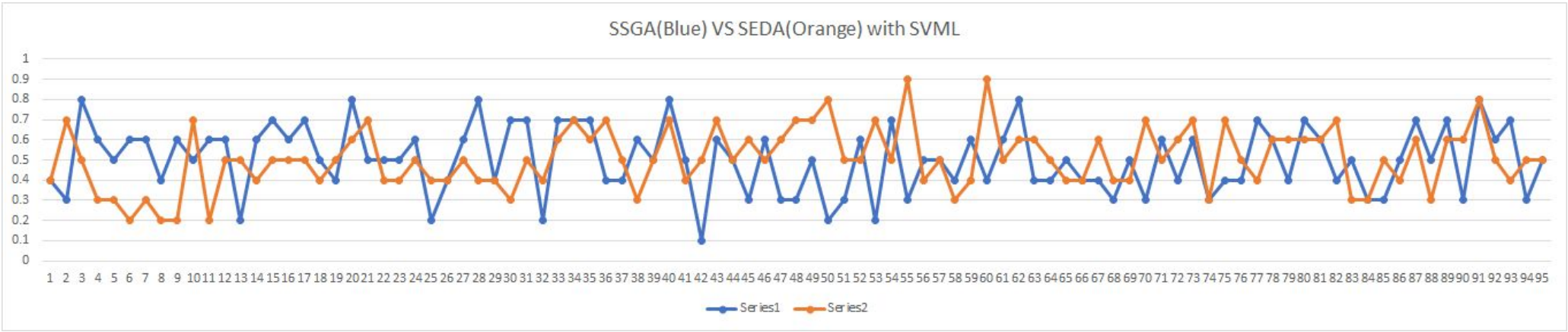
KNN



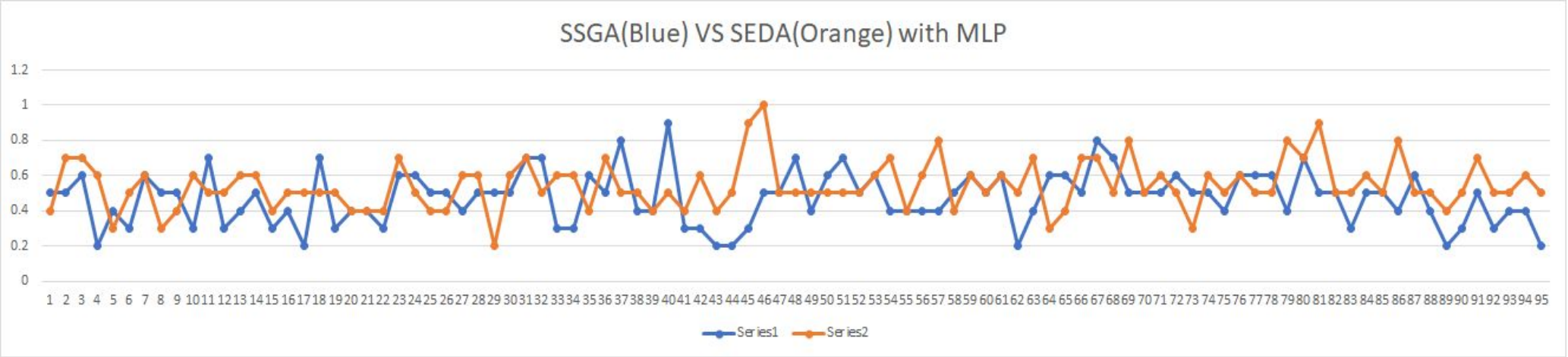
SVM with RBF



SVML



MLP


SSGA(Blue) VS SEDA(Orange) with MLP
1.2
1
0.8
0.6
0.4
0.2
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Series1
Series2