

Assignment No :- 1

- 1] Write a program to print numbers from 1 to 10.

Ans:

```
class Number
{
    public static void main(String args[])
    {
        int i ;
        for(i=1; i<=10; i++)
        {
            System.out.println(i);
        }
    }
}
```

Output :-

1
2
3
4
5
6
7
8
9
10

- 2] Write a program to calculate the sum of first 10 natural number.

Ans:

```
class
{
    public static void main(String args[])
    {
        int i, sum = 0
        for (i = 1; i <= 10; i++)
        {
            sum = sum + i;
        }
        System.out.println("The sum of 1st 10 number
                           is :" + sum);
    }
}
```

Output :-

The sum of first 10 natural number
is : 55.

- 3] Write a program that prompts the user to input a positive integer. It should then print the multiplication table of that no.

Ans:

```
class Multiplicationtable
{
    public static void main(String args[])
    {
        int j;
        int num = Integer.parseInt(args[0]);
        System.out.println("Multiplication table of " + num);
        for (int j = 1; j <= 10; j++)
        {
            System.out.println(j * num);
        }
    }
}
```

Output :-

5
10
15
20
25
30
35
40
45
50

- 4] Write a program to find the factorial value of any number entered through the keyboard.

Ans.:

5]

Two numbers are entered through the key-board. Write a program to find the value of one number raised to the power of another [Do not use Java built-in method]

Ans:

```
public class Assignment1
{
    public static void main(String args[])
    {
        int m = Integer.parseInt(args[0]);
        int n = Integer.parseInt(args[1]);
        int temp = n;
        long result = 1;
        while (n != 0)
        {
            result *= m;
            --n;
        }
        System.out.println(" " + m + " ^ " + temp + " = " +
                           + result + );
    }
}
```

6

Write a program that prompts the user to input an integer and then outputs the number with the digits reversed. Ex: 12345 → o/p: 54321.

Ans:

```
import java.util.Scanner;
class ReverseNumber
{
    public static void main(String args[])
    {
```

```

    {
        int num = 0;
        int reversenum = 0;
        System.out.println("Enter the no.");
        Scanner in = new Scanner(System.in);
        num = in.nextInt();
        while (num != 0)
            {
                reversenum = reversenum * 10;
                reversenum = reversenum + num % 10;
                num = num / 10;
            }
        System.out.println("Reverse number is : " + reversenum);
    }

```

Output :

Enter the number : 12345
 Reverse number : 54321

- 7) Write a program that reads a set of integers, and then prints the sum of the even and odd integers.

Ans:

```

public class sumeo
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int i = 0, n, sum0 = 0, sume = 0;
    }
}

```

```
System.out.println("Enter no. of element in o);  
n = sc.nextInt();  
int[] a = new int[n];  
System.out.println("Enter the numbers that  
you want");  
for (i=0; i<n; i++)  
{  
    a[i] = sc.nextInt();  
}  
for (i=0; i<n; i++)  
{  
    if (a[i] % 2 == 0)  
    {  
        sume = sume + a[i];  
    }  
    else  
    {  
        sumo = sumo + a[i];  
    }  
}  
System.out.println("even sum = " + sume);  
System.out.println("odd sum = " + sumo);  
}
```

8) W.a.p that prompts the user to input a positive integer. It should then output a message indicating whether the no. is a prime number.

Ans:

```
class PrimeNo
{
    public static void main(String args[])
    {
        int num = Integer.parseInt(args[0]);
        int flag = 0;
        for(int i = 2; i < num; i++)
        {
            if(num % i == 0)
            {
                System.out.println(num + " is not a prime
number");
                flag = 1;
                break;
            }
        }
        if(flag == 0)
        {
            System.out.println(num + " is a prime no.");
        }
    }
}
```

Q) W.a.p. to calculate HCF of Two given no.

Ans:

```
class import java.util.scanners;  
class HCFoftwonumbers  
{  
    public static void main(String args[])  
    {  
        int a, b, i, HCF = 0;  
        Scanner sc = new Scanner(System.in)  
        System.out.println("Enter first no.");  
        a = sc.nextInt();  
        flag = 1  
        break;  
    }  
    if (flag == 0)  
        system.out.println(num + "is a prime no.");  
    }  
}
```

O/P:

5 is a prime no.

