

Assignment 1

SAPNA
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a.1] write a program to print numbers from 1 to 10.
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

Q.27 Write a program to calculate the sum of first 10 natural number.

```
→ class natsum natural
{
    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 to 10
                            number is " + sum);
    }
}
```

Output : The sum of 1st to 10 number is

55

Q.3] Write a program that prompts the user to input a positive integer. It should then print the multiplication table of the number.

Class MultiplicationTable

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

Output :

5
10
15
20
25
30
35
40
45
50

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

class factorial

{

public static void main (String args [])

{

int num = 10;

long factorial = 1;

for (int i = 1; i <= num; ++i)

{

factorial *= i;

}

System.out.println ("Factorial of " + num + " is " + factorial);

}

}

Q.5] Two numbers are entered through the keyboard.
write a program to find the value of one
number raised to the power of another.

public class assignment 1

{

```
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);
```

}

}

Q.6] Write a program the user to input an integer and then outputs the number with the digits reversed. For example, if the input is 12345, the output should be 54321.

```
import java.util.Scanner;  
class ReverseNumber  
{  
    public static void main (String args [])  
    {  
        int num = 0;  
        int reversenum = 0;  
        System.out.println ("Enter the number");  
        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:");  
    }  
}  
  
Output:  
Enter the number : 12345  
Reverse number is : 54321
```

Q.7] write a program that reads a set of integers, and then prints the sum of the even and odd integers.

```
public class sumevenodd {
    public static void main (String args[])
    {
        Scanner sc = new Scanner (System.in);
        int i=0, n, sumo=0, sume=0;
        System.out.println ("enter number of element in");
        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);
    }
}
```

Q.8] Write a program the prompts the user to input a positive integer. It should then output a message indicating whether the number is a prime number.

```
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 number");
    }
}
```

Q.27 write a program to calculate HCF of two given numbers.

```
class import java.util.Scanner  
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 number");  
        a = sc.nextInt();  
        flag = 1;  
        break;  
    }  
    if (flag == 0)  
        System.out.println (num + " is a prime  
number");  
    }  
}  
output :  
5
```

5 is a Prime number

Q.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

```
import java.util.Scanner;  
public class assignment2  
{  
    public static void main (String args[])  
    {  
        Scanner console = new Scanner (System.in);  
        int number1, number2;  
        char choice;  
        do {  
            System.out.println ("Enter the first  
                number");  
            number1 = console.nextInt();  
            System.out.println ("Enter the second  
                number");  
            number2 = console.nextInt();  
            int sum = number1 + number2;  
            System.out.println ("sum of numbers:" + sum);  
            System.out.println ("Do you want to  
                continue? (y/n)");  
            choice = console.next().charAt(0);  
            if (choice != 'y')  
                break;  
        } while (choice == 'y');  
    }  
}
```

System.out.println("Do you want to continue
use y/n?");
choice

console.next().charAt(0);

System.out.println();

} while (choice == 'y' || choice == 'Y');

{ } // infinite loop

}

Q.117 write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros 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 number");  
            n = sc.nextInt();  
            if (n > 0)  
            {  
                countP++;  
            }  
            else if (n < 0)  
            {  
                countN++;  
            }  
            else  
            {  
                countZ++;  
            }  
        }  
    }  
}
```

```
7  
System.out.println("do you want to continue\n");  
ch = sc.next().charAt(0);  
} while (ch == 'y' || ch == 'Y');  
System.out.println("positive number = " + count1);  
System.out.println("negative number = " + count2);  
System.out.println("zero number = " + count3);  
}
```

Q.12] Write a program to enter the numbers till the user wants and at the end the program should display the largest and smallest number is entered.

