

CHAPTER IV

ANALYSIS AND DESIGN

4.1 Analysis

4.1.1 Use Case Diagram

Actor is an user. Users are assigned to operate the application. With chance to input the polynomial equation and the preccision of the root. By default the application will process the equation to give an number that become the root of the equation with information on the screen(fitness value, total fitness of a population, index of generation).

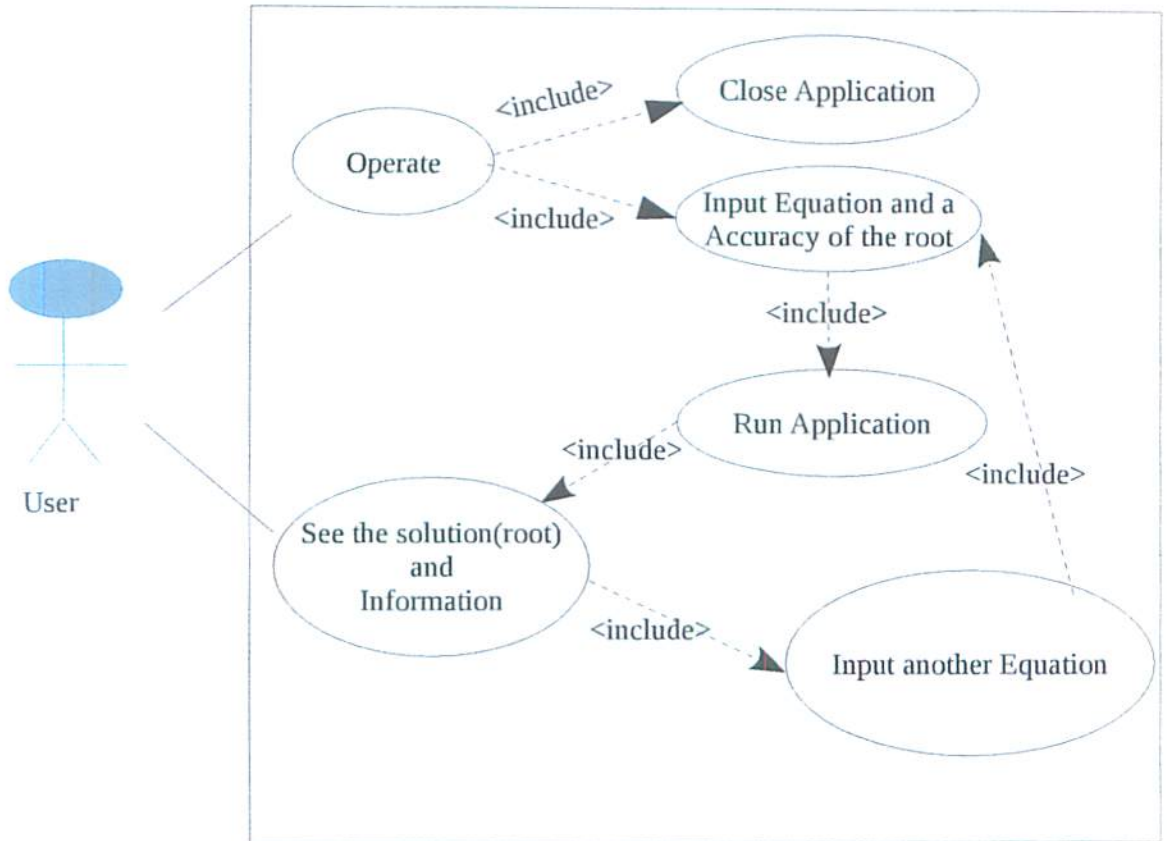


Figure 4.1 Use Case Diagram.

4.2 Design

4.2.1 Class Diagram

The process of finding root of equation will be done through the GUI and the result or report will be displayed in the GUI. The GUI class is called by the Main class.

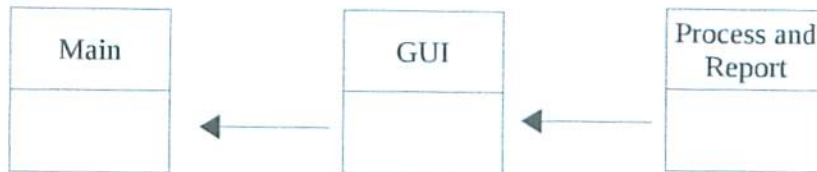


Figure 4.2 Full Class Diagram

4.2.2 Flowchart

Flowchart here is helping us to understand the performance of the application which created and help stake holder to understand the application. Starting from inputting equation, genetic algorithm process and to the reporting solution.

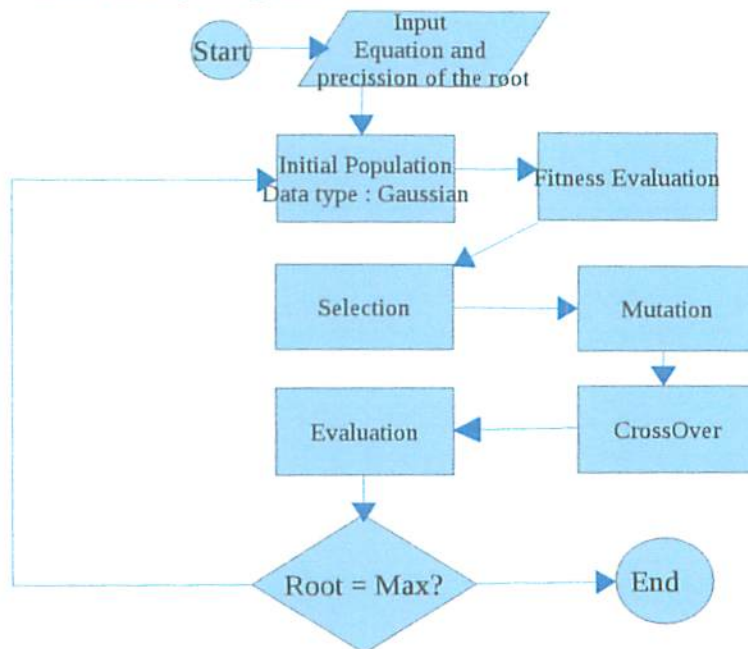


Figure 4.2.2 Flowchart

When the user start or run application user have to input or give the equation and accuracy number that application will do or find. After user input all of data the application will start to initialize population, in this case gaussian number. After all of individual initialized the application will evaluate all of individual and all of individual will have fitness value according to objective function. The best individual will be kept to have cross over. The mutation will happened to all individual in the rate which had been determined by system. After all operation of genetic algorithm individual will be evaluated to find or select the best individual as a best solution.