21AIE111- Data structures and Algorithms 1- LAB 3B

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* Write a program to calculate factorial using recursion?

**Code:-**

import java.util.Scanner;

public class Factorial

{

public static void main (String [] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter a number: ");

Double y =scan.nextDouble();

System.out.println("Factorial of : "+factorial(y));

scan.close();

}

public static Double factorial(Double n )

{

if(n==0) //factorial of zero is 1

return 1.0 ;

if(n==1)

return n ;

return n\*factorial(n-1);

}

}

**Output:-**



* Write a program to print Fibonacci Series in java using Recursion?

**Code:-**

import java.util.Scanner;

public class Fabonacci

{

//int x = 0;

public static int Series(int n )

{

//find the sum of fabonacci Series

if (n <= 1)

return n;

return Series(n-1)+Series(n-2);

}

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter the position: ");

int x = scan.nextInt();

System.out.println("The "+ x +" th element of Fabonacii Series is : "+Series(x));

scan.close();

}

}

**Output:-**



* Write a program to reverse String in Java using Recursion?

**Code:-**

import java.util.Scanner;

public class Reversestring

{

public static String reverseString(String str)

{

if(str.equals(""))

return str;

return reverseString(str.substring(1))+str.charAt(0);

}

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter the String : ");

String y = scan.nextLine();

System.out.println(reverseString(y));

scan.close();

}

}

**Output:-**



* Write a programto find the sum of n natural numbersin Java using Recursion?

***Code:-***

import java.util.Scanner;

public class SumofNaturalNumber

{

public static int sum(int n )

{

if (n<=0)

return n;

return n + sum(n-1);

}

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter the Number : ");

int x = scan.nextInt();

System.out.println("Sum of "+ x + " Natural number :"+ sum(x));

scan.close();

}

}***Output:-***



* Write a program to find how many digits a positive integer has using recursion and test the functionthat calls this with the values 15, 105,15105? HINT :If n is an integer , n/10 will be an integer without fractional part.

***Code:-***

import java.util.Scanner;

public class CountDigits

{

public static int countdigits(int n )

{

if (n<=1)

return n;

return 1 + countdigits(n/10);

}

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Enter the Number : ");

int x = scan.nextInt();

System.out.println(countdigits(x));

scan.close();

}

}

***Output:-***



