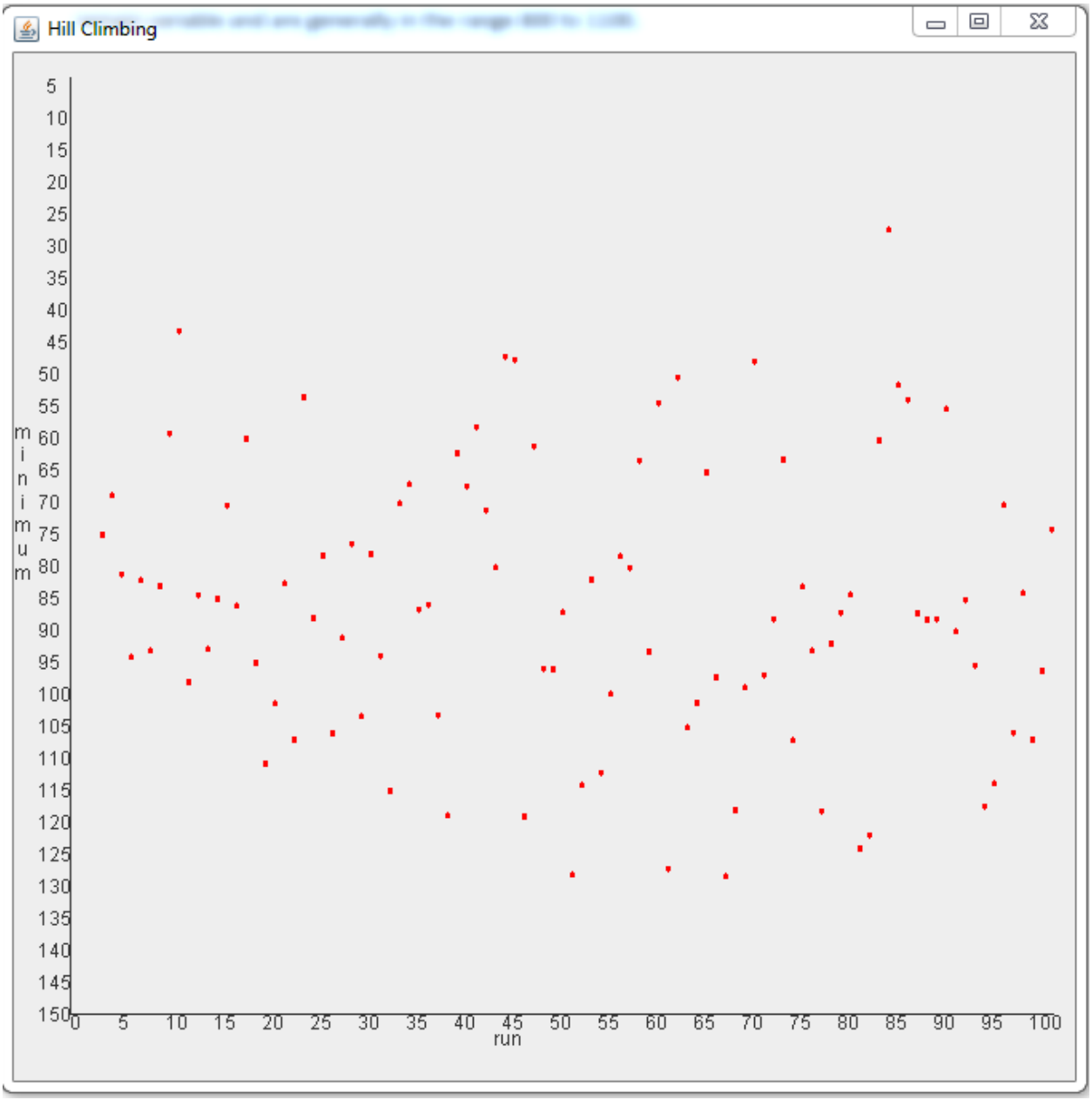
Part 1

Task 4(Analysis):

Hill Climbing (10 Dimensions):

The results of the minima obtained are variable and generally in the range of 10 to 150.

