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Report: HW3

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Description:

This program is a game called Master Mind : a guess number game.

giveanswer函式用來呼叫產生題目

countH、countX函式用來呼叫對照幾H和幾X

用match1.2檢查這個數字是否已經算為H，若是，則不能拿來算x。

I have learn:

函式的宣告，輸入，輸出，呼叫用法

The bug I met:

一開始用countX(int X,……) 發現X無法傳回main (改用指標寫法)

忘記把遊戲先關掉，編譯器不能再次編譯

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Code:

#include <stdio.h>

#include <stdlib.h>

#include <time.h>

//先宣告三個函式

int giveanswer(short int ans[],int N,int P);

int countH(short int input[],short int ans[],int\* H,short int match1[],short int match2[],int P);

int countX(int P,int\* X,short input[],short ans[],short match1[],short match2[]);

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

{

int N=0 , P=0 , H=0 , X=0;

int i=0,j=0,k=0;

N = \*argv[1] - '0';

P = \*argv[2] - '0';

if(N>9||N<1||P>9||P<1||N<P) //檢查N、P範圍是否輸入錯誤

{

printf("the input should make 1<=N<=9 , 1<=P<=9 , N>=P\n");

return 0;

system("PAUSE");

}

short answer[10]; //儲存題目

short input[10]; //儲存猜的數字

short match1[10]; //檢查是否被算過

short match2[10]; //檢查是否被算過

srand((unsigned)time(NULL));

giveanswer(answer,N,P);

printf("answer="); //印出答案

for(i=0;i<P;i++)

printf("%d",answer[i]);

printf("\n");

//猜答案 猜到全H為止

do{

printf("Guess %d number between 1-%d ",P,N);

for(i=0;i<P;i++){

match1[i]=0;

match2[i]=0;

scanf("%1d",&input[i]);}

for(i=0;i<P;i++)

if(input[i]>N||input[i]<1) //檢查input範圍

{printf("each input number should >=1 & <=%d\n",N);

return 0;}

H=X=0;

countH(input,answer,&H,match1,match2,P);

countX(P,&X,input,answer,match1,match2);

printf("%dH%dX\n",H,X);

}while(H!=P);

printf("Congratulation!! The answer is right\n");

return 0;

}

//隨機產生題目

int giveanswer(short int ans[],int N,int P)

{

int i,j,x,k;

do{

x=0;

for (i=0;i<P;i++)

ans[i] = rand()% N + 1;

for(j=0;j<P-1;j++)

for(k=j+1;k<P;k++)

if(ans[j]==ans[k])

x=1;

}while(x==1);

}

//計算有幾個H

int countH(short int input[],short int ans[],int\* H,short int match1[],short int match2[],int P)

{ //位置與數字相同 H+1， match紀錄這個位置算過了

int i;

for(i=0;i<P;i++)

if(input[i]==ans[i]){

\*H=\*H+1;

match1[i]++;

match2[i]++;

}

}

//計算有幾個X

int countX(int P,int\* X,short input[],short ans[],short match1[],short match2[])

{ //數字相同、位置不同 X+1， match紀錄這個位置算過了

int i,j;

for(i=0;i<P;i++)

for(j=0;j<P;j++)

if(input[i]==ans[j] && match1[i]==0 && match2[j]==0){

\*X = \*X+1;

match1[i]++;

match2[j]++;}

}

Compilation:

gcc -o hw3 hw3.c

Execution:

./hw3 [the max number want to guess] [the length of number]

Output:

C14031162@c-2015-1:~/hw2> ./hw3 9 4

answer=6243

Guess 4 number between 1-9 1563

1H1X

Guess 4 number between 1-9 6243

4H0X

Congratulation!! The answer is right.