```
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 number");  
            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);

}

System.out.println ("largest number = " + max)

System.out.println ("smallest number = " + min)

(Average points) gives better output stud

second, i.e., min + 0.5 * max - min, more fair

if (max <= min) {
 min = max;

 max = min +
 (max + min) / 2; }

(c = 1/min) stud

: old min = max

(max + max + max) / 3 = old)

: old) + min / 2 = min

(old max) = old)

(Amat = min) hi

:(script+) retaining due instead

(c = max)

(c = min)

Q.13] Write a program to print out all Armstrong numbers betⁿ 1 and 500. If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number. For example, $153 = (1^3 + 5^3 + 3^3) + (5 * 5 * 5) + (3 * 3 * 3)$

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 != 0)

{

 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;

}

}

}

Q.14] Write a program to print Fibonacci Series of n terms where n is input by user:

0 1 1 2 3 5 8 13 24...

```

class Fibonacci
{
    public static void main (String args[])
    {
        int num= Integer.parseInt (args[0]);
        System.out.println ("Fibonacci series");
        int f1 , f2=0 , f3=1;
        for (int i=1; i<=num; i++)
        {
            System.out.println (" +f3");
            f1 = f2;
            f2 = f3;
            f3= f1 + f2;
        }
    }
}

```

15] Write a program to calculate the sum of following series where n is input by user?

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \dots + \frac{1}{n}$$

```

import java.util.*;
public class Series
{
    public static void main (String args[])
    {
        Scanner sc = new Scanner (System.in);
        int i, n;
        int sum = 0.0;
        System.out.println ("enter a number=");
        n = sc.nextInt();
        for (i=1; i<=n; i++)
        {
            sum = sum + 1.0/i;
        }
        System.out.println ("The value of the
        series is=" + sum);
    }
}

```

Q.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 and input by user.

```
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("log2 = " + sum);
    }
}
```

Q.17] write a program that generates a random number and asks the user to guess what the number is. if the user's guess is higher than the random number, the program should display "Too high, try again" if the user's guess is lower than the random number, the program should display "Too low, try again". The program should use a loop that repeats until the user correctly guesses the random number.

```
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) + 1;
        System.out.println("Guess my number Game");
        System.out.println();
        do
        {
            System.out.print("Enter a guess between 1 and 100 : ");
            guess = console.nextInt();
            tries++;
        }
        while (guess != number);
        System.out.println("You guessed it in " + tries + " 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);
}
```

Q.18] write a program to print following

i) * * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *

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)

* *

**

(Guru Nanak Dev University)

public class star1

{

public static void printstar(int n)

{

int i, j; (for i=1; i<=n; i++)

for (i=0; i<n; i++)

{

for (j=0; j<=i; j++)

{

System.out.println ("*");

}

System.out.println ();

}

}

}

iii]

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

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.println (" ");

}

for (j=0; j<=i; j++)

{

System.out.println (" * ");

}

System.out.println () ;

}

{

Wij]

1

212

32123

4321234

543212345

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.println (+i);

}

System.out.println ();

}

}

}

Q.19] Write a program to compute $\sin x$ for given x .
The user should supply x and a positive
integer n . we compute the sine of x using
the series and 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 = 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 (i=1; i<=n; i++)
```

{

p = p * x;

fact = fact * i;

}

sign = -sign;

sum += sign * p / fact;

}

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

}

}

Q.20] Write a program 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 and the computation should use all terms in the series up through the term involving x^n .

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

```
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++)
            {
                fact *= j;
            }
            sum += ((x*x)/fact) * sign;
            sign *= -1;
        }
        System.out.println ("cosine of " + x + " is " + sum);
    }
}
```

$$\{ p = p * x;$$

fact = fact * j;

}

$$sum = sign * p / fact;$$

$$sign = -1 * sign;$$

} System.out.println ("sin=" + (1 + sum));

}

}

(Final point) when back iterate output

(Cumulatively) remain will = 12 remain

(t=0 to t=10) i.e. i=10

i.e. p = 12 * x * fact

t=10, so now add value of fact, i.e. 10! = 3628800

((0, 10) fact * 3628800 = 1)

x = 10, so now add value of fact, i.e. 10! = 3628800

((0, 10) fact * 3628800 = 1)

((0, 10) fact * 3628800 = 1)

t=9

((0, 9) fact * 3628800 = 1)

((0, 9) fact * 3628800 = 1)

?