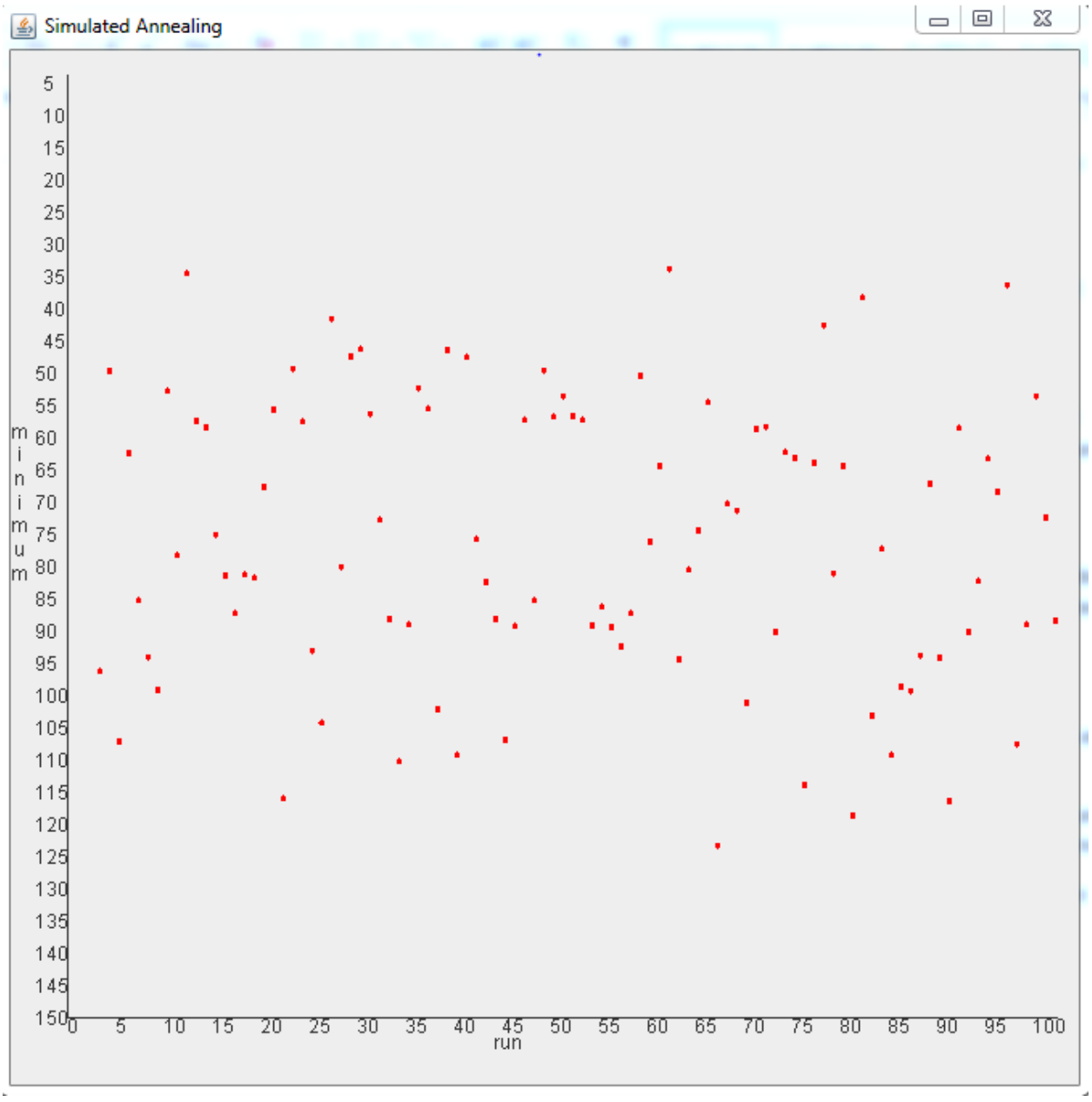


Hill Climbing (100 Dimensions):

The results of the minima obtained increase as the number of dimensions increases. The results still remain variable and are generally in the range 800 to 1100.

Simulated Annealing (10 Dimensions):

The results of the minima obtained are less variable than the one's obtained in Hill climbing but still have a lot of variations and are generally in the range of 10 to 140.

