

ASSIGNMENT NO:-3

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ROLL NO:- 2K20/B17/33

P1 THEORY

A **prime** number (or a prime) is a **natural** number greater than 1 that is not a **product** of **two smaller** natural numbers , a number that is **divisible** by **1** and **itself** is classified as a **prime number**

There are **25 prime** numbers from **1** to **100**:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

P2 THEORY

The **factorial** of a **positive** integer **n**, denoted by **n!** , is the **product** of all **positive integers less than or equal to n**

n	n!
0	1
1	1
2	2
3	6
4	24
5	120
6	720
7	5040

C programming has three types of loops:

- **for loop**
- **while loop**
- **do...while loop**

I HAVE USED “FOR LOOP” FOR P1 AND P2 PROGRAMS

for Loop

The syntax of the **for loop** is:

```
for (initializationStatement; testExpression; updateStatement)  
{  
    // statements inside the body of loop  
}
```

P1

```
#include <stdio.h>

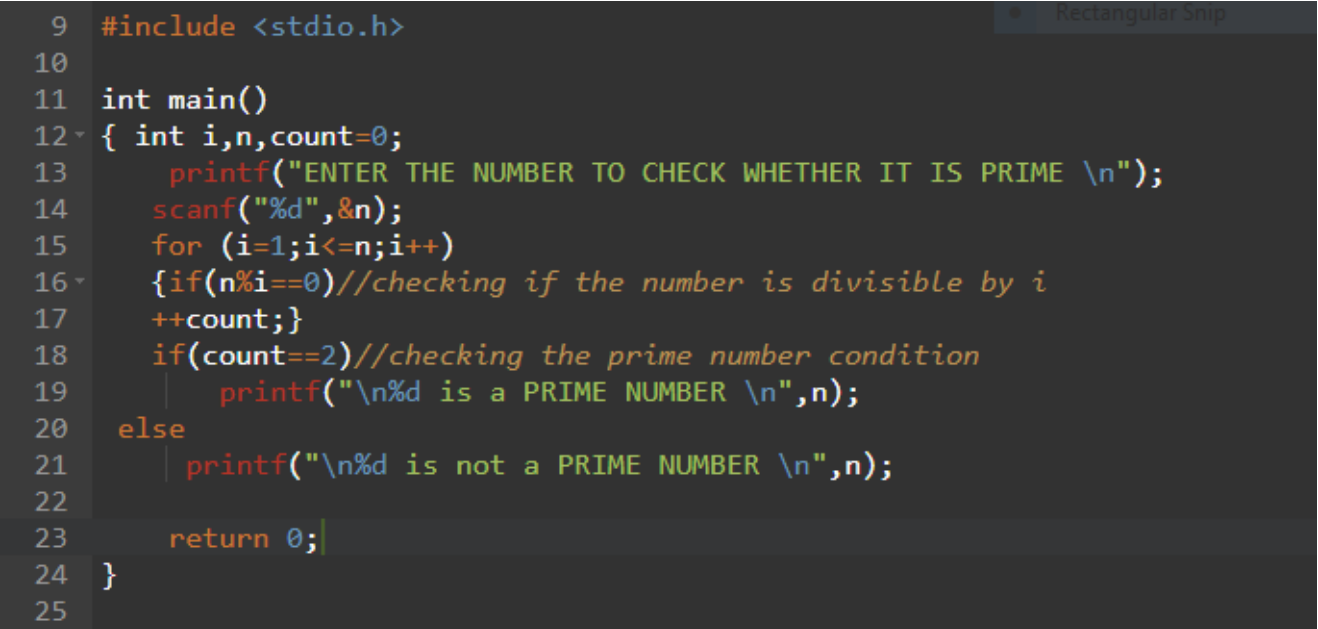
int main()
{ int i,n,count=0;

    printf("ENTER THE NUMBER TO CHECK WHETHER IT IS PRIME
\n");

    scanf("%d",&n);

    for (i=1;i<=n;i++)
    {if(n%i==0)//checking if the number is divisible by i
    ++count;}

    if(count==2)//checking the prime number condition
        printf("\n%d is a PRIME NUMBER \n",n);
    else
        printf("\n%d is not a PRIME NUMBER \n",n);
    return 0;
}
```



```
9  #include <stdio.h>
10
11  int main()
12  { int i,n,count=0;
13      printf("ENTER THE NUMBER TO CHECK WHETHER IT IS PRIME \n");
14      scanf("%d",&n);
15      for (i=1;i<=n;i++)
16      {if(n%i==0)//checking if the number is divisible by i
17      ++count;}
18      if(count==2)//checking the prime number condition
19      | printf("\n%d is a PRIME NUMBER \n",n);
20  else
21      | printf("\n%d is not a PRIME NUMBER \n",n);
22
23      return 0;
24  }
25
```

