Andrey Cheslow 15.09.2016 AI-11

```
package siit_1;

import java.util.Random;

/**
 *
 * @author Andrey
 */
public class SIIT_1 {
    public static void main(String[] args) {
        int generation[][]=new int[100][1000];
        int next_generation[][]=new int[100][1000];
        Random rnd=new Random();
        for(int i=0;i<100;i++){
            for(int j=0;j<1000;j++){
                generation[i][j]=(rnd.nextInt(2));
            }
        }
        /*for(int i=0;i<100;i++){
            for(int j=0;j<1000;j++){
                System.out.print(generation[i][j]);
            }
            System.out.println();
        }*/
        double probability[] = new double[100];
        int fitness[] = new int[100];
        while (fitness[0]<1000){
            for(int i=0;i<100;i++){
                fitness[i]=0;
            }
            for(int i=0;i<100;i++){
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            for(int j=0;j<1000;j++){
                if (generation[i][j]==1) fitness[i]++;
            }
        }
        sort(fitness,generation);
        int sum_fit=0;
        for(int j=0;j<100;j++){
                sum_fit+=fitness[j];
            }
        for(int j=0;j<100;j++){
                probability[j]=(double)(fitness[j])/sum_fit;
            }
        System.out.println(fitness[0]);
        //System.out.println((double)(sum_fit)/100);
        make_new_gen(probability,generation,next_generation);
        generation=next_generation;

    }
    /*for(int j=0;j<100;j++){
            System.out.println(probability[j]);
        }*/
}
public static void sort(int[] fitness,int[][] generation){
    int temp=0;

    for(int i=0;i<99;i++){
        for(int j=i+1;j<100;j++){
            if (fitness[j]>fitness[i]){
                temp=fitness[i];
                fitness[i]=fitness[j];
                fitness[j]=temp;
                int temps[]=generation[i];
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                generation[i] = generation[j];
                generation[j] = temps;
            }
        }
    }
}
public static void make_new_gen(double[] probability,int[][] generation,int[][] next_generation){
    Random rnd= new Random();
    for(int i=0;i<100;i++){
        /*
        double p1=(double)(rnd.nextInt(100))/100;
        double p2=(double)(rnd.nextInt(100))/100;

        int nump1=0,nump2=0;
        int k=0;
        while(p1>0){

            if((p1-probability[k])>0){k++;p1-=probability[k];}
            else {nump1=k;p1-=probability[k];}
        }
         k=0;
        while(p2>0){

            if((p2-probability[k])>0){k++;p2-=probability[k];}
            else {nump2=k;p2-=probability[k];}
        }*/
        int nump1=rnd.nextInt(50);
        int nump2=rnd.nextInt(50);
        for(int f=0;f<1000;f++){
            int orrr=rnd.nextInt(2);
            if(orrr==0)
            next_generation[i][f]=generation[nump1][f];
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            else next_generation[i][f]=generation[nump2][f];
        }
      }
    }
}
```