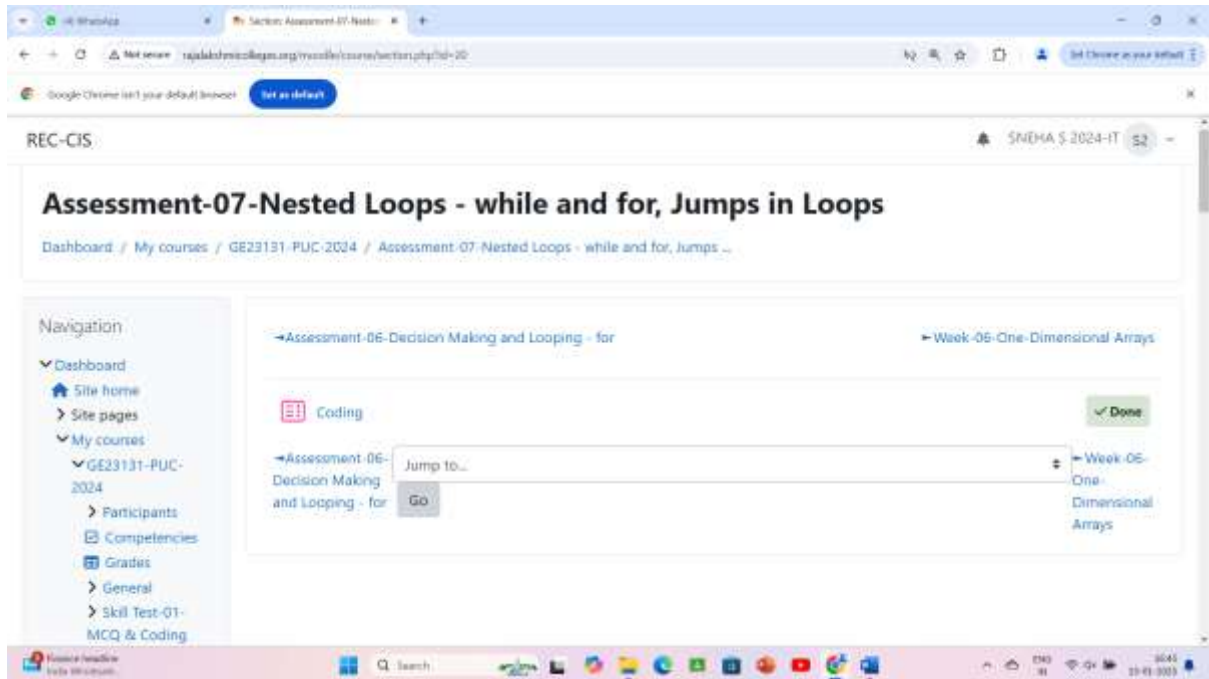


# WEEK 7:



Take a number, reverse it and add it to the original number until the obtained number is a palindrome.

## Constraints

$1 \leq \text{num} \leq 999999999$


## Sample Input 1

32

## Sample Output 1

55

**For example:**



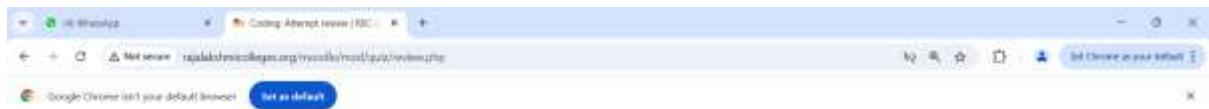
REC-CIS

Answer: (penalty regime: 0 %)

```
#include<stdio.h>

int rev(int n)
{
    int rev=0;
    while(n>0)
    {
        rev=rev*10+n%10;
        n/=10;
    }
    return rev;
}

int ispalin(int n)
{
    int temp=n, rev=0;
    while(temp>0)
    {
```

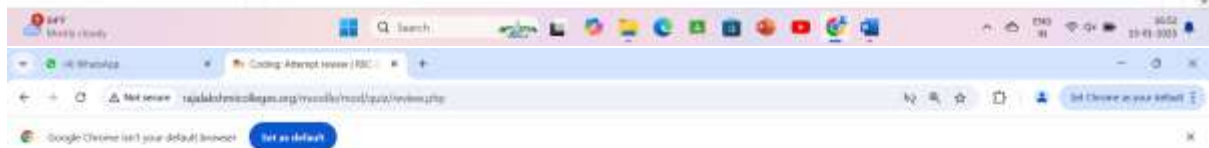


REC-CIS-

Answer: (penalty regime: 0 %)

```
rev=rev*10+n%10;
n/=10;
}
return rev;

int ispalin(int n)
{
    int tempn, rev=0;
    while(tempn>0)
    {
        rev=rev*10+tempn%10;
        tempn/=10;
    }
    if(n==rev) return 1;
    else return 0;
}
```



