

NUMBER GUESSING: BULLS AND COWS



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INTRODUCTION TO BULLS AND COWS

- 4 digits number form 0 to 9 is generated by system randomly.
- 4 digits can't be the same.
- If one digit of Guess numbers is same position and same value with the Initial number, we mark 1A.
- If one digit of Guess numbers is wrong position but same value with the Initial number, we mark 1B.

Example:

Initial number:4681

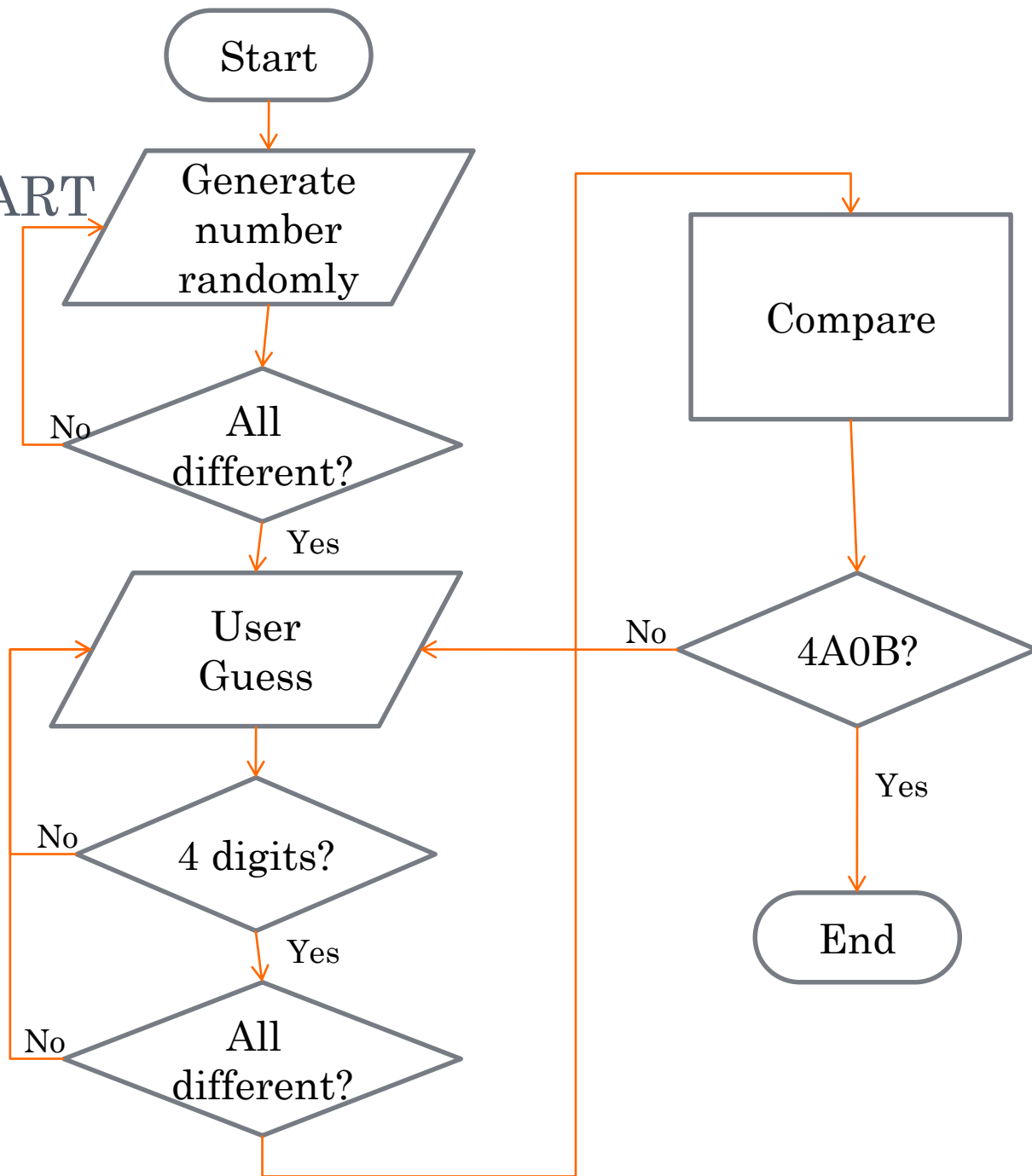
Guess number:1284 1A2B

Guess number:0679 1A

STEPS

- Step1: generate 4 digits number randomly
 - Different from each other?
- Step 2: user input 4 digits number
 - Different from each other?
 - 4 digits?
- Step3: compare position and value

FLOW CHART



GENERATE NUMBER RANDOMLY

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
void main()
{
    int a;
    srand(time(NULL));
    a=(rand()%10);
