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URL : <https://www.spoj.com/problems/PALIN/>

PALIN - The Next Palindrome

[#ad-hoc-1](#)

A positive integer is called a *palindrome* if its representation in the decimal system is the same when read from left to right and from right to left. For a given positive integer K of not more than 1000000 digits, write the value of the smallest palindrome larger than K to output. Numbers are always displayed without leading zeros.

Input

The first line contains integer t , the number of test cases. Integers K are given in the next t lines.

Output

For each K , output the smallest palindrome larger than K .

Example

Input :

2

808

2133

Output :

818

2222

SOURCE CODE :

```
#include <iostream>
```

```
#include <math.h>
```

```
#include <string.h>
```

```
using namespace std;
```

```
int checkNines(char[],int);
```

```
int isPalindrome(char[], int);
```

```
char findPalindrome(char[],int);
```

```
int main()
```

```
{
```

```
    int num;
```

```
    cin >> num;
```

```
    int digitNum;
```

```
    for(int i = 0; i < num; i++)
```

```
    {
```

```
        char char123[1000000];
```

```
        cin >> char123;
```

```
        digitNum = strlen(char123);
```

```
        findPalindrome(char123, digitNum);
```

```
    }
```

```
    return 0;
```

```
}
```

```
char findPalindrome(char arr[1000000], int digits)
```

```
{
```

```
    if(checkNines(arr, digits))
```

```
    {
```

```
        cout << "1";
```

```
        for(int i = 0; i < digits-1; i++)
```

```
        {
```

```
            cout << "0";
```

```
        }
```

```
        cout << "1" << endl;
```

```
    }
```

```
    else
```

```

{
    int mid = digits / 2;
    int left = mid - 1;
    int right = (digits%2) ? mid+1 : mid;

    bool LEFTsmaller = false;
    while(left >= 0 && arr[left]==arr[right]) { // PASS SAME DIGITS
        left--;
        right++;
    }

    if( left < 0 || arr[left] < arr[right]) {
        LEFTsmaller = true;
    }

    while (left >= 0) {
        arr[right] = arr[left];
        right++;
        left--;
    }

    if(LEFTsmaller==true) {
        int carry = 1;
        left = mid - 1;
        if(digits%2 == 1) {
            int temp1;

            temp1 = (int)arr[mid] - 48;
            temp1 += carry;
            arr[mid] = temp1 + 48;

            temp1 = (int)arr[mid] - 48;

```

```

        carry = temp1 / 10;
        arr[mid] = (temp1 % 10) + 48;
        right = mid + 1;
    }else {
        right = mid;
    }
    while(left >= 0) {
        int temp2;

        temp2 = (int)arr[left] - 48;
        temp2 += carry;
        arr[left] = temp2 + 48;

        temp2 = (int)arr[left] - 48;
        carry = temp2 / 10;
        arr[left] = (temp2 % 10) + 48;
        arr[right++] = arr[left--];
    }
}

for(int i = 0; i < digits; i++) {
    cout << arr[i];
}

cout << endl;

}
}

int checkNines(char arr[1000000], int size)
{
    for(int i = 0; i < size; i++)
    {

```

```
        if(arr[i] != '9')
        {
            return 0;
        }
    }
    return 1;
}
```

```
int isPalindrome(char arr[1000000], int size)
{
    for(int i = 0; i < size/2; i++)
    {
        if(arr[i]==arr[size-i-1])
        {
            return 1;
        }else{
            return 0;
        }
    }
}
```

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ID	DATE	USER	PROBLEM	RESULT	TIME	MEM	LANG
22597267	2018-10-28 16:31:24	brtsgn	The Next Palindrome	accepted edit ideone it	0.07	17M	CPP
22597265	2018-10-28 16:31:12	zhaodong	The Knapsack Problem	accepted	0.01	31M	CPP
22597264	2018-10-28 16:31:04	Han	Prime Generator	wrong answer	0.00	9.2M	C
22597263	2018-10-28 16:31:00	Nick	Can you answer these queries I	runtime error (SIGSEGV)	0.00	21M	CPP
22597258	2018-10-28 16:48:57	huanghansheng	The Knapsack Problem	compilation error	-	-	CPP
22597257	2018-10-28 16:48:07	Shuvo	New Distinct Substrings	runtime error (SIGSEGV)	0.00	15M	CPP14
22597254	2018-10-28 16:47:23	Shuvo	New Distinct Substrings	wrong answer	0.02	17M	CPP14
22597252	2018-10-28 16:47:03	tushgr	Adding Reversed Numbers	accepted	0.00	15M	CPP14
22597246	2018-10-28 16:44:35	Karl Einstein	Johnny and the Watermelon Plantation	time limit exceeded	-	16M	CPP

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