

CSE 1007

JAVA Programming

LAB ASSESSMENT - 1

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1. Write a Java program to perform basic arithmetic operations of two numbers.

Ans 1)

```
CODE:
```

```
import java.util.Scanner;
public class BasicArithmeticOperators
 public static void main(String args[])
    Scanner s = new Scanner(System.in);
    System.out.println("");
    System.out.println("Enter the two numbers:-");
    System.out.print("Enter the first number: ");
    int x = s.nextInt();
    System.out.print("Enter the second number: ");
    int y = s.nextInt();
    int add;
    add = x + y;
    System.out.println("Addition : "+add);
    int sub;
    sub = x - y;
    System.out.println("Subtraction: "+sub);
    int mul;
    mul = x * y;
    System.out.println("Multiplication: "+mul);
    float div;
    div = (float) x / y;
    System.out.println("Division: "+div);
    int mod;
    mod = x \% y;
    System.out.println("Modulo: "+mod);
}
```

Output:

```
Command Prompt

Microsoft Windows [Version 10.0.19041.804]

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C:\Users\Vibhu\cd Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac BasicArithmeticOperators.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java BasicArithmeticOperators

Enter the two numbers:-
Enter the first number: 20
Enter the second number: 4

Addition: 24

Subtraction: 16

Multiplication: 80

Division: 5.0

Modulo: 0
```

2. Write a Java program to perform operation (Addition, Subtraction, Multiplication, Division) without using third variable.

Ans 2)

CODE:

```
import java.util.Scanner;
public class OperationsWithoutThirdVariable
 public static void main(String args[])
    Scanner s=new Scanner(System.in);
    System.out.println("");
    System.out.println("Enter the two numbers:-");
    System.out.print("Enter the first number: ");
    int x=s.nextInt();
    System.out.print("Enter the second number: ");
    int y=s.nextInt();
    x=x+y;
    System.out.println("Addition : "+x);
    System.out.println("Subtraction: "+x);
    x=x*y;
    System.out.println("Multiplication: "+x);
    x=x/y;
    System.out.println("Division: "+x);
    x=x%y;
    System.out.println("Modulo: "+x);
```

Output:

```
©L Select Command Prompt

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C:\Users\Vibhu>cd Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac OperationsWithoutThirdVariable.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java OperationsWithoutThirdVariable

Enter the two numbers:-
Enter the first number : 20
Enter the second number : 4

Addition : 24

Subtraction : 20

Multiplication : 80

Division : 20

Modulo : 0
```

3. Write a Java program to perform Multiplication of two numbers without using * operator.

Ans 3)

```
CODE:
```

```
import java.util.Scanner;
public class MultiplicationWithoutOperator
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        System.out.println("");
        System.out.println("Enter the two numbers:-");
        System.out.print("Enter the first number: ");
        int x=s.nextInt();
        System.out.print("Enter the second number: ");
        int y=s.nextInt();
        int z=0;

        while(x!=0)
        {
            z+=y;
            x--;
        }
        System.out.print("Multiplication: "+z);
    }
}
```

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac MultiplicationWithoutOperator.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java MultiplicationWithoutOperator

Enter the two numbers:-
Enter the first number : 20
Enter the second number : 4

Multiplication: 80
```

4. Write a Java program to check the year is leap year or not. Ans 4)

```
CODE:
```

```
import java.util.Scanner;
public class LeapYear
{
   public static void main(String args[])
   {
      Scanner s=new Scanner(System.in);
      System.out.print("");
      boolean leap=false;
      System.out.print("Enter the year: ");
```

```
int x=s.nextInt();
if(x%4==0)
{
    leap=true;
    if(x%100==0 && x%400!=0)
    {
        leap=false;
    }
}
if(leap==true)
{
    System.out.println(x+" is a leap year.");
}
else
{
    System.out.println(x+" is not a leap year.");
}
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac LeapYear.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java LeapYear
Enter the year: 2100
2100 is not a leap year.
```

5. Write a Java program to print multiplication Table (1 to 15). Ans 5)

```
import java.util.Scanner;
public class MultiplicationTablePrint
{

   public static void main(String[] args)
   {
      for(int j=1;j<16;j++)
      {
        System.out.print("The Multiplication Table for "+j+" is:\n");
      for (int i=0;i<10;i++)
      {
        System.out.println(j+ " x " + (i+1) + " = " + (j * (i+1)));
      }
      System.out.print("\n");
    }
    System.out.print("\n");
    }
}</pre>
```