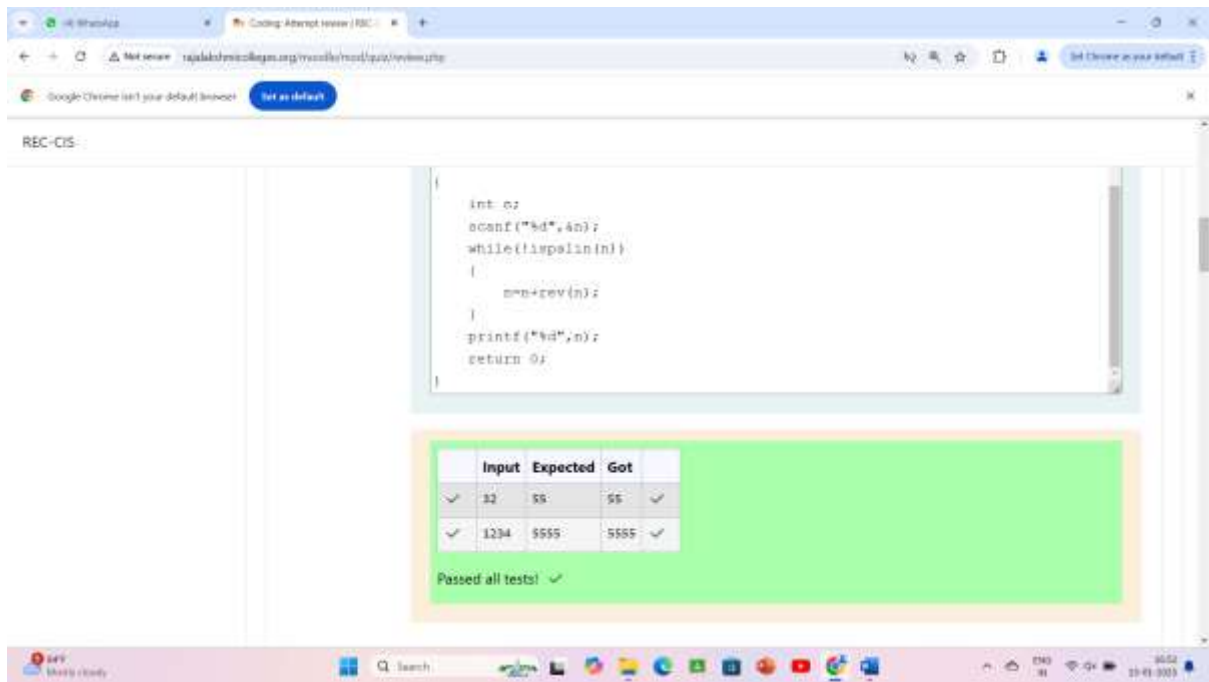
REC-CIS-

Answer: (penalty regime: 0 %)

```
rev=rev*10+temp%10;
temp/=10;
}
if(n==rev) return 1;
else return 0;

int main()
{
    int n;
    scanf("%d",&n);
    while(!ispalin(n))
    {
        n=n+rev(n);
    }
    printf("%d",n);
    return 0;
}
```





Write a program to find if a given number N can be expressed as a sum of two prime numbers.

Note: YOU MUST OPTIMIZE the logic to find whether a number is prime or not, as very large prime numbers are provided as input. If the logic is not optimized your program will NOT get executed within the given time limit.

### **Input Format:**

First line contains total number of test cases, denoted by T.

Next T lines will contain the value of N for each test case.

### **Output Format:**

T lines containing either yes or no.

