



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

## SCHOOL OF COMPUTING SCIENCE



### DEPARTMENT OF NETWORKING AND COMMUNICATION

## **LLJ -2 - REFUTE QUESTIONS C PROGRAMMING**

**NAME : PADMANATHAN C**

**REG NO : RA2411030010021**



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

## Refute Questions

### 1st Question

#### Problem statement :

Write a program to find the factorial of the given number.

Factorial of a number is given by the product of the integers from 1 to (n-1)

Factorial(n) =  $n \times (n-1) \times (n-2) \times \dots \times 3 \times 2 \times 1$ .

#### Solution code :

```
#include <stdio.h>

int main()
{
    int n=0, j, factorial = 1;
    printf("Enter a number: ");
    scanf("%d", &n);
    for (int i=1; i<=n; i++)
    {
        factorial = factorial*i;
    }
    printf("%d \n", factorial);
}
```

#### Execution :

```
main.c
1 #include <stdio.h>
2 int main()
3 {
4     int n=0, j, factorial = 1;
5     printf("Enter a number: ");
6     scanf("%d", &n);
7     for (int i=1; i<=n; i++)
8     {
9         factorial = factorial*i;
10    }
11    printf("%d \n", factorial);
12 }
```

input

Enter a number: 6

720

...Program finished with exit code 0  
Press ENTER to exit console.

Correct test case: Input = 6, Output = 720



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

```
main.c
1 #include <stdio.h>
2 int main()
3 {
4     int n=0, j, factorial = 1;
5     printf("Enter a number: ");
6     scanf("%d", &n);
7     for (int i=1; i<=n; i++)
8     {
9         factorial = factorial*i;
10    }
11    printf("%d \n", factorial);
12 }
```

input

Enter a number: -1

1

...Program finished with exit code 0  
Press ENTER to exit console.

Refute test case: Input = -1, Output = 1 (Unexpected)

## Explanation of Failure :

The code doesn't check for the numbers less than 0, which results in the incorrect output for negative numbers.

## 2nd Question

### Problem statement :

Write a program to check whether the given sides can form a triangle.

This is done by checking if the sum of two sides of a triangle is greater than the third side. If a, b, c are the sides of a triangle, and if the conditions  $a+b>c$ ,  $b+c>a$  and  $a+c>b$  are fulfilled, then a, b, c forms a triangle.

### Solution code :

```
#include <stdio.h>
int main()
{
    int a, b, c;
    printf("Enter the three sides: ");
    scanf("%d, %d, %d", &a, &b, &c);
```



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

```
if (a+b>c || b+c>a)
    if (a+b>c)
        printf("%d, %d, %d forms a triangle", a, b, c);
    else
        printf("%d, %d, %d forms a triangle", a, b, c);
else
    if (a+c>b)
        printf("%d, %d, %d forms a triangle", a, b, c);
    else
        printf("%d, %d, %d does not form a triangle", a, b, c);
return 0;
}
```

## Execution :

```
main.c
1 #include <stdio.h>
2 int main()
3 {
4     int a, b, c;
5     printf("Enter the three sides: ");
6     scanf("%d, %d, %d", &a, &b, &c);
7     if (a+b>c || b+c>a)
8     {
9         if (a+b>c)
10            printf("%d, %d, %d forms a triangle", a, b, c);
11        else
12            printf("%d, %d, %d forms a triangle", a, b, c);
13    }
14    else
15    {
16        if (a+c>b)
17            printf("%d, %d, %d forms a triangle", a, b, c);
18        else
19            printf("%d, %d, %d does not form a triangle", a, b, c);
20    }
21    return 0;
22 }
```

input

Enter the three sides: 3, 4, 5  
3, 4, 5 forms a triangle

...Program finished with exit code 0  
Press ENTER to exit console.

Correct test case: Input = 3, 4, 5, Output = forms a triangle



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

```
main.c
1 #include <stdio.h>
2 int main()
3 {
4     int a, b, c;
5     printf("Enter the three sides: ");
6     scanf("%d, %d, %d", &a, &b, &c);
7     if (a+b>c || b+c>a)
8     {
9         printf("%d, %d, %d forms a triangle", a, b, c);
10    }
11    else
12    {
13        printf("%d, %d, %d forms a triangle", a, b, c);
14    }
15    else
16    {
17        if (a+c>b)
18        {
19            printf("%d, %d, %d forms a triangle", a, b, c);
20        }
21        else
22        {
23            printf("%d, %d, %d does not form a triangle", a, b, c);
24        }
25    }
26    return 0;
27 }
```

input

Enter the three sides: 1, 2, 3  
1, 2, 3 forms a triangle

...Program finished with exit code 0  
Press ENTER to exit console.

Refute test case: Input = 1, 2, 3, Output = forms a triangle (Unexpected)

## Explanation of Failure :

The code gives incorrect results because it checks whether two sides are greater than the third, in only one of the combinations of a, b and c, rather than checking in all the three combinations.