```
👊 Command Prompt
 :\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac MultiplicationTablePrint.java
 :\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java MultiplicationTablePrint
The Multiplication Table for 1 is:
 x 3 = 3
  x 10 = 10
The Multiplication Table for 2 is:
  x 6 = 12
  x 8 = 16
 x 10 = 20
The Multiplication Table for 3 is:

  \begin{array}{cccc}
    x & 1 & = & 3 \\
    x & 2 & = & 6
  \end{array}

The Multiplication Table for 4 is:
    4 = 16
    5 = 20
      = 24
      = 28
       = 32
```

6. Write a Java Program to print ASCII Table. Ans 6)

```
System.out.println("The ASCII value of " + c + " is: " + asciivalue);
}
}
```

```
Command Prompt - java AsciiTable
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac AsciiTable.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java AsciiTable
Enter the character: a
The ASCII value of a is: 97
Enter the character: !
The ASCII value of ! is: 33
Enter the character: @
The ASCII value of @ is: 64
Enter the character: b
The ASCII value of b is: 98
Enter the character: &
The ASCII value of & is: 38
Enter the character: -
The ASCII value of - is: 45
Enter the character: +
The ASCII value of + is: 43
Enter the character: c
The ASCII value of c is: 99
```

7. Write a Java program to Calculate and Display the sum of 4 digits number.

Ans 7)

```
import java.util.Scanner;
public class FourDigitSum
{
   public static void main(String args[])
   {
     int m,n,sum=0;
     Scanner s=new Scanner(System.in);
     System.out.print("Enter the number: ");
     m=s.nextInt();
     while(m>0)
     {
}
```

```
n=m%10;
sum=sum+n;
m=m/10;
}
System.out.println("Sum of Digits: "+sum);
}
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac FourDigitSum.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java FourDigitSum
Enter the number: 1564
Sum of Digits: 16
```

8. Write a Java program to Obtain the sum of first and last digit of four digit number.

Ans 8)

```
import java.util.Scanner;
public class FirstLastDigitSum
  private static int FirstLastDigitSum(int number)
    int lastDigit, firstDigit, divisor;
    int totalDigits = 0;
    int sum = 0;
    lastDigit = number%10;
    totalDigits = findDigits(number);
    divisor = (int)Math.pow(10, totalDigits-1);
    firstDigit = number / divisor;
    sum = firstDigit + lastDigit;
    return sum;
  private static int findDigits(int number)
    int count = 0;
    while(number!=0)
      count++;
      number = number/10;
    return count;
  public static void main(String[] args)
```

```
int number = 0;
int sum = 0;
Scanner scan = new Scanner(System.in);
System.out.print("Enter an integer number: ");
number = scan.nextInt();
sum = FirstLastDigitSum(number);
System.out.println("The sum of first & last"+" digit of the number "+number+" = "+sum);
scan.close();
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac FirstLastDigitSum.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java FirstLastDigitSum

Enter an integer number: 6524

The sum of first & last digit of the number 6524 = 10
```

9. Write a Java program to check whether given number is Armstrong or not.

Ans 9)

```
import java.util.Scanner;
public class Armstrong
  public static void main(String[] args)
    Scanner s=new Scanner(System.in);
    int c=0,a,temp;
    System.out.print("Enter a number: ");
    int n=s.nextInt();
    temp=n;
    while(n>0)
      a=n%10;
      n=n/10;
      c=c+(a*a*a);
    if(temp==c)
      System.out.println(temp+" is an armstrong number.");
    else
      System.out.println(temp+" is not an armstrong number.");
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac Armstrong.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java Armstrong
Enter a number: 153
153 is an armstrong number.
```

10. Write a Java program to print Fibonacci Series. Ans 10)

```
CODE:
```

```
import java.util.Scanner;
public class Fibonacci
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        int n,n1=0,n2=1;
        System.out.print("Enter the number of terms to print: ");
        n=s.nextInt();
        System.out.print(n1+" "+n2+" ");
        for(int i=2;i<n;i++)
        {
            int n3=n1+n2;
            System.out.print(n3+" ");
            n1=n2;
            n2=n3;
        }
    }
}</pre>
```

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac Fibonacci.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java Fibonacci
Enter the number of terms to print: 15
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
```

