Assignment No. 04

Q.1 Write a code for taking input from user as a string and performing operations uppercase, lowercase, also find length & reverse of string.

Code :-

```
import java.util.Scanner;
public class String
{
    public static void main(String[]args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a string: ");
        String input = sc.nextLine();
        System.out.println("Uppercase:" +input.to-
            UpperCase());
        System.out.println("lowercase:" +input.to-
            LowerCase());
        System.out.println("Length:" +input.length());
        System.out.println("Reversed:" +new
            StringBuilder(input).reverse().toString());
    }
}
```

Q.2 Write a code to detect whether the given input of year is leap or not.

Code:

```
import java.util.Scanner;
public class LeapYear
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter a year:");
        int year= sc.nextInt();

        if((year%4==0 && year%100!=0) ||
            year%400==0)
        {
            System.out.println(year+"is leap year");
        }
        else
        {
            System.out.println(year+"is not leap year");
        }
    }
}
```


Q.3 Write a code for temperature converter that converts °C to Fahrenheit & vice versa by taking user input Also mention given i/p is in °C OR °F.

Code:

```
import java.util.Scanner;
public class TempConverter
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter temperature:");
        double temp= sc.nextDouble();
        System.out.print("Enter 'C' for Celsius,
                          'F' for Fahrenheit:");
        char scale = sc.next().charAt(0);
        double convertedTemp;
        if(scale=='C')
        {
            convertedTemp=(temp*9/5)+32;
            System.out.println(temp+"C is equal to"
                               +convertedTemp + "F.");
        }
        else if(scale=='F')
        {
            convertedTemp=(temp-32)*5/9;
            System.out.println(temp+"F is equal to"
                               + convertedTemp +"C.");
        }
```

```
        else
        {
            System.out.println("Invalid temperature scale");
        }
    }
}
```

Q.4 Take weight, height from user as an input and calculate the Body-Mass Index.

Code:

```
import java.util.Scanner;
public class BMICal
{
    public static void main(String[] args)
    {
        Scanner sc= new Scanner(System.in);
        System.out.print("Enter your weight (kg): ");
        double weight = sc.nextDouble();
        System.out.print("Enter your height (m): ");
        double height = sc.nextDouble();
        double bmi = weight/(height*height);

        System.out.printf("Your BMI is :%.2f\n", bmi);
    }
}
```

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Q.5 Take principal amount, rate of interest and time as an input from user and calculate the simple interest.

Code:

```
import java.util.Scanner;
public class SimpleInterest
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter principal amount: ");
        double principal= sc.nextDouble();

        System.out.print("Enter rate of interest: ");
        double rate = sc.nextDouble();

        System.out.print("Enter time (in years):");
        double time = sc.nextDouble();

        double interest = (principal * rate * time)/100;
        System.out.println("Simple Interest:"+interest);
    }
}
```

Q.6 Take amount, rate of interest and period of time as an input from user and calculate compound interest.

Code:

```
import java.util.Scanner;
public class CompoundInterest
{
    public static void main(String[]args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter principal amount:");
        double principal= sc.nextDouble();

        System.out.print("Enter rate of interest:");
        double rate = sc.nextDouble();

        System.out.print("Enter time (in years):");
        double time= sc.nextDouble();

        double interest = principal* Math.pow((1+rate/
                          time)- principal;
        System.out.println("Compound Interest:"
                          +interest);
    }
}
```


Q.7 Write a code to take an input as an array & find the largest number in it.

Code:

```
import java.util.Scanner;
public class Array
{
    public static void main(String[]args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter the number of
                          elements:");
        int n= sc.nextInt();
        System.out.println("Enter"+n+"integers:");
        for(int i=0; i<n; i++)
        {
            array[i]= sc.nextInt();
        }
        int largest= array[0];
        for(int i=1; i<n; i++)
        {
            if(array[i]> largest)
            {
                largest= array[i];
            }
        }
        System.out.println("Largest element is:"+largest);
    }
}
```

Q.8 Write a code to convert the currency from INR to USD.

Code:

```
import java.util.Scanner;
public class CurrencyConverter
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter amount in INR: ");
        Double inr = sc.nextDouble();
        double conversionRate = 83.72;
        double usd = inr / conversionRate;
        System.out.printf("Amount in USD: %.2f\n",
                          usd);
    }
}
```

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Q.9 Write a code to check whether the given input is a prime number or not.

Code:

```
import java.util.Scanner;
public class PrimeNumber
{
    public static void main(String[] args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter a number:");
        int num = sc.nextInt();
        boolean isPrime = true;
        if(num<=1)
        {
            isPrime = false;
        }
        else
        {
            for(int i=2; i<=Math.sqrt(num); i++)
            {
                if(num%i==0)
                {
                    isPrime = false;
                    break;
                }
            }
        }
```

```
if(isPrime)
{
    System.out.println(num+"is a prime number");
}
else
{
    System.out.println(num+"is not a prime num
}
}
}
```

Q.10 Write a code that calculates the factorial of the given number.

Code:

```
import java.util.Scanner;
public class Factorial
{
    public static void main(String[]args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter a number:");
        int num=sc.nextInt();
        long factorial=1;
        for(int i=1; i<=num; i++)
        {
            factorial*=i;
        }
        System.out.println("Factorial of"+num+"="+factori
    }
}
```


Q.11 Calculate the sum of 1st 'n' natural numbers with the help of Java language code.

Code:

```
import java.util.Scanner;
public class Sum
{
    public static void main(String[]args)
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter a number:");
        int n=sc.nextInt();
        int sum=n*(n+1)/2;
        System.out.println("Sum of first"+n+"natural
                numbers is:"+sum);
    }
}
```

Q.12 Develop a code that prints the pattern of pyramid by taking rows as input.

Code:

```
import java.util.Scanner;
public class Pyramid
{
    public static void main(String[]args)
    {
        Scanner sc=new Scanner(System.in);
```