GE23131-Programming Using C-2024





Question 2
Correct
Marked out of 5.00

Flag question

Given a number N, return true if and only if it is a *confusing number*, which satisfies the following condition:

We can rotate digits by 180 degrees to form new digits. When 0, 1, 6, 8, 9 are rotated 180 degrees, they become 0, 1, 9, 8, 6 respectively. When 2, 3, 4, 5 and 7 are rotated 180 degrees, they become invalid. A confusing number is a number that when rotated 180 degrees becomes a different number with each digit valid.

Example 1:

6 -> 9

Input: 6

Output: true

Explanation:

We get 9 after rotating 6, 9 is a valid number and 9!=6.

Example 2:

89 -> 68

Input: 89

Output: true

Explanation:

We get 68 after rotating 89, 86 is a valid number and 86!=89.

Example 3:

11 -> 11

Input: 11

Output: false

Explanation:

We get 11 after rotating 11, 11 is a valid number but the value remains the same, thus 11 is not a confusing number.

Note:

- 1. 0 <= N <= 10^9
- After the rotation we can ignore leading zeros, for example if after rotation we have 0008 then this number is considered as just 8.

Answer: (penalty regime: 0 %)

```
1 |#include<stdio.h>
          #include<stdio.h>
int a(int N){
   int org=N,r=0;
   while(N>0){
      int d=N%10;
      if(d==0){
        r=r*10+0;
      }else if(d==1){
        r*=10+1;
      }else if(d==6){
        r*=10+9;
      }else if(d==8){
   4
   6
   9
 10 ,
 11
                                 r*=10+9;

}else if(d==8){

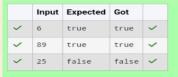
r*=10+8;

}else if(d==9){

r*=10+6;

}else{

return 0;
 13
14
15
16
17
 18
                                            }
N/=10;
19
21
22
                                  return r!=org;
23
24
25
26
27
            int main(){
                      int N;
scanf("%d",&N);
if(a(N)){
                      printf("true");
}else{
   printf("false");
28
29
30
 32
                       return 0;
```



Question **3**Correct
Marked out of 7.00

F Flag question

A nutritionist is labeling all the best power foods in the market. Every food item arranged in a single line, will have a value beginning from 1 and increasing by 1 for each, until all items have a value associated with them. An item's value is the same as the number of macronutrients it has. For example, food item with value 1 has 1 macronutrient, food item with value 2 has 2 macronutrients, and incrementing in this fashion.

The nutritionist has to recommend the best combination to patients, i.e. maximum total of macronutrients. However, the nutritionist must avoid prescribing a particular sum of macronutrients (an 'unhealthy' number), and this sum is known. The nutritionist chooses food items in the increasing order of their value. Compute the highest total of macronutrients that can be prescribed to a patient, without the sum matching the given 'unhealthy' number.

Here's an illustration:

Given 4 food items (hence value: 1,2,3 and 4), and the unhealthy sum being 6 macronutrients, on choosing items 1, 2, 3 -> the sum is 6, which matches the 'unhealthy' sum. Hence, one of the three needs to be skipped. Thus, the best combination is from among:

- 2+3+4=9
- 1+3+4=8
- 1+2+4=7

Since 2 + 3 + 4 = 9, allows for maximum number of macronutrients, 9 is the right answer.

Complete the code in the editor below. It must return an integer that represents the maximum total of macronutrients, modulo $1000000007 (10^9 + 7)$.

It has the following:

n: an integer that denotes the number of food itemsk: an integer that denotes the unhealthy number

Constraints

- $1 \le n \le 2 \times 10^9$
- $1 \le k \le 4 \times 10^{15}$

Input Format For Custom Testing

The first line contains an integer, n, that denotes the number of food items.

The second line contains an integer, k, that denotes the unhealthy number.

Sample Input 0

2

2

Sample Output 0

Explanation 0

The following sequence of n = 2 food items:

- 1. Item 1 has 1 macronutrients.
- 2. 1 + 2 = 3; observe that this is the max total, and having avoided having exactly k = 2 macronutrients.

Sample Input 1

Sample Output 1

2

Explanation 1

- 1. Cannot use item 1 because k = 1 and $sum \equiv k$ has to be avoided at any time.
- 2. Hence, max total is achieved by sum = 0 + 2 = 2.

Sample Case 2

Sample Input For Custom Testing

Sample Input 2

3

3

Sample Output 2

Explanation 2

2 + 3 = 5, is the best case for maximum nutrients.

Answer: (penalty regime: 0 %)

```
}
printf("%ld",sum%1000000007);
```

	Input	Expected	Got	
~	2 2	3	3	~
~	2	2	2	~
~	3	5	5	~

Passed all tests! ✓