11. Write a Java program to print Factorial of Number. Ans 11)

```
import java.util.Scanner;
public class Factorial
```

```
private static int Fact(int n)
{
    int factorial=1;
    if(n==0 || n==1)
    {
        return 1;
    }
    for(int i=n;i>=2;i--)
    {
        factorial=factorial*i;
    }
    return factorial;
}

public static void main(String args[])
{
    Scanner s=new Scanner(System.in);
    System.out.print("Enter the number: ");
    int n=s.nextInt();
    System.out.print("The factorial of "+n+" is: "+Fact(n));
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac Factorial.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java Factorial

Enter the number: 5

The factorial of 5 is: 120
```

12. Write a Java program to swap two numbers using third variable. Ans 12)

```
import java.util.Scanner;
public class Swapping
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        System.out.println("Enter the numbers: ");
        System.out.print("a = ");
        int a=s.nextInt();
        System.out.print("b = ");
        int b=s.nextInt();
        System.out.print("\nBefore Swapping:\na = "+a+"\nb = "+b);
        int temp=a;
        a=b;
        b=temp;
        System.out.print("\n\nAfter Swapping:\na = "+a+"\nb = "+b);
```

} }

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac Swapping.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java Swapping

Enter the numbers:
a = 10
b = 5

Before Swapping:
a = 10
b = 5

After Swapping:
a = 5
b = 10
```

13. Write a Java program to swap two numbers without using third variable.

Ans 13)

```
import java.util.Scanner;
public class SwappingWithoutVariable
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        System.out.println("Enter the numbers: ");
        System.out.print("a = ");
        int a=s.nextInt();
        System.out.print("b = ");
        int b=s.nextInt();
        System.out.print("\nBefore Swapping:\na = "+a+"\nb = "+b);
        a=a+b;
        b=a-b;
        a=a-b;
        System.out.print("\n\nAfter Swapping:\na = "+a+"\nb = "+b);
    }
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac SwappingWithoutVariable.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java SwappingWithoutVariable
Enter the numbers:
a = 10
b = 5

Before Swapping:
a = 10
b = 5

After Swapping:
a = 5
b = 10
```

14. Write a Java program to calculate the power of Number. Ans 14)

```
CODE:
```

```
import java.util.Scanner;
public class Exponent
  private static int power(int x,int n)
    int res=1;
    while(n>0)
      if(n%2!=0)
         res*=x;
      x=x*x;
      n=n/2;
    return res;
  public static void main(String args[])
    Scanner s=new Scanner(System.in);
    System.out.print("Number: ");
    int n=s.nextInt();
    System.out.print("Power: ");
    int p=s.nextInt();
    System.out.print("The result of "+n+"^"+p+" is: "+power(n,p));
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac Exponent.java

C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java Exponent

Number: 3

Power: 5

The result of 3^5 is: 243
```

15. Write a Java program to find sum of all digits between 10 and 50, which are divisible by 3.

Ans 15)

```
CODE:
```

```
import java.util.*;
public class DivisibleSum
{
    private static int sumDivisibles(int A, int B, int M)
    {
        int sum = 0;
        for (int i = A; i <= B; i++)
        if (i % M == 0)
            sum += i;
        return sum;
    }
    public static void main(String[] args)
    {
        int A = 10, B = 50, M = 3;
        System.out.print("The Sum of numbers between 10 and 50 which are divisible by 3 is: "+sumDivis ibles(A, B, M) +"\n");
    }
}</pre>
```

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac DivisibleSum.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java DivisibleSum
The Sum of numbers between 10 and 50 which are divisible by 3 is: 390
```

16. Write a Java program to find out all odd numbers divisible by 5 from the range of integers 200 to 800.

Ans 16)

```
CODE:
import java.util.*;
public class OddDivisibleSum
{
    private static int sumDivisibles(int A, int B, int M)
    {
        int sum = 0;
        for (int i = A; i <= B; i++)
        if (i % M == 0 && i%2==1)
            sum += i;
        return sum;
    }
    public static void main(String[] args)
    {
        int A = 200, B = 800, M = 5;
        System.out.print("The sum of all odd numbers between 200 and 800 which are divisible by 5 is: "
+sumDivisibles(A, B, M) +"\n");
    }
}</pre>
```