ENTER THE NUMBER TO CHECK WHETHER IT IS PRIME

7

7 is a PRIME NUMBER

...Program finished with exit code 0

Press ENTER to exit console.

input

ENTER THE NUMBER TO CHECK WHETHER IT IS PRIME

4

4 is not a PRIME NUMBER

...Program finished with exit code 0

Press ENTER to exit console.

Rectangular Snip

P2

```
#include <stdio.h>
```

```
int main()
```

```
{int i,n;
```

```
long f=1;
```

```
    printf("ENTER THE NUMBER TO CALCULATE ITS FACTORIAL  
VALUE \n");
```

```
    scanf("%d",&n);
```

```
    if(n>=0)
```

```
    {
```

```
        for (i=1;i<=n;i++)//running a loop from i=1 to i=n so that we can  
calculate the factorial
```

```
        f=f*i;
```

```
        printf("FACTORIAL VALUE FOR NUMBER %d!=%ld \n",n,f);
```

```
    }
```

```
else
```

```
    printf("%d NOT A VALID POSITIVE NUMBER \n",n);
```

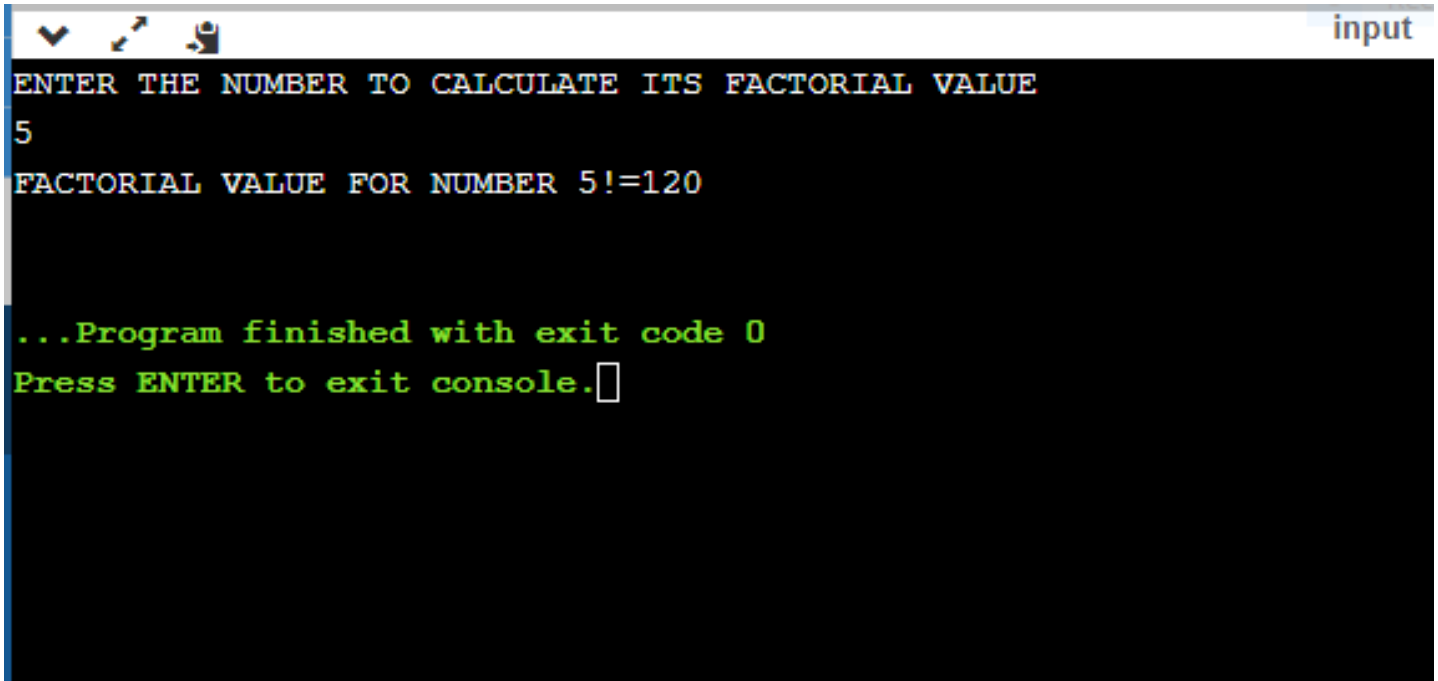
```
    return 0;
```

```
}
```

```

9  #include <stdio.h>
10
11  int main()
12  {int i,n;
13  long f=1;
14      printf("ENTER THE NUMBER TO CALCULATE ITS FACTORIAL VALUE \n");
15      scanf("%d",&n);
16      if(n>=0)
17      {
18          for (i=1;i<=n;i++)//running a loop from i=1 to i=n so that we can calculate the factorial
19              f=f*i;
20          printf("FACTORIAL VALUE FOR NUMBER %d!=%ld \n",n,f);
21      }
22      else
23          printf("%d NOT A VALID POSITIVE NUMBER \n",n);
24
25      return 0;
26  }
27

