**Assignment 3**

* **There is an improvement, which affects the results according to my opinion, is the Gaussian mutation:**

1. **Because when a change in the mean value increases, the fitness value increases, and this is also based on the way mutation works, which generates random values ​​around the mean value, and therefore the value that is added to the gene is large whenever the mean value increases.**
2. **Also, when dividing the standard deviation, the value of the extra gene increases, but also the value that can be subtracted from the gene increases.**

* **And there is another factor that affects the results, which is the tournament selection, because it chooses between more than one chromosome and chooses the greatest fitness among them, and this may sometimes expose it to obtain the highest fitness value, and it may obtain a normal value, and the greater the number of competing chromosomes, the greater the probability of obtaining the highest fitness but the biggest factor in influence is Gaussian mutation.**
* **But the crossover reduces the value of fitness in exchange for an increase in the others.**