}
```

`a = rand() % 10;`
Means
A is rand() mod 10

GENERATE 4 DIFFERENT-NUMBER DIGITS

```

11  int initial[4]={0,0,0,0}; //random number
12  int count=0;
13
14  srand( time(NULL));
15  initial[count]=(rand() %10); //generate 1st digit
16  Count++;
17  bool flag = true;
18  //generate 2nd 3rd 4th digit
19  while(count<4)
20  {
21      flag=true;
22      initial[count]=(rand() %10);
23      for(int i=0; i<count; i++) //compare with front numbers
24          if(initial[count]==initial[i])
25              flag=false; //mark same value with another
26      if(flag==false) //if same value with another
27          continue; //don't do count++
28      Count++;
29  }

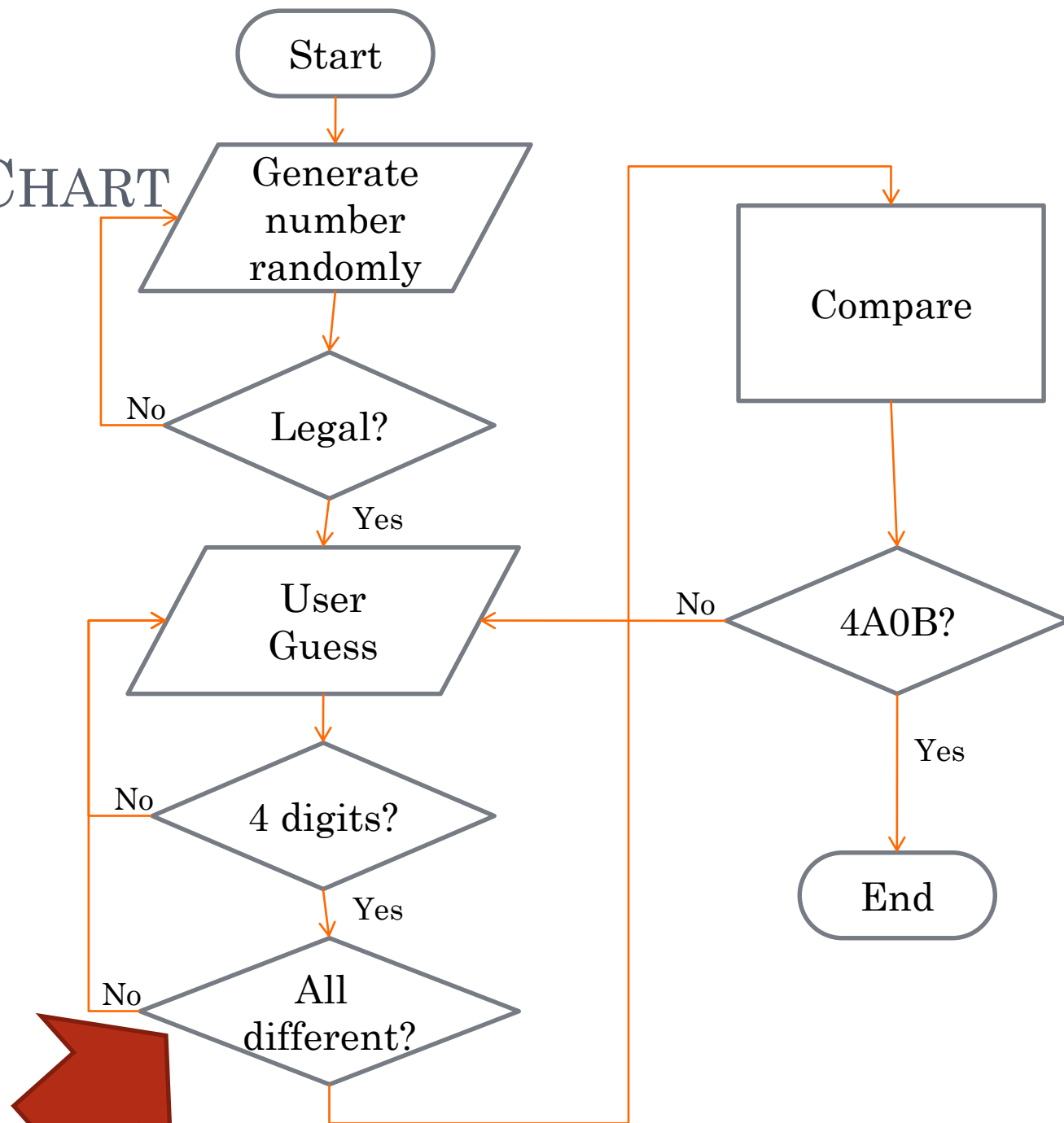
```

0 1 2 3
Initial[] 1 0 0 0 Count = 0

END While!!!

0 1 2 3
Initial[] 1 5 3 2 Count = 4
i=0
Flag=true

FLOW CHART



DEMO

- Compiler the example code, you will see as bellow