```



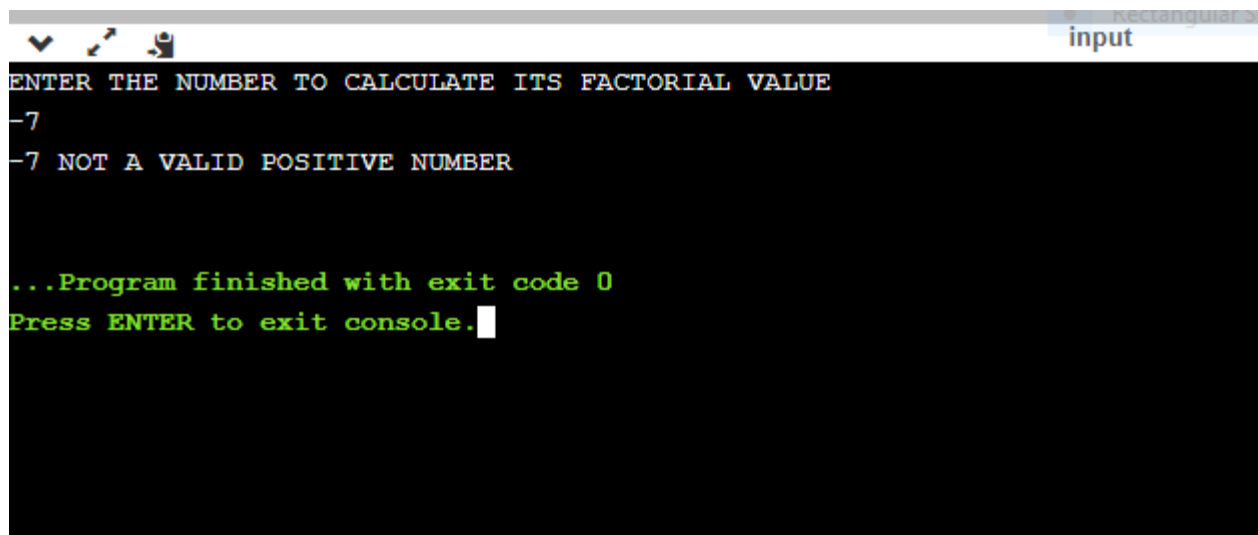
A terminal window with a dark background and light green text. The title bar at the top right says "input". The terminal shows the program's output for the input 5. It prompts for a number, receives 5, calculates the factorial (120), and then displays a completion message.

```

ENTER THE NUMBER TO CALCULATE ITS FACTORIAL VALUE
5
FACTORIAL VALUE FOR NUMBER 5!=120

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

```



A terminal window with a dark background and light green text. The title bar at the top right says "input". The terminal shows the program's output for the input -7. It prompts for a number, receives -7, and then displays an error message because -7 is not a valid positive number.

```

ENTER THE NUMBER TO CALCULATE ITS FACTORIAL VALUE
-7
-7 NOT A VALID POSITIVE NUMBER

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

```