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac OddDivisibleSum.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java OddDivisibleSum
The sum of all odd numbers between 200 and 800 which are divisible by 5 is: 30000
```

17. Write a Java Program to read the number and check whether it is divisible by 3 and 5.

Ans 17)

```
import java.util.Scanner;
public class ThreeFiveDivisible
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        System.out.print("Enter a number: ");
        int n=s.nextInt();
        if(n%3==0 && n%5==0)
        {
            System.out.print(n+" is divisible by both 3 and 5.");
        }
}
```

```
else
{
    System.out.print(n+" is not divisible by both 3 and 5.");
}
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac ThreeFiveDivisible.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java ThreeFiveDivisible
Enter a number: 60
60 is divisible by both 3 and 5.
```

18. Write a Java Program to display Subject Name based on room number. If the user enters 604 then display Java Programming, If the user enters 605 then display Python programming for any other input display Invalid input to the user.

Ans 18)

```
CODE:
```

```
import java.util.Scanner;
public class ClassName
{
    public static void main(String args[])
    {
        Scanner s=new Scanner(System.in);
        System.out.print("Enter the Class number: ");
        int n=s.nextInt();
        switch(n)
        {
            case 604:
                System.out.print("Java Programming");
                break;
            case 605:
                System.out.print("Python Programming");
                break;
            default:
                 System.out.print("Invalid Input");
        }
    }
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac ClassName.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java ClassName
Enter the Class number: 605
Class Name: Python Programming
```

19. Write a Java Program to print the sum of first n numbers. If n is 3 then print the sum of 1+2+3 to the user. Get n from the user.

Ans 19)

```
CODE:
```

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

Output:

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac SumOfNumbers.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java SumOfNumbers
Enter the number: 10
The sum of first 10 natural numbers is: 55
```

20. Write a Java Program to print the sum of the series $1^2 + 2^2 + 3^2$ up to n

terms.
Ans 20)

```
CODE:
```

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

```
{
    Scanner s=new Scanner(System.in);
    System.out.print("Enter the number: ");
    int n=s.nextInt();
    int sum=n*(n+1)*(2*n+1)/6;
    System.out.print("The sum of first "+n+" natural numbers is: "+sum);
}
}
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac SquareSum.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java SquareSum
Enter the number: 7
The sum of first 7 natural numbers is: 140
```

21. Write a Java Program to print the multiplication table by getting the n from the user.

Ans 21)

```
import java.util.Scanner;
public class MultiplicationTable
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter number:");
        int n=s.nextInt();
        for(int i=1;i<=10;i++)
        {
            System.out.println(n+" * "+i+" = "+n*i);
        }
      }
}</pre>
```

```
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac MultiplicationTable.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java MultiplicationTable
Enter number:25
25 * 1 = 25
25 * 2 = 50
25 * 3 = 75
25 * 4 = 100
25 * 5 = 125
25 * 6 = 150
25 * 7 = 175
25 * 8 = 200
25 * 9 = 225
25 * 10 = 250
```

22. Write a Java Program to provide the option of adding two numbers to the user until the user exits.

Ans 22)

```
import java.util.Scanner;
public class SumLoop
  public static void main(String[] args)
    Scanner s = new Scanner(System.in);
    while(true)
    {
      System.out.print("1:Addition\n2:Exit\nEnter your choice: ");
      int choice=s.nextInt();
      switch(choice)
         case 1:
           System.out.print("Enter the numbers: ");
           int a=s.nextInt();
           int b=s.nextInt();
           int sum=a+b;
           System.out.print("Sum = "+sum+" \setminus n \setminus n");
           break;
         case 2:
           System.exit(0);
```

```
Command Prompt
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>javac SumLoop.java
C:\Users\Vibhu\Desktop\Winter Semester 20-21\JAVA\LAB\LAB DA1>java SumLoop
1:Addition
2:Exit
Enter your choice: 1
Enter the numbers: 3 4
Sum = 7
1:Addition
2:Exit
Enter your choice: 1
Enter the numbers: 4 6
Sum = 10
1:Addition
2:Exit
Enter your choice: 1
Enter the numbers: 78
Sum = 15
1:Addition
2:Exit
Enter your choice: 2
```

.....