## **Boundary Conditions / Constraints:**

$$1 \leq T \leq 25$$

$$3 \leq N \leq 10^9$$

## **Example Input/Output 1:**

### **Input:**

5

20

12

23

34

16

### **Output:**

yes

yes

no

yes

yes

### **Explanation:**

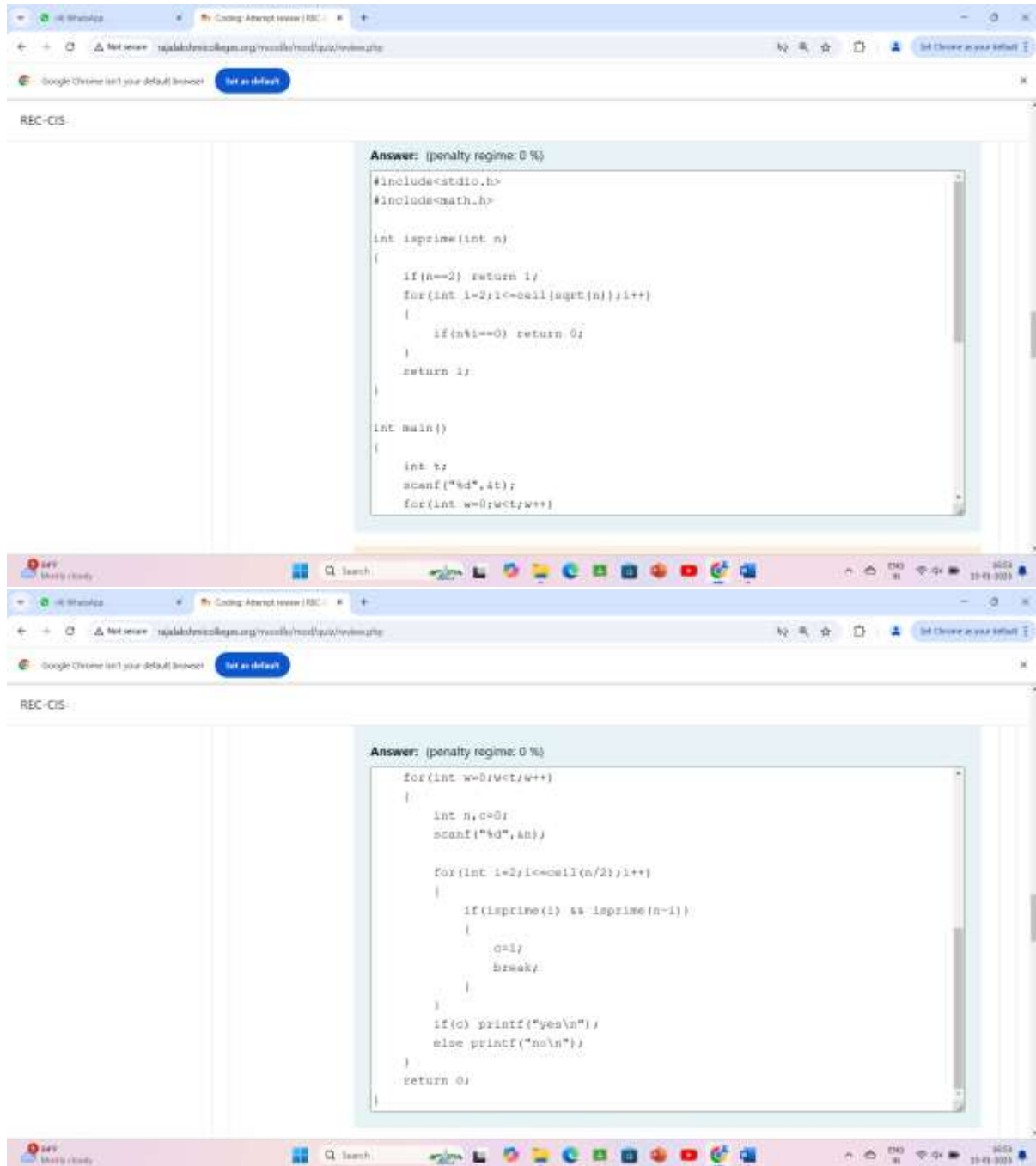
20 can be expressed as  $17+3$

12 can be expressed as  $7+5$

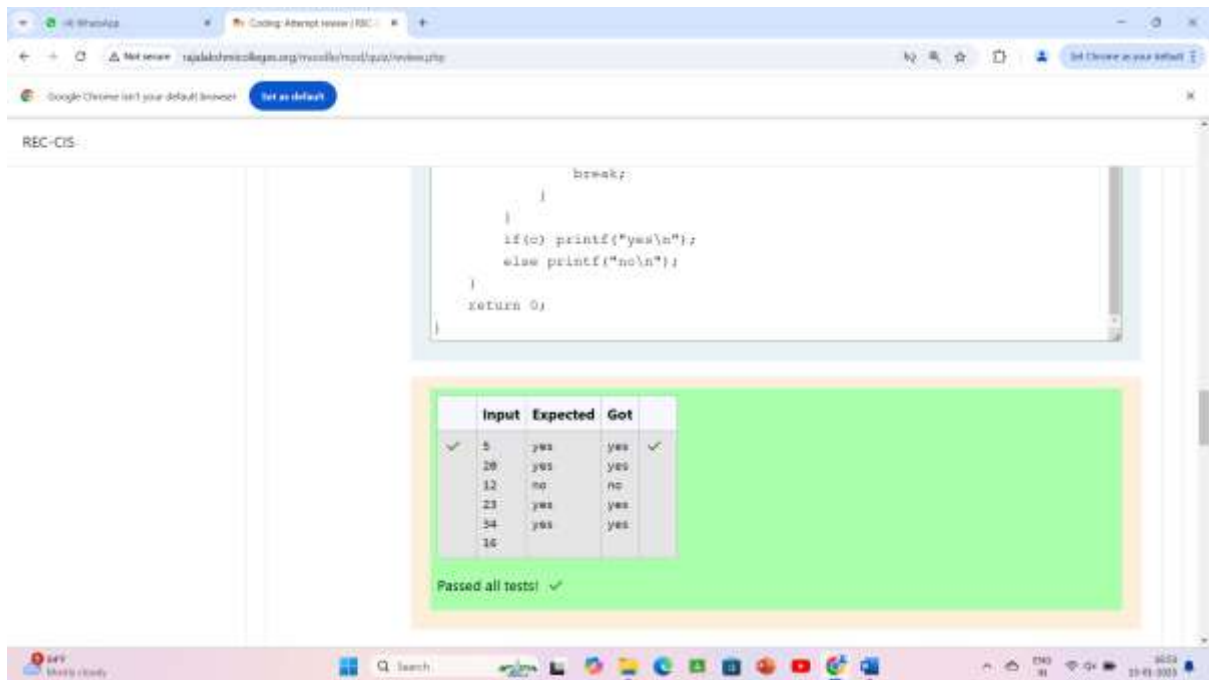
23 cannot be expressed as sum of two primes

34 can be expressed as 31+3 or 11+23 or 17+17

16 can be expressed as 11+5



```
Answer: (penalty regime: 0 %)  
#include<stdio.h>  
#include<math.h>  
  
int isprime(int n)  
{  
    if(n==2) return 1;  
    for(int i=2;i<=ceil(sqrt(n));i++)  
    {  
        if(n%i==0) return 0;  
    }  
    return 1;  
}  
  
int main()  
{  
    int t;  
    scanf("%d",&t);  
    for(int w=0;w<t;w++)  
  
Answer: (penalty regime: 0 %)  
    for(int w=0;w<t;w++)  
    {  
        int n,c=0;  
        scanf("%d",&n);  
  
        for(int i=2;i<=ceil(n/2);i++)  
        {  
            if(isprime(i) && isprime(n-i))  
            {  
                c=1;  
                break;  
            }  
        }  
  
        if(c) printf("yes\n");  
        else printf("no\n");  
    }  
    return 0;  
}
```