```
Please input 4 digit number:1122
1122:0A0B
Please input 4 digit number:_
```

- It didn't tell you input error.
- Please ignore 0A0B.

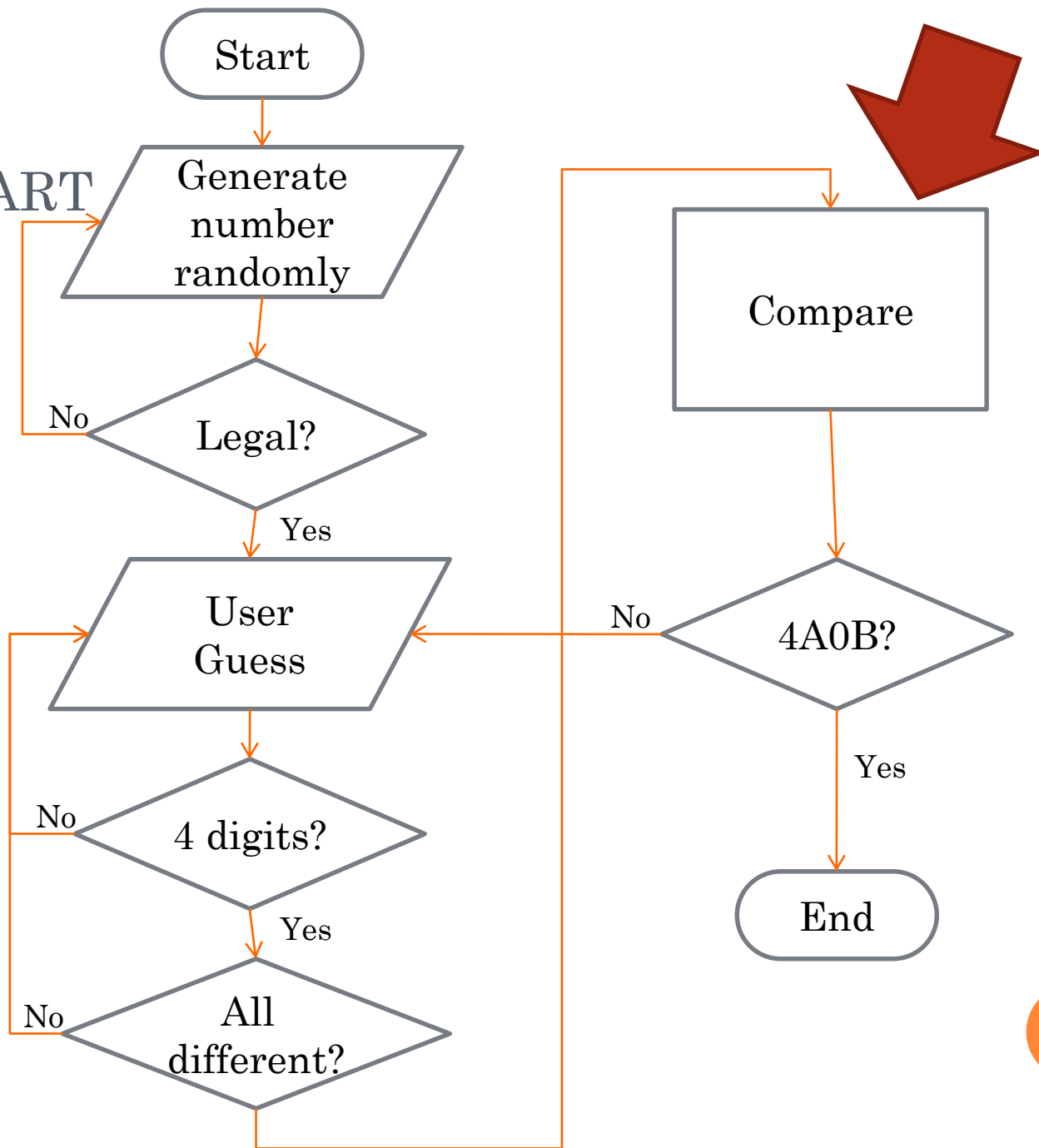
- Normal

