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Genetic Algorithm:

Genetic algorithm has following steps:

- Initialization
- Selection
- Cross Over
- Mutation
- Stop if terminating condition meet

Approach to the Wall following problem

In order to solve the wall following problem, I took the following steps:

- First of all, I generated a random string of 0,1,2 and 3 which shows the following movement:
  0 -> Do nothing
  1 -> Left Rotation
  2 -> Right Rotation
  3 -> Forward Movement

- Then I use this random string to traverse the grid and it returns the fitness of the random generated string.
- Then I took the same approach and applied it on the population of (50,100,200,500,700,100 -> graph attached below) and note the results.
- And save that population fitness in a class variable, and I sort it in descending order so that the highest fitness chromosome and fitness value is at the index 0 of the array.
- Now create a new list, which would be the new generation.
- Now I took 10 percent of fittest population into the next generation and 90 percent of the population I give to crossover function which will give me off springs. And I calculate the fitness of new population
- Now I declare them as my new population and sort them again, So I get the highest fitness chromosome at the top.
- I keep repeating this for either some generation Bound, or when it reaches the maximum fitness which is 20 in this problem

Graph Representation of Generation and Fitness with different Population