THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

EXPERIMENT NO. 5

Aim :- To implement Genetic algorithm in Python.

Theory :-

Genetic algorithms are based on ideas of natural selection and genetics.

Important functions :

1) Initialization :

Each solution is typically represented as a chromosome or genotype, which encodes the candidate solution.

2) Fitness Function :

A fitness function evaluates how good each solution in population is, assigning a numerical value, known as f, to each solution.

3) Selection :

In selection phase, individuals from current population are chosen to be parents for the next generation. Common selection techniques include roulette wheel selection, tournament selection, and rank-based.

4> Crossover (Recombination) :

It is the process of combining genetic material from two parent solutions to produce off spring solutions.

5> Mutation :

Mutations typically involves randomly altering some compunents of the chromosome, such as flipping bits or swapping genes.

6> Termination :

Termination criteria determines when to stop the algorithm, such as reaching a maximum number of generations, achieving a satisfactory solution quality, or running out of computational resources.

Conclusion :-

Thus, we were able to understand and successfully implement GA in python..

AI 27/3/24