BBM 203

ASSIGNMENT 3

Problem :

The problem is to implement the genetic algorithm to find the best chromosome after a certain number of iteration.

Solution :

I created the Gene linked list as a struct that has data**(int**) and link to the next gene**(struct Gene pointer)**. Gene struct stores Genes in any chromosome.

I created the Chromosome linked list as a struct which has fitness data**(int)**, rank**(double),**

link to the next gene**(struct Chromosome pointer)** and head gene**(struct Gene pointer)** so that every gene in the chromosome can reachable through the head gene.

Methods to solve the problem :

void createChromosome() : It creates a chromosome structure with respect to linked list rules.

int myPow() : Basically same as pow() function in math.h library.

void fitnessCalculation(): It calculates the fitness of every chromosome in the population.

void findBestWorstFitness(): It finds the best fitness and worst fitness in the population.

void rankCalculation(): It calculates the rank of every chromosome in the population.

void swap(): This function takes two arguments as a chromosome. It swaps the head genes and fitnesses of two chromosomes.This method called in sortPopulation() method.

void sortPopulation(): It sorts the population with respect to their fitness.

void Crossover(): It takes 5 parameters which are 2 chromosome index, two crossover info, and mutation info. It applies crossover to given chromosomes then applies mutation to given genes.

void Selection(): It selects the chromosomes to be crossover in that generation from the selection file, holds the mutation info of the generation and crossover info of the generation. Calls the Crossover method with this Infos.

void Display(): It prints every chromosome with its all of the genes and prints the best chromosome found so far.

void copyBestGene(): It copies the best chromosome found so far to the best chromosome variable.

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