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Report: hw3

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Description:

I have done the homework by adding 3 new functions into the program in order to fulfill the qualifications of the homework instruction. I found that I can write the program in the faster and clean way by using function. The 3 new functions added is meant to shorten the codes and also make the mindset to be easy to understand.

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4 Way of Compiling: gcc -o hw3 hw3.c

5 Way of Executing: ./hw3 N P

6 Function of the Program: A changed version of hw2. there are 3 new functions used to execute the program.

7 To play the game MASTER MIND by determining how many numbers that you guess are correct and with right position of the answer that set by the program and how m any numbers that you guess are correct but not with right position of the answer that set by program.

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10

11 #include<stdio.h>

12 #include<stdlib.h>

13 #include<time.h> //to set a random number

14 #include<string.h> //to check the length of the input integer

15

16 void functionA(int t[],int a,int n )//to set the answer ramdomly and also make sure that the integer of the answer didn't repeat

17 {

18 t[a]=((rand()%n)+1);

19 }

20

21 void functionB(int g[],int b, int c)// to separate a N-digit number to 'N' number ans put into array

22 {

23 g[b]=c%10;//take the remainder and put into the array

24 }

25

26 int functionC(int q,int r,int s)//function of showing the result to player

27 {

28 if (q!=r)

29 {

30 s=0;

31 printf("Please try again");

32 printf("\n");

33 printf("YOUR ANSWER:");

34 }

35 if (q==r)

36 {

37 s=1;//markings of there are 'N' of 'H' and the answer is correct

38 printf("BINGO!!!!!!");

39 printf("\n");

40 return 0;

41 }

42

43 }

44

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

46 {

47 int H,X,N,P,Lp,Ln,i,j,t,input,g,m,x,y;

48 Ln=strlen(argv[1]); //Ln=the length of input N

49 Lp=strlen(argv[2]); //Lp=the length of input P

50 if (Lp!=1||Ln!=1) //to check that if the command agrument list is not single digit

51 {

52 printf("the command argument list is larger than 1-9.\n");

53 return 0;

54 }

55

56 //to typecast the strings to integer

57 N=atoi(argv[1]);

58 P=atoi(argv[2]);

59

60 if(N==0||P==0) //the integer '0' is not accepted

61 {

62 printf("The input of N or P is not valid.\n");

63 return 0;

64 }

65

66 if (P>N){ //the number of positions can't larger than the number of integer to play with

67 printf("since P>N,the program is not work,plaese input correctly.\n");

68 return 0;}

69

70 printf("The number of integer to play with:%d\nThe number of positions: %d\n",N,P);

71

72 //to initialise the array to 0

73 int answer[100]={0};

74 int yo[100]={0};

75 //to set the answer ramdomly and also make sure that the integer of the answer didn't repeat

76 srand((unsigned)time(NULL));

77 for(i=1;i<=P;i++)

78 functionA(answer,i,N);

79

80 for (i=1;i<=P;i++)//make sure that the integer of the answer didn't repeat

81 {

82 t=0;

83 while (t==0)

84 {

85 t=1;

86 for (j=1;j<i;j++)

87 {

88 if (answer[i]==answer[j])

89 {

90 answer[i]++;//when there are numbers repeated, number in array 'answer[i]'will plus to make it different from others

91 if (answer[i]>N)

92 answer[i]=1;

93 t=0;

94

95 }

96 }

97 }

98 }

99 printf("ANSWER:");

100

101 for (i=1;i<=P;i++)

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

103 printf("\n");

104 int guess[100]={0};

105 //user input the answer and program allocate the unput into array

106 printf("YOUR ANSWER:");

107 g=0;//When the answer of user guess is not exactly correct, there is a marking that let the loop to continue and user.

108 while(g==0)

109 {

110 for (x=1;x<=P;x++)

111 yo[x]=0;

112 scanf("%d",&input);//let the users to guess

113

114 for(m=P;m>0;m--)//because the integer divided from the 'input' have been reversed so the order of the loop is also reversed

115 {

116 functionB(guess,m,input);

117 input=input/10;//input divide by 10

118 }

119

120

121 H=0,X=0;//to initialise the variables to 0

122 for(i=1;i<=P;i++) //process to calculate the

123 {

124 y=0; //marking that 'i'th arrays have a 'H'

125 if(answer[i]==guess[i]) //to calculate H by determing the number of 'i' in both array are the same

126 {

127 y=1;

128 H=H+1;

129 }

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

131 {

132 if (answer[i]==guess[j] && y==0)//to calculate X by determining that the 'i'th of both arrays have no marking 'y'

133 {

134 X=X+1;

135

136 }

137 }

138 }

139

140

141 printf("There are %dH and %dX.\n",H,X);//the number of 'H's and 'X's calculated is shown

142

143 functionC(H,P,g);

144 /\*if (H!=P)

145 {

146 g=0;

147 printf("Please try again");

148 printf("\n");

149 printf("YOUR ANSWER:");

150 }

151 if (H==P)

152 {

153 g=1;//markings of there are 'N' of 'H' and the answer is correct

154 printf("BINGO!!!!!!");

155 printf("\n");

156 }

157 \*/

158 if (H==P)

159 return 0;

160 }

161 return 0;//the program ends.

162 }

Compilation:

gcc -o hw3 hw3.c

Execution:

./hw3

Output:

The number of integer to play with:5

The number of positions: 4

ANSWER:2513

YOUR ANSWER:2555

There are 2H and 0X.

Please try again

YOUR ANSWER:2115

There are 2H and 1X.

Please try again

YOUR ANSWER:2513

There are 4H and 0X.

BINGO!!!!!!