



Coding Challenge #5 (Question)

Abhay wants to develop a pattern frame which gives different patterns based on the user input. So, help him to crack the logic, which he implements in his frame.

Input format:

1. First line contains an integer "size" which resembles the size of the pattern.
2. Second line contains a special character, where the pattern should contain the special character.

Output format:

1. The output contains the pattern of the required size.

Constraints:

1. $1 \leq \text{size} \leq 1000$
2. The output should contain the pattern based on the special character.

Sample input 0:

5

#

Sample output 0:

#

##

###

####

#####



Coding Challenge #5 (Question contd.)

Sample input 1:

10

%

Sample output 1:

%

%**%

%***%*

%****%*

%*****%

%*****%

%*****%

%*****%

%*****%

%*****%



PLACEMENTS KEY'S

Day - 3

Coding Challenge #5 (Question contd.)

Complete the following code:

```
#include<stdio.h>

int main()
{
    /*complete the code here*/
}
```

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Coding Challenge #5 (C Solution)

```
#include<stdio.h>

int main()
{
    int size;

    char special[10];

    printf("Enter the size of the pattern: ");

    scanf("%d",&size);          //read the size of the pattern

    printf("Enter the special character: ");

    scanf("%s",&special);      //ready the special character

    for(int i=1;i<=size;i++,printf("\n"))
    {
        for(int j=1;j<=i;j++)
        {
            printf("%s",special); //prints the special character

            if(i>1 && j<i)
                printf("*")      //prints the "*"

        }
    }
}
```



Coding Challenge #5 (JAVA Solution)

```
import java.util.*;

public class UserPattern
{
    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter the size of the pattern");
        int size = input.nextInt();
        System.out.println("Enter the character to be shown in the pattern");
        char character = input.next().charAt(0);
        System.out.println("Pattern as per request:");
        pattern(size, character);
    }

    public static void pattern(int n, char c){
        for(int i=0; i<n; i++){
            for(int j=0; j<i; j++){
                System.out.print(c + "*");
            }
            System.out.println(c);
        }
    }
}
```



Coding Challenge #6 (Question)

Adia wants to develop a calculator which returns factorial of the given number.

If the number is less than 0 then it will return -1. If the number is equal to 0, it returns 1 and if the number is greater than 0 it returns the factorial of that number.

So, work along with her to crack the logic.

Input format:

The line contains an integer "num".

Output format:

1. If the number is less than 0 it should -1.
2. If the number is greater than 0 it should return the factorial of the given number.

Sample input 0:

10

Sample output 0:

3628800

Sample input 1:

20

Sample output 1:

2432902008176640000



Coding Challenge #6 (Question contd.)

Complete the FactCalculate() function in the code given below:

```
#include<stdio.h>

int FactCalculate(int num);

int FactCalculate(int num)
{
    /*complete the code here*/
}

int main()
{
    int num;

    printf("Enter the number for factorial: ");
    scanf("%d",&num);

    FactCalculate(num);
}
```



Coding Challenge #6 (C Solution)

```
#include<stdio.h>

int FactCalculate(int num);

int FactCalculate(int num)
{
    unsigned long long int result=1; //use "long long" to store larger values
    if(num<0)
    {
        printf("%d",-1); //return "-1" if number is below "0"
    }
    else
    {
        for(int i=2;i<=num;i++)
        {
            result*=i; //factorial calculation
        }
        printf("%llu",result); //prints the result
    }
}

int main()
{
    int num;
    printf("Enter the number for factorial: ");
    scanf("%d",&num);

    FactCalculate(num); //function call is here
}
```




Coding Challenge #6 (C Solution contd.)

Note: The data type range in c programming has limit. If the num in the above program crosses 20 it will give garbage values. So for this type of coding questions it is advised (or better) to use python which is shown below.

```
num=int(input("Enter the number for factorial: "))  
  
if num<0:  
    print(-1)  
  
else:  
    fact=1  
    for i in range(2,num+1):  
        fact*=i  
    print(fact)
```



Coding Challenge #6 (JAVA Solution)

```
import java.util.*;

public class Factorial
{
    public static long factorial(int x){
        long y=1;
        if(x>0){
            y = x * (factorial(x-1));
        }
        return y;
    }
    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);
        System.out.println("Enter your num");
        int num = input.nextInt();
        if(num<0)
            System.out.println(-1);
        else
            System.out.println("Factorial of given num is: "
+factorial(num));
    }
}
```