Question #1.
Describe a chromosome that may be used for this problem. Give an example of a chromosome.

We have used binary chromosome containing 0`s and 1`s. No of 1`s in these chromosomes represents the maintenance interval of units.
for example when Number of Intervals is 2 chromosome will be:
$$[0,1,1,0]$$
when Number of Intervals is 1 chromosome will be:
$$[0,1,0,0]$$
when Number of Intervals is 3 chromosome will be:
$$[1,0,1,1]$$
when Number of Intervals is 4 chromosome will be:
$$[1,1,1,1]$$

Question #2.
Define the fitness function that you used for this problem. Describe the function clearly by giving a mathematical expression or a procedure or algorithm.

The fitness function used in this problem is very simple. It takes chromosomes as input and return the fitness of that chromosome by using this formula:
fitness_function = sum(chromosome)*20

After applying this fitness function we got output as below:
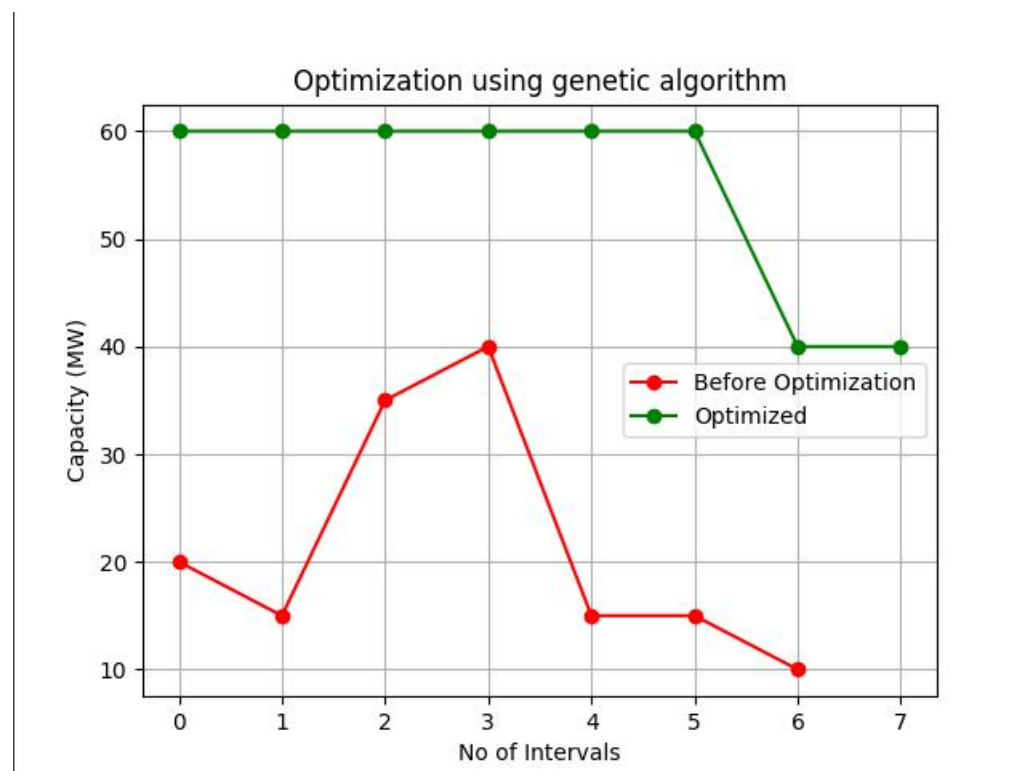
Question #3.
Describe the selection function you used.

Our Selection function takes sorted list of chromosomes and their fitness values and returns only top 4 best chromosomes according to their fitness.
This function is used in crossover function which takes top 4 best chromosomes and apply crossover on these chromosomes.

Question #4.
Describe the hyper-parameters used (such as mutation rate) and how you chose them.

Hyper-parameters:
1) Mutation-rate:-
      We randomly mutated one gene in each chromosome. Given any random index we change the gene from 0 to 1.

               Before Mutation: [1,0,0,1]
               After Mutation: [1,1,0,1]

2) Split-ratio:
      Split rate used is 2.

Example:
               Chromosome no 1: **[1,0, 0, 0]**
               Chromosome no 2: **[0,1, 1, 0]**

after crossover using specified split ratio chromosomes will be:

               Chromosome no 1: **[1,0, 1, 0]**
               Chromosome no 2: **[0,1, 0, 0]**