

```

#include<fstream>
#include<iostream>
#include<vector>
#include<math.h>
#include<iomanip>
#include <time.h>
#include <ctime>
#include <random>
#include <cstdlib>
#include <cstring>
#include<algorithm>
#include <sstream>
#include <unistd.h>
#include <string>
using namespace std;
ifstream weight;
int tempargv1;
vector<int > data;
vector<int> allRets;
vector<int> best;
vector<int> bestpos;

vector<vector<int> > newGen;
vector<vector<int> > weights;
int tempargv;

ofstream LOG,retsLOG;
string str1="./data/LOG.LOG";
string rets="./data/execlRets.LOG";

int findeHighestPos(vector<int>Rets){

int currentHigh,currentHighpos;
currentHigh=Rets[0];
currentHighpos=0;
for(int i=0;i<Rets.size();i++){
    if(Rets[i]>currentHigh){
        currentHigh=Rets[i];
        currentHighpos=i;
    }
}

return currentHighpos;
}

void findWorst(){

    for(int i=0;i<100;i++){
        for(int a=0;a<100;a++){
            if(allRets[a]==i){
                retsLOG<<i<<endl;
                return;
            }
        }
    }
    retsLOG<<"the hell?";
}

int findBest(){
    int count=0;

```

```

while(true){
ifstream file;
    string st1="./data/";
        st1+=to_string(count);
        st1+="return";

    if(!ifstream(st1)){

        break;
    }

file.open(st1);

int temp;
file>>temp;
if(temp>=100){
    cout<<"wrong";
    LOG<<"may be false";
}
file>>temp;
allRets.push_back(temp);

file.close();
count++;

}

LOG.open(str1,fstream::app);

for(int i=0;i<4;i++){

int temp=findeHighestPos(allRets);
int result=allRets[temp];
bestpos.push_back(temp);
/*
result=max_element(allRets.begin(),allRets.end());
//LOG<<allRets[distance(allRets.begin(),result)]<<" at "<<distance(allRets.begin(),result)<<endl;

//
cout<<allRets[distance(allRets.begin(),result)]<<" at "<<distance(allRets.begin(),result)<<endl;
LOG<<allRets[distance(allRets.begin(),result)]<<" at "<<distance(allRets.begin(),result)<<endl;
bestpos.push_back(distance(allRets.begin(),result));

*/

if(i==0){
    retsLOG<<allRets[temp]<<" ";
    string befehl="copy ";
    befehl+=".\data\\";
    befehl+=to_string(temp);
    befehl+="weights ";
    befehl+=".\best\\";
    befehl+=to_string(tempargv);
    befehl+="best";
    cout<<befehl;

    system(befehl.c_str());
}
}

```

```

    }
    vector<int>::iterator nth = allRets.begin() + temp;
    allRets.erase(nth);
}

findWorst();
LOG.close();

}

void writesave(){
    srand(time(NULL));
    ofstream save;
    ofstream opt;

    LOG.open(str1,ofstream::app);

    for(int b=0;b<10;b++){

        for(int i=0;i<10;i++){
            string str1="./data/";
            string str2="./data/";
            int temp=b*10+i;
            str1+=to_string(temp);
            str2+=to_string(temp);
            str1+=".weights";
            str2+=".saveoption";

            save.open(str1);
            opt.open(str2);

            for(int a=0;a<newGen[i].size();a++){

                if(rand()%50==0){
                    // LOG<<"Mutation occurred at "<<b*10+i<<" from "<<newGen[i][a]<<" to ";
                    int temp=rand()%2000-1000;
                    // LOG<<temp<<endl;
                    save<<temp<<";";
                    opt<<temp<<";";
                }else{

                    int temprand=rand()%4;
                    save<<weights[temprand][a]<<";";
                    opt<<weights[temprand][a]<<";";
                    /*
                    save<<newGen[i][a]<<";";
                    opt<<newGen[i][a]<<";";
                    */
                }
            }

            save.close();
            opt.close();
        }
    }
    LOG.close();
}

void loadWeight(int arg,int pos){

```

```

vector<int > data;

string::size_type sz;

weight.open("./data/"+(to_string(arg)+".weights"));

if(!weight.is_open()){
    cout<<"CANT LOAD '.weights' FILE"<<endl;
}else{

    while (weight)
    {

        string s;
        if (!getline( weight, s )) break;

        istringstream ss( s );
        vector <string> record;
        record.clear();

        while (ss)
        {

            string s;
            if (!getline( ss, s, ',' )) break;
            record.push_back( s );

            string::size_type sz;

            const char* a=s.c_str();

            stringstream strValue;
            strValue << a;

            unsigned int intValue;
            strValue >> intValue;

        }

        for (int i=0; i< record.size(); i++)
        {
            int num = atoi(record.at(i).c_str());

            data.push_back(num);

        }

    }

    if (!weight.eof())
    {
        cerr << "File Ended on .map file";
    }
}

```

```

    }
        weights.push_back(data);

}

weight.close();

}

void showoff(int pos){
    cout<<endl;

    for(int i=0;i<weights[pos].size();i++){

        cout<<weights[pos][i]<<endl;

    }

}

void crossover(){

    srand(time(NULL));

    for(int i=0;i<10;i++){
        vector<int>temp;
        for(int a=0;a<weights[0].size();a++){

            temp.push_back(weights[rand()%4][a]);

        }
        newGen.push_back(temp);
    }

}

int main(int argc, char* argv[]){

    tempargv=strtol(argv[1],NULL,10);

    retsLOG.open(rets,ios_base::app);

    findBest();

    /* bestpos.push_back(rand()%100);
        bestpos.push_back(rand()%100);*/

    sleep(1);
    for (int i=0;i<4;i++){

```

```
        data.clear();  
        loadWeight(bestpos[i],i);  
    }
```

```
    crossover();  
    writesave();
```

```
    LOG.close();
```

```
}
```