```
Please input 4 digit number:1122
1122:Input error! different please!
Please input 4 digit number:1234
1234:0A2B
Please input 4 digit number:_
```


EXERCISE

```
47 //different?-----  
48 //you need to check that are input[0]~input[4] different from each other  
49 //if input[i] eaque to input[j] and i is not j ,the value of different change to false  
50 //please set the correct different value!!  
51 bool different=true;  
52 /*please fill this area*/  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63 /*end here*/  
64 if(different==false)  
65 {  
66     cout<<"Input error! different please!\n";  
67     continue;  
68 }
```

FLOW CHART



DEMO

- Compiler the example code, you will see as bellow

```
Please input 4 digit number:1234
1234:0A0B
Please input 4 digit number:5678
5678:0A0B
Please input 4 digit number:_
```

- It didn't compare answer with user input.
- Normal

```
Please input 4 digit number:1234
1234:0A2B
Please input 4 digit number:
```

EXERCISE

```

69  | //compare-----
70  | //now input[0]~input[4] is correct && we have initial[0]~initial[4]
71  | //please compare input[] with initial[]
72  | //if the position and the value are correct than A+1
73  | //if the position is wrong but the value is correct then B+1
74  | //How to get correct value of A and value of B?
75  | int A=0,B=0;
76  | /*please fill this area*/
77  |
78  |
79  |
80  |
81  |
82  |
83  |
84  |
85  |
86  |
87  | /*end here*/
88  | if(A!=4)//not correct
89  |     cout<<A<<"A"<<B<<"B\n";//cout<<A;    it will print the value of A (this A is a variable)
90  |                                     //cout<<"A"; it will print the character A(this A is just a letter)
91  | else//Bingo! you are right!
92  | {
93  |     cout<<"GREAT\n";
94  |     ans=true;//end~~
95  | }
    
```

