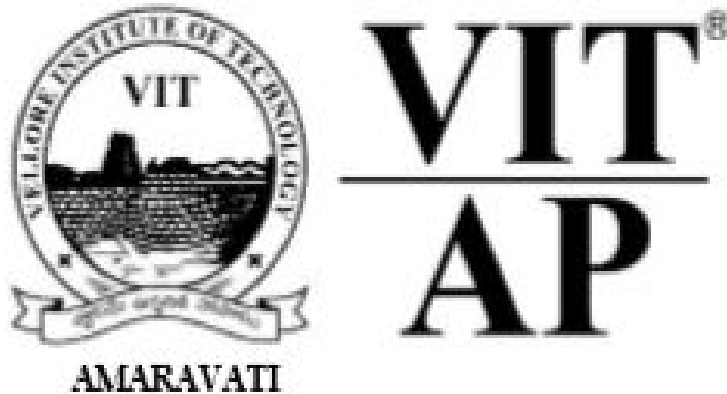


ASSIGNMENT - 2



School of Computer Science and Engineering
CSE1004 – Problem Solving Using Java
Digital Assignment

70034 - Prof. Deepasikha Mishra - SE

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PROBLEM 1

The formula for computing the number of ways of choosing 'r' different things from a set of 'n' things is defined as $C(n, r) = n! / (r! * (n - r)!)$. Write a method, static double com(int n, int r) to find the value of the C(n, r). This method further invokes a recursive method, static int fac(int n). Here, method static int fac(int n) recursively finds factorial of a number passed as an argument. Write the complete program.

JAVA CODE :

```
Import java.util.*;
class Main
{
static double com(int n, int r)
{
    return fact(n) / (fact(r) *
        fact(n - r));
}
    static int fact(int n)
    {
        int res = 1;
        for (int i = 2; i <= n; i++)
            res = res * i;
        return res;
    }

public static void main(String[] args)
{
```

```
double n=0,r=0;
Scanner in = new Scanner(System.in);
double n = in.nextDouble();
double r = in.nextDouble();
System.out.println(com(n, r));
}
}
```



The screenshot shows an IDE window titled 'Main.java' with the following Java code:

```
1 import java.util.*;
2 class Main
3 {
4     static double com(int n, int r)
5     {
6         return fact(n) / (fact(r) *
7             fact(n - r));
8     }
9
10    static int fact(int n)
11    {
12        int res = 1;
13        for (int i = 2; i <= n; i++)
14            res = res * i;
15        return res;
16    }
17
18    public static void main(String[] args)
19    {
20        int n=8,r=3;
21        System.out.println(com(n, r));
22    }
23 }
```

Below the code editor, the 'Input' field contains the value '56.0'. At the bottom, a console window displays the message: '...Program finished with exit code 0' and 'Press ENTER to exit console.'.

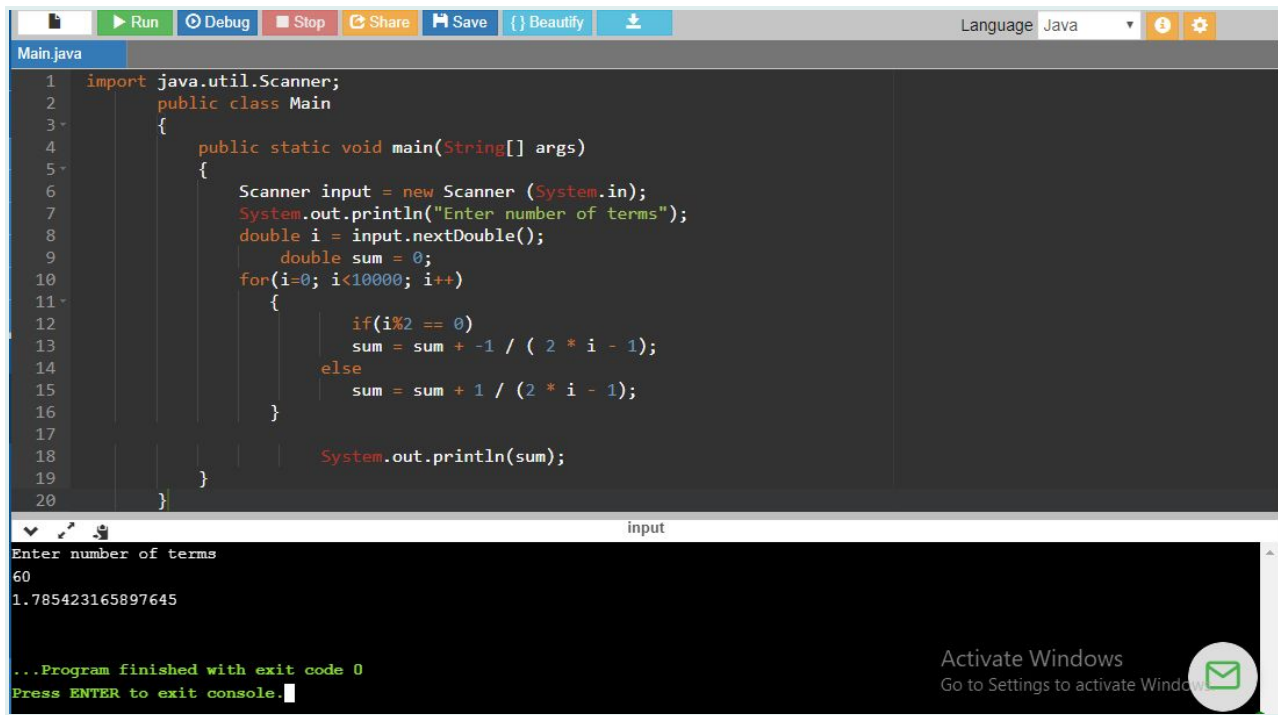
1. Write a program to find Pi value using following series (up-to n terms) using method.

$$pi = 4 - \frac{4}{3} + \frac{4}{5} - \frac{4}{7} + \frac{4}{9} - \frac{4}{11} + \dots$$

Java code :

```
import java.util.Scanner;
public class Main
{
    public static void main(String[] args)
    {
        Scanner input = new Scanner (System.in);
        System.out.println("Enter number of terms");
        double i = input.nextDouble();
        double sum = 0;
        for(i=0; i<10000; i++)
        {
            if(i%2 == 0)
                sum = sum + -1 / ( 2 * i - 1);
            else
                sum = sum + 1 / (2 * i - 1);
        }

        System.out.println(sum);
    }
}
```



The screenshot shows an IDE window titled 'Main.java' with a toolbar at the top containing buttons for Run, Debug, Stop, Share, Save, and Beautify. The code is written in Java and calculates the sum of the reciprocals of odd numbers from 1 to 10000. The code is as follows:

```
1 import java.util.Scanner;
2 public class Main
3 {
4     public static void main(String[] args)
5     {
6         Scanner input = new Scanner (System.in);
7         System.out.println("Enter number of terms");
8         double i = input.nextDouble();
9         double sum = 0;
10        for(i=0; i<10000; i++)
11        {
12            if(i%2 == 0)
13                sum = sum + -1 / ( 2 * i - 1);
14            else
15                sum = sum + 1 / (2 * i - 1);
16        }
17
18        System.out.println(sum);
19    }
20 }
```

Below the code editor, the console output is displayed. It shows the prompt 'Enter number of terms', the input '60', and the resulting sum '1.785423165897645'. The console also indicates that the program finished with exit code 0 and prompts the user to press ENTER to exit the console.

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

An 'Activate Windows' watermark is visible in the bottom right corner of the console area.