10) Write a do-while loop that asks the user to enter two numbers. The numbers should be added and the sum displayed. The loop should ask the user whether he or she wishes to perform the operation again. If so, the loop should repeat, otherwise it should terminate.

```
import java.util.Scanner;
public class Assignment {
    public static void main(String args[]) {
        Scanner console = new Scanner(System.in);
        int number1, number2;
        char choice;
        do {
            System.out.println("Enter the first no.");
            number1 = console.nextInt();
            System.out.println("Enter the second no.");
            number2 = console.nextInt();
            int sum = number1 + number2;
            System.out.println("sum of numbers : " + sum);
        }
    }
}
```

Q) W.o.p. to enter the numbers till the user wants and at the user wants of at the end the program should display the largest and smallest no. entered.

```
import java.util.*;
public class count
```

```
public static void main(String args[])
{
    Scanner sc = new Scanner(System.in);
    int n, countP=0, countN=0, countZ=0;
    char ch;
    do
    {
        System.out.println("Enter a no.");
        n = sc.nextInt();
        if (n>0)
        {
            countP++;
        }
        else if (n<0)
        {
            countN++;
        }
        else
        {
            countZ++;
        }
        System.out.println("positive no. = " + countP);
        System.out.println("Negative no. = " + countN);
        System.out.println("zero no. = " + countZ);
    }
}
```

- Q] W.o.p. to enter the no.s till the user wants
& at the end it should display the count of
positive, negative & zeros entered.

Ans:

```
import java.util.*;
public class smalllarge
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int n;
        int max = Integer.MIN_VALUE;
        int min = Integer.MAX_VALUE;
        char ch;
        do
        {
            System.out.println("Enter the no.");
            n = sc.nextInt();
            if (n > max)
                max = n;
        }
        else
        {
            min = n;
        }
        System.out.println("do you want to
                           continue y/n");
        ch = sc.next().charAt(0);
    }
    while(ch == ' ' || ch == ' ');
    System.out.println("positive no = " + countP);
    System.out.println("Negative no. = " + countN);
    System.out.println("zero no. = " + countZ);
}
```

Q) W.A.P. to print out all Armstrong numbers betn. 1 to 500. If sum of cubes of each digit of the no. is equal to the no. itself, then the no. is called an Armstrong no.

For ex., $153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3)$

Ans:

```
public class Arm
{
    public static void main(String args[])
    {
        int num, temp, rem = 0, sum = 0, i, cube;
        num = 1;
        temp = 1;
        for (i = 1; i < 500; i++)
        {
            while (num > 10)
            {
                rem = num % 10;
                cube = (rem * rem * rem);
                sum = sum + cube;
                num = num / 10;
            }
            if (sum == temp)
                System.out.println(temp);
            rem = 0;
            sum = 0;
            cube = 0;
            temp = i + 1;
            num = i + 1;
        }
    }
}
```

O/P:

15) W.a.p. to calculate the sum of following series where n is input by user.

$$1 + 1/2 + 1/3 + 1/4 + 1/5 + \dots + 1/n$$

A/D:

```
import java.util.*;
public class series
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int i, n;
        float sum = 0.0;
        System.out.println("Enter a no. = ");
        n = sc.nextInt();
        for (i = 1; i <= n; i++)
        {
            sum = sum + 1.0 / i;
        }
        System.out.println("The value of the series is = " + sum);
    }
}
```

O/P:-

16) Compute the natural logarithm of 2, by adding up to n terms in the series

$$1 - 1/2 + 1/3 - 1/4 + 1/5 - \dots + 1/n$$

where n is a positive integer & input by user.

```

Ans:
import java.util.*;
public class Log
{
    public static void main (String args[])
    {
        Scanner sc = new Scanner (System.in);
        int i, n, sign = 1;
        double sum = 0;
        System.out.println("Enter the value of n");
        n = sc.nextInt();
        for (i = 1; i <= n; i++)
        {
            sign = -1;
            sum += sign * 1.0 / i;
        }
        System.out.println("log 2 : " + sum);
    }
}

```

Q] W.a.p. that generates a random no. and asks the user to guess what the no. is. If the user's guess is higher than the random no, the program should display "Too high, try again." If the user's guess is lower than the random no, the program should display "Too low, try again." The program should use a loop that repeats until the user correctly guesses the random no.