Write a C program that given an integer 'n', prints the number of integers that are less than or equal to 'n' and co-prime to 'n'

Two integers a and b are said to be relatively prime or co-prime if the only positive integer that evenly divides both of them is 1. That is, the only common positive factor of the two numbers is 1. This is equivalent to their greatest common divisor being 1.

Input Format:

One line containing the value of 'n', where  $1 \leq n \leq 10,000$

Output Format:

One line containing the number of integers that are co-prime to n and less than or equal to 'n'

## Sample Test Cases

### Test Case 1

Input

10

Output

4

### Test Case 2

Input

23

Output

22



## Test Case 3

Input

11

Output

10

REC-CIS

```
Answer: (penalty regime: 0 %)  
#include<stdio.h>  
  
int iscoprime(int a,int b)  
{  
    for(int i=2;i<=a/i++  
    {  
        if(a%i==0 && b%i==0) return 0;  
    }  
    return 1;  
}  
  
int main()  
{  
    int n,c=0;  
    scanf("%d",&n);  
    for(int i=1;i<=n;i++)  
        if(iscoprime(i,n)) c++;  
    printf("%d",c);  
}
```

REC-CIS

```
int main()  
{  
    int n,c=0;  
    scanf("%d",&n);  
    for(int i=1;i<=n;i++)  
        if(iscoprime(i,n)) c++;  
    printf("%d",c);  
    return 0;  
}
```

	Input	Expected	Got	
✓	10	4	4	✓
✓	23	22	22	✓
✓	11	10	10	✓

Passed all tests! ✓