

# Assessment-07-Searching Algorithms-Linear and Binary

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REC-CIS

# GE23131-Programming Using C-2024

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Attempts allowed: 1

This quiz has been configured so that students may only attempt it using the Safe Exam Browser.

Time limit: 1 hour 30 mins

## Your attempts

Attempt 1	
Status	Finished
Started	Sunday, 12 January 2025, 4:00 PM
Completed	Sunday, 12 January 2025, 4:27 PM
Duration	27 mins 13 secs
Review	

No more attempts are allowed

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Show one page at a time

Finish review

Status	Finished
Started	Sunday, 12 January 2025, 4:00 PM
Completed	Sunday, 12 January 2025, 4:27 PM
Duration	27 mins 13 secs

Question 1

Correct

Marked out of 1.00

Flag question

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

Constraints

1 <= num <= 999999999

Sample Input 1

32

Sample Output 1

55

For example:

Input	Result
32	55
1234	5555

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int rev(int n)
3 {
4     int rev=0;
5     while(n>0)
```

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Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int rev(int n)
3 {
4     int rev=0;
5     while(n>0)
6     {
7         rev=rev*10+n%10;
8         n/=10;
9     }
10    return rev;
11 }
12 int ispalin(int n)
13 {
14     int temp=n,rev=0;
15     while(temp>0)
16     {
17         rev=rev*10+temp%10;
18         temp/=10;
19     }
20     if(n==rev)
21         return 1;
22     else
23         return 0;
24 }
25 int main()
26 {
27     int n;
28     scanf("%d",&n);
29     while(!ispalin(n))
30     {
31         n=n+rev(n);
32     }
33     printf("%d",n);
34     return 0;
35 }
36
```



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```
15     while(temp>0)
16     {
17         rev=rev*10+temp%10;
18         temp/=10;
19     }
20     if(n==rev)
21         return 1;
22     else
23         return 0;
24 }
25 int main()
26 {
27     int n;
28     scanf("%d",&n);
29     while(!ispalin(n))
30     {
31         n=n+rev(n);
32     }
33     printf("%d",n);
34     return 0;
35 }
36
```

	Input	Expected	Got	
✓	32	55	55	✓
✓	1234	5555	5555	✓

Passed all tests! ✓

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Question **2**  
Correct  
Marked out of 1.00  
[Flag question](#)

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



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### 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 %)

```
1 #include<stdio.h>
2 #include<math.h>
3
4 int isprime(int n)
5 {
6     if(n==2)
7         return 1;
8     for(int i=2;i<=ceil(sqrt(n));i++)
9     {
10         if(n%i==0)
11             return 0;
12     }
13     return 1;
14 }
15 int main()
16 {
```

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```
3
4 int isprime(int n)
5 {
6     if(n==2)
7         return 1;
8     for(int i=2;i<=ceil(sqrt(n));i++)
9     {
10         if(n%i==0)
11             return 0;
12     }
13     return 1;
14 }
15 int main()
16 {
17     int t;
18     scanf("%d",&t);
19     for(int w=0;w<t;w++)
20     {
21         int n,c=0;
22         scanf("%d",&n);
23         for(int i=2;i<=ceil(n/2);i++)
24         {
25             if(isprime(i) && isprime(n-i))
26             {
27                 c=1;
28                 break;
29             }
30         }
31         if(c)
32             printf("yes\n");
33         else
34             printf("no\n");
35     }
36     return 0;
37 }
38
```



[rajalakshmicolleges.org/moodle/mod/quiz/review.php?attempt=150983&cmid=177](http://rajalakshmicolleges.org/moodle/mod/quiz/review.php?attempt=150983&cmid=177)



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Question **3**  
Correct  
Marked out of 1.00  
[Flag question](#)

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

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Output

22

Test Case 3

Input

11

Output

10

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int iscoprime(int a,int b)
3 {
4     for(int i=2;i<=a;i++)
5     {
6         if(a%i==0 && b%i==0)
7             return 0;
8     }
9     return 1;
10 }
11 int main()
12 {
13     int n,c=0;
14     scanf("%d",&n);
15     for(int i=1;i<n;i++)
16         if(iscoprime(i,n))
17             c++;
18     printf("%d",c);
```

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```
1 #include<stdio.h>
2 int iscoprime(int a,int b)
3 {
4     for(int i=2;i<=a;i++)
5     {
6         if(a%i==0 && b%i==0)
7             return 0;
8     }
9     return 1;
10 }
11 int main()
12 {
13     int n,c=0;
14     scanf("%d",&n);
15     for(int i=1;i<n;i++)
16         if(iscoprime(i,n))
17             c++;
18     printf("%d",c);
19     return 0;
20 }
21
```

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

Passed all tests! ✓