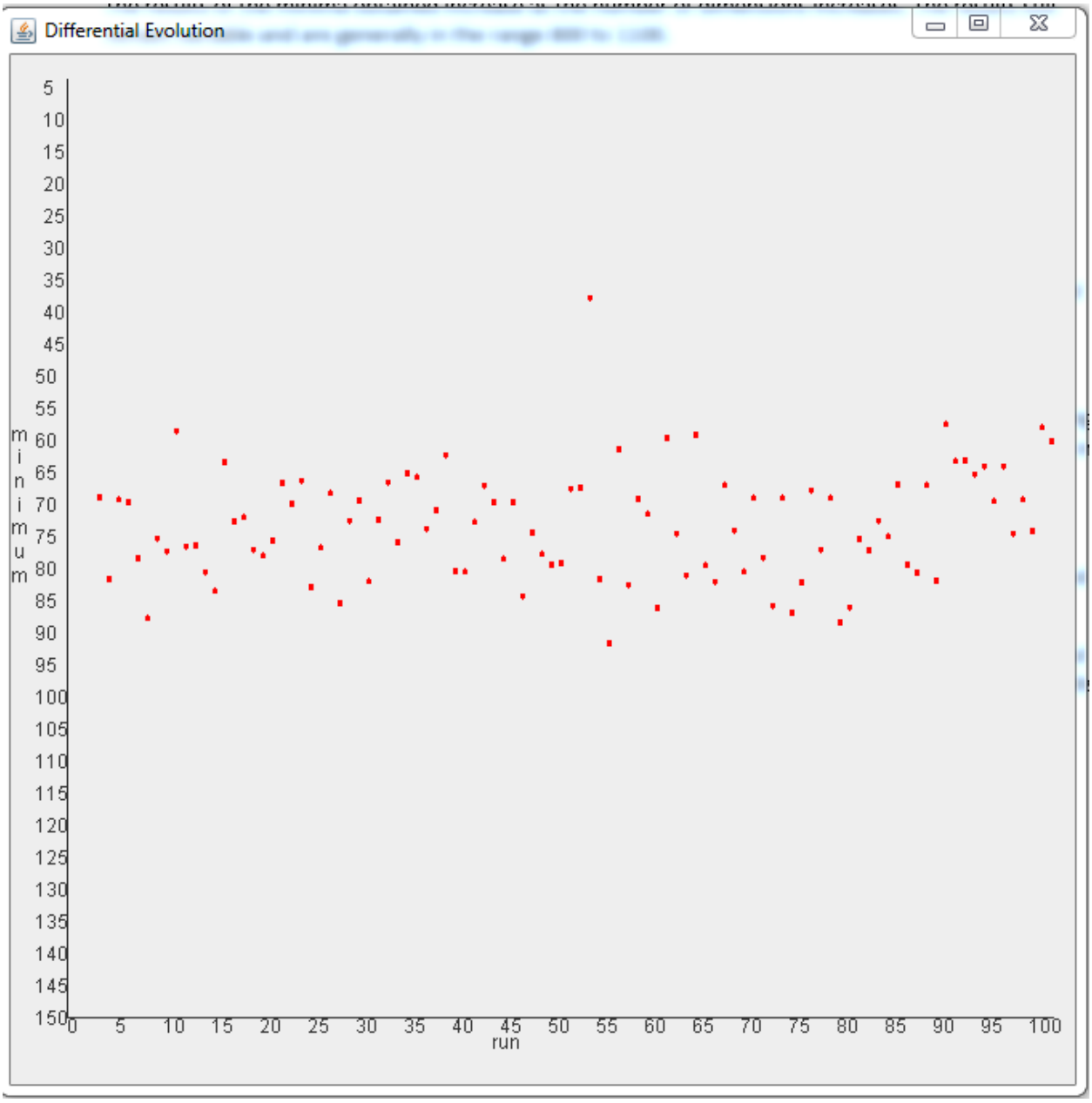


Simulated Annealing (100 Dimensions):

The results of the minima are a lot more consistent as compared to Hill Climbing. But as seen in Hill Climbing, Simulated Annealing for 100 Dimensions sees a gradual increase in the minima obtained and are generally in the range 800 to 1100.

Differential Evolution (10 Dimensions):

The results obtained in Differential Evolution are the most Consistent as compared to both Hill Climbing and Simulated Annealing. The range of values obtained also decreases gradually and comes out to be in the range 20 to 90.



Differential Evolution (100 Dimensions):

As stated earlier, even with 100 Dimensions Differential Evolution gives the most consistent results and are found to be in the range 1400 to 1500.

CONCLUTION: Differential Evolution is found to be the best algorithm as compared to Hill Climbing and Simulated Annealing for finding the minima. Differential Evolution also gives the most consistent results.

Also as we have seen, as the number of Dimensions increases the range of the minima obtained also increases in case of all the algorithms.