

***Computational Intelligence***

***(DS313/DS351)***

***Assignment 1***

***Report***

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***Main solution steps:***

1. First, made a function generate\_chromosomes() that generates 20 individuals randomly with each of length 5.
2. Then calc\_fitness() function that loops over every individual and add 1 to its fitness if it finds a bit that has 1 and a calc\_relativeFit() that sums the fitness of the whole population then calculate relative fitness for every individual (fitness of individual / total fitness of population)
3. Then calc\_cdf() function that sums every individual’s relative fitness to the whole individuals’ before him.
4. Then selection function that chooses random parents to perform cross over (the higher the cumulative interval the more likely that the individual will be chosen).
5. Then cross over process that first randomly choose random index then generates 2 new individuals, after that the mutation process in which every gene randomly generates a probability and if it’s lower than the probability of mutation the gene will changes ( if it’s 0 🡪1 and if it’s 1 -> 0 )

***Highest and average fitness plotted:***