Ans:

```
import java.util.Scanner;
public class Demo
{
    public static void main (String args[])
    {
        Scanner console = new Scanner (System.in);
        int number, guess, tries = 0;
        number = (int)(Math.random() * 100);
        System.out.println ("Guess My Number");
        System.out.println ();
        do {
            System.out.print ("Enter a guess between 1 to 100:");
            guess = console.nextInt();
            tries++;
            if (guess > number)
            {
                System.out.println ("Too low, Try again");
            }
            else {
                System.out.println ("Correct! You got it in " +
                    + tries + " guesses");
            }
        } while (guess != number);
    }
}
```

18) W.A.P. to print following.

i)

```
 * * * * * *  
 * * * * * *  
 * * * * * *  
 * * * * * *
```

Ans:

```
public class Recstar  
{  
    public static void main(String args[])  
    {  
        int i, j;  
        for (i = 1; i <= 5; i++)  
        {  
            for (j = 1; j <= i; j++)  
            {  
                System.out.println("*");  
            }  
            System.out.println();  
        }  
    }  
}
```

ii)

```
 *  
 * *  
 * * *  
 * * * *  
 * * * * *
```

Ans:

```
class Star  
{
```

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

iii) * :
* *
* * *
* * * *
* * * * *

Ans:

```
class Star
{
    public static void printstars(int n)
    {
        int i, j;
        for(i=0; i<n ; i++)
        {
            for (j = 2*(n-i) ; j >= 0; j--)
                System.out.print(" ");
            for (j = 0; j <= i ; j++)
                System.out.print("* ");
            System.out.println();
        }
    }
}
```

```
    system.out.println(" * ");  
}
```

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

3

1

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2 1 2
 3 2 1 2 3
 4 3 2 1 2 3 4
 5 4 3 2 1 2 3 4 5

Ans:

```

public class one
{
  public static void main(String args[])
  {
    int i, j, k;
    for (i = 1; i <= 5; i++)
    {
      System.out.println(" ");
      for (k = 1; k <= 2 * i - 1; k++)
      {
        System.out.print(i);
      }
      System.out.println();
    }
  }
}
  
```

19) W.A.P. to compute $\sin x$ for given x . The user should supply x and a positive integer n . We compute the sine x using the series if the computation should use all terms in the series up through the term involving x^n .

$$\sin x = x - x^3/3! + x^5/5! - x^7/7! + x^9/9! \dots$$

```
import java.util.*;
```

```
public class sin
```

```
{
```

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

```
{
```

```
Scanner sc = new Scanner(System.in);
```

```
int i, j, n, fact, sign +;
```

```
float x, P, sum = 0;
```

```
System.out.println("Enter the value of x");
```

```
x = sc.nextInt();
```

```
System.out.println("Enter the value of n");
```

```
n = sc.nextInt();
```

```
for (i = 1; i < n; i += 2)
```

```
{
```

```
P = 1;
```

```
fact = 1;
```

```
for (j = 1; j <= i; j++)
```

```
{
```

```
P = P * x;
```

```
fact = fact * j;
```

```
}
```

```
sign = 1 * sign;
```

```
sum += sign * P / fact;
```

```
{
```

```
System.out.println("sin = " + sum);
```

```
}
```

```
}
```

20)

W.a.p. to compute the cosine of x. The user should supply x and a positive integer n. We compute the cosine of x using the series & the computation should use all terms in the series up through the term involving x^n .

$$\cos x = 1 - x^2/2! + x^4/4! - x^6/6! \dots$$

Ans.:

```

import java.util.*;
public class cos
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int i, j, n, fact, sign = 1;
        float x, p, sum = 0;
        System.out.println("Enter the value of x");
        x = sc.nextInt();
        System.out.println("Enter the value of n");
        n = sc.nextInt();
        for(i = 1; i <= n; i += 2)
        {
            p = 1;
            fact = 1;
            for(j = 1; j <= i; j++)
            {
                p = p * x;
                fact = fact * j;
            }
            sum += sign * p / fact;
            sign = -1 * sign;
        }
        System.out.println("sin = " + (1 + sum));
    }
}

```