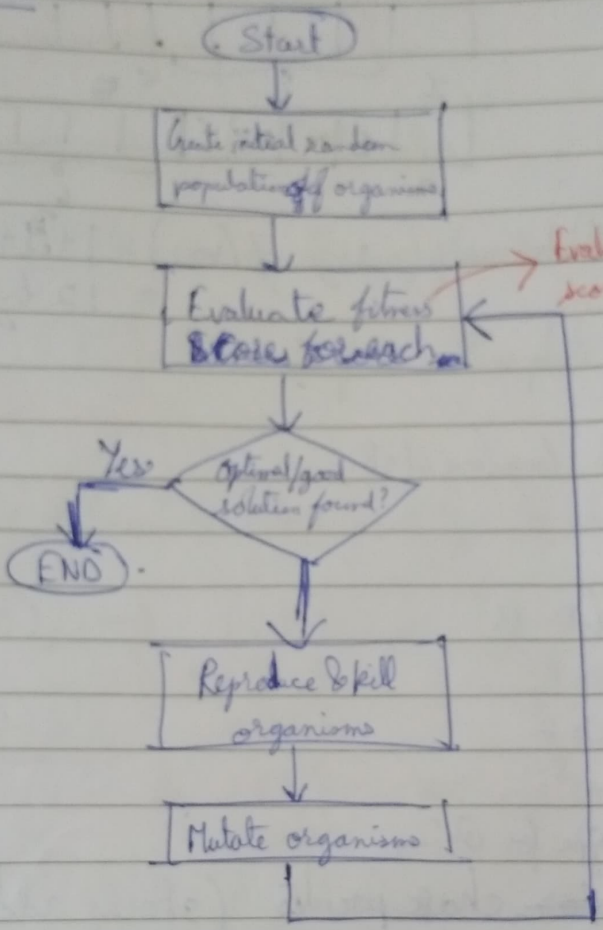
Genetic Algorithms :

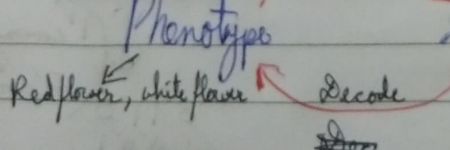
Genetic Algorithm in Programming, simulate the process of natural selection. Those species who can adapt to the changes in their natural selected environment are selected and move on to the next generation.
In other words, Genetic Algorithms simulates survival of the fittest (Charles Darwin)

Flowchart :



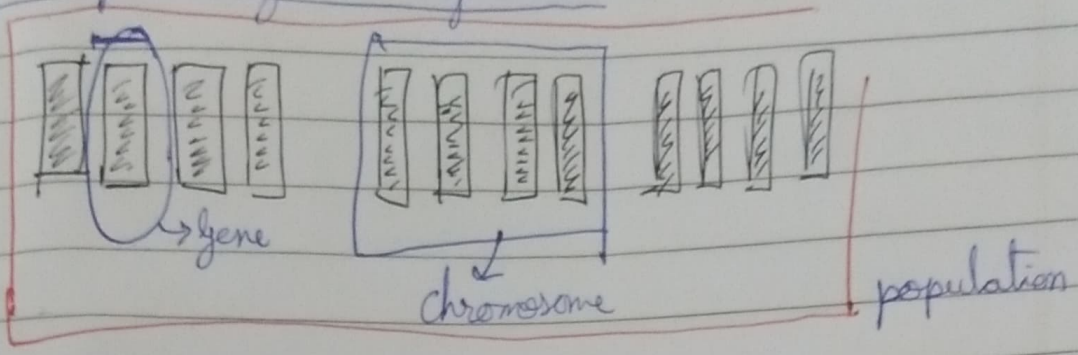
- Population of possible solutions for a given problem
- From a group of individuals (chromosomes), the best ones will survive

* Genotype → underlying genetic code
Phenotype → expression of that code



Here, Rr → Red flower
rr → White flower
Genotype Phenotype

Search space in Genetic Algorithm:-



Gene:- It represents single solution to a problem

Chromosome (individual):- It is composed of several genes & represents multiple several solutions

Population:- population of chromosomes (individuals) maintained within search space ~~of all~~
It represents all solutions to the problem.

Fitness score:- It evaluates how well a given sol" is to the optimal sol"

1) GA maintains ~~a~~ population of n individuals/chromosomes along with their fitness score.

2) ~~The chromosomes with fitness scores of highest f~~

2) Chromosomes with better fitness scores have more chance to reproduce others

3) Chromosomes with better fitness scores are selected to mate and produce better offsprings through cross-breading

4) The new generations of offsprings will have better fitness scores than the parent generation.