

My program is written in Java. Program performs 100 iterations.

Code:

```
import java.util.*;
import java.io.*;

public class SIIT {
    public static void newGeneration(int[][] array) {
        int[][] chrom = new int[1][1000];
        Random random = new Random();
        int parentOne = random.nextInt(50);    //random generate parent
        int parentTwo = random.nextInt(50);    //random generate parent
        int resultGen = random.nextInt(1001); //random generate chromosom
        System.out.println(parentOne);
        System.out.println(parentTwo);
        System.out.println(resultGen);
        for (int i = 0; i < 1; i++) {
            for (int j = 0; j <= resultGen; j++) {
                chrom[i][j] = array[parentOne][j] ;
            }
            for (int j = resultGen; j < 1000; j++) {
                chrom[i][j] = array[parentTwo][j] ;
            }
        }
        for (int i = 0; i < 1; i++) {
            for (int j = 0; j < 1000 ; j++) {
                //System.out.print(chrom[i][j]);
            }
            //System.out.println();
        }
    }

    public static void main(String[] args) {

        int[][] generation = new int[100][1000];
        Random random = new Random();
        for (int i = 0; i < 100; i++) {
            for (int j = 0; j < 1000; j++) {
                generation[i][j] = random.nextInt(2); //add number from [0-1]
            }
        }
        for (int i = 0; i < 100; i++) {
            for (int j = 0; j < 1000; j++) {
                // System.out.print(generation[i][j]);
            }
            // System.out.println();
        }

        int better = 0;
        int[] parents = new int[100];
        for (int i = 0; i < 100; i++) {
            for (int j = 0; j < 1000; j++) {
                better += generation[i][j];
            }
            parents[i] = better;
            //search number 1 from all
        }
        better = 0;
        int average;
        int sum = 0;
```

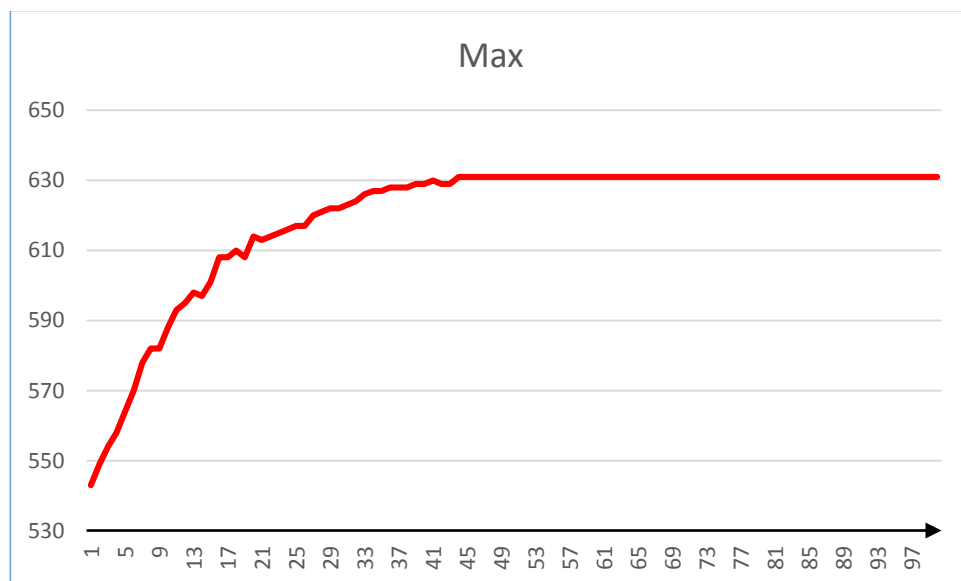
```

    for (int j = 0; j < parents.length; j++) { //calculate better parents
        sum += parents[j];
    }
    average = sum / parents.length;
    System.out.println(average);

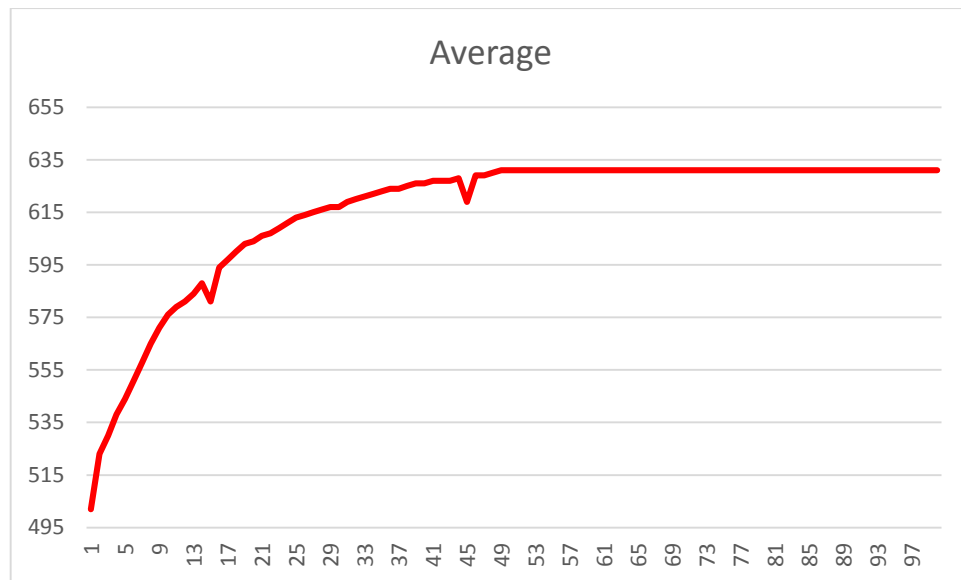
    for (int i = 0; i < 100; i++) { //search average value
        if (parents[i] >= average) {
            for (int j = 0; j < 1000; j++) {
                // System.out.print(generation[i][j]);
            }
            //System.out.println();
        }
    }
    for(int a = 0; a<100;a++){ //100 epoh
        newGeneration(generation);
    }
}
}

```

After the program, we get the result as the maximum and average values. After 10 epoh without changes we stop program. The maximum and average values are equal, but the maximum value we received for fewer iterations. The result also depends on the generation of a random initial population. Graph for the best values of the chromosomes:



Graph for the average values of the chromosomes:



This work help us know how work evolution algorithms and we can see how change graphs average and max values datasets from 100 populations.