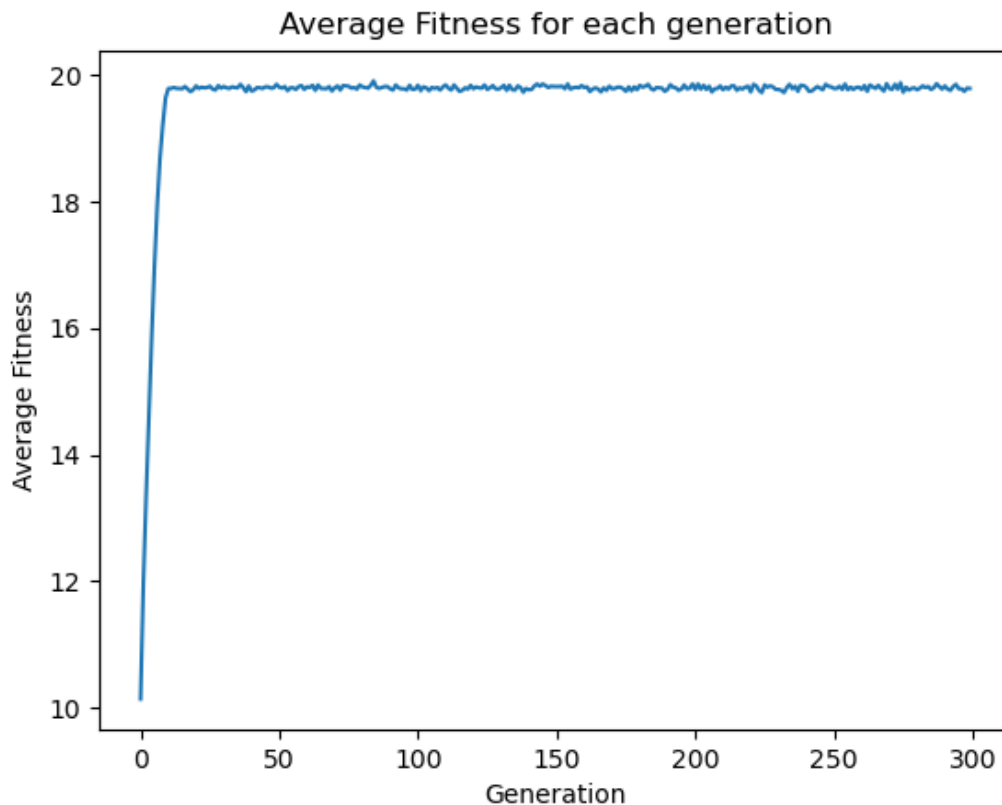


MIES Programming Assignment 5: Report

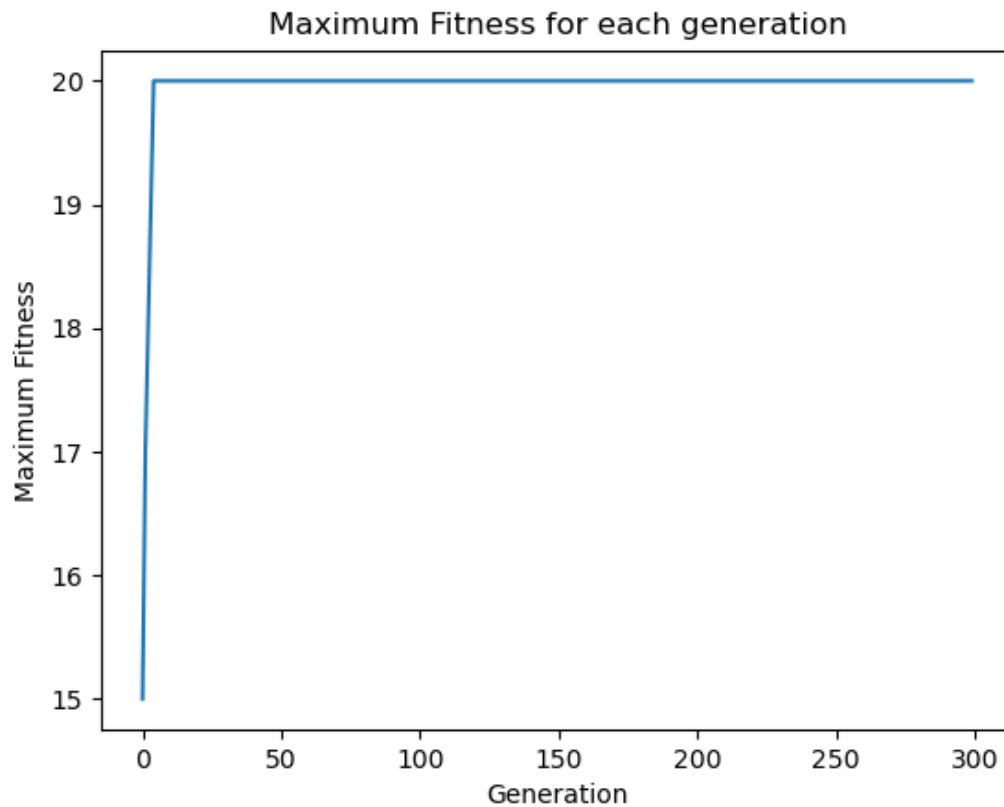
We implemented a genetic algorithm to maximise the number of 1's in a bit string of length 20. The optimal string we wanted was ["11111111111111111111"]. The following parameters were used in the code :

1. Fitness function is the sum of the bits in the chromosomes.
2. The population is 200 chromosomes.
3. Bit mutation rate is 0.01.
4. Number of iterations (generations) is 300.
5. Mating is both one-point crossover as well as uniform.
6. Location of crossover should be random for one-point crossover.

Average Fitness for each Generation:



Maximum Fitness for each Generation:



Following 301 lines contain best string for each generation as well as the final best string at the end:

Best chromosome for generation 1 is 11111111101111010101, with fitness score 16.000
Best chromosome for generation 2 is 11011111111111010111, with fitness score 17.000
Best chromosome for generation 3 is 11111111111111010111, with fitness score 18.000
Best chromosome for generation 4 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 5 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 6 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 7 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 8 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 9 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 10 is 11111111111111111111, with fitness score 20.000
Best chromosome for generation 11 is 11111111111111111111, with fitness score

[illegible]

[illegible]

Best chromosome for generation 82 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 83 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 84 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 85 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 86 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 87 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 88 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 89 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 90 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 91 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 92 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 93 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 94 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 95 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 96 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 97 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 98 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 99 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 100 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 101 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 102 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 103 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 104 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 105 is 111111111111111111, with fitness score

[illegible]

[illegible]

20.000

Best chromosome for generation 294 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 295 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 296 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 297 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 298 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 299 is 111111111111111111, with fitness score 20.000

Best chromosome for generation 300 is 111111111111111111, with fitness score 20.000

Best chromosome after last generation is 111111111111111111, with fitness score 20.000