

Assignment 2

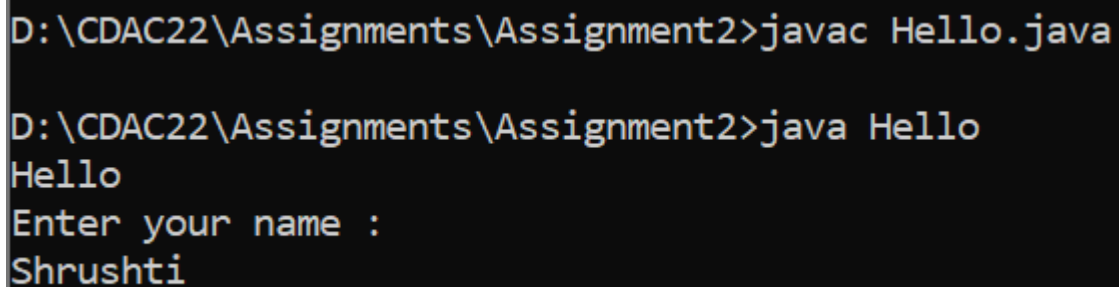
1. Write a Java program to print 'Hello' on screen and then print your name on a separate line. Expected Output : Hello Alexandra Abramo

Source Code:

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

        System.out.println("Hello");
        System.out.println("Enter your name :");
        String name=sc.nextLine();
    }
}
```

Output:



```
D:\CDAC22\Assignments\Assignment2>javac Hello.java

D:\CDAC22\Assignments\Assignment2>java Hello
Hello
Enter your name :
Shrushti
```

2. Write a Java program to print the sum of two numbers. Test Data: 74 + 36

Source code:

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

```

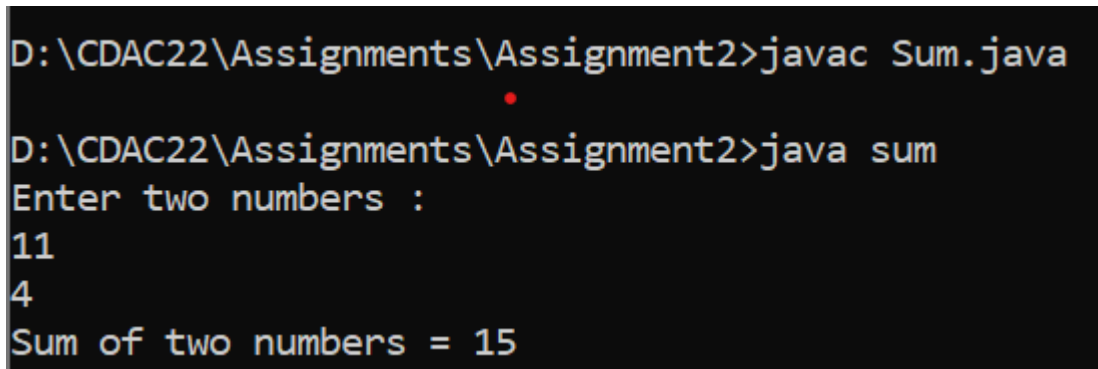
{
    Scanner sc= new Scanner(System.in);
    System.out.println("Enter two numbers :");
    int num1=sc.nextInt();
    int num2= sc.nextInt();

    System.out.println("Sum of two numbers =" +(num1+num2));

}
}

```

Output:



```

D:\CDAC22\Assignments\Assignment2>javac Sum.java
D:\CDAC22\Assignments\Assignment2>java sum
Enter two numbers :
11
4
Sum of two numbers = 15

```

3. Write a Java program to divide two numbers and print on the screen.
Test Data : 50/3 Expected Output : 16

Source Code:

```

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

        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the number to be divided: ");
        int num1 =sc.nextInt();

        System.out.println("Enter the divisor : ");
        int num2 = sc.nextInt();

        int division=num1/num2;
    }
}

```

```

        System.out.println("The answers = "+ division);
    }
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>javac Divide.java

D:\CDAC22\Assignments\Assignment2>java Divide
Enter the number to be divided:
50
Enter the divisor :
3
The answers = 16

```

4. Write a Java program to print the result of the following operations.

Test Data: a. $-5 + 8 * 6$ b. $(55+9) \% 9$ c. $20 + -3*5 / 8$ d. $5 + 15 / 3 * 2 - 8 \% 3$

Expected Output : 43 1 19 13

Source Code:

```

import java.util.Scanner;
class Operation
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("The result of -5+8*6 = "+(-5+8*6));
        System.out.println("The result of (55+9)%9 = "+((55+9)%9));
        System.out.println("The result of 20+-3*5/8 = "+(20+-3*5/8));
        System.out.println("The result of 5+15/3*2-8%3 = 
" +(5+15/3*2-8%3));

    }

}

```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac Operation.java

D:\CDAC22\Assignments\Assignment2>java Operation
The result of -5+8*6 = 43
The result of (55+9)%9 = 1
The result of 20+-3*5/8 = 19
The result of 5+15/3*2-8%3 = 13
```

5. Write a Java program that takes two numbers as input and display the product of two numbers. Test Data: Input first number: 25 Input second number: 5 Expected Output : 25 x 5 = 125

Source Code:

```
import java.util.Scanner;
class Product
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter first numbers : ");
        int num1 = sc.nextInt();
        System.out.println("Enter second numbers : ");
        int num2 = sc.nextInt();

        System.out.println("Product of two numbers = "+num1*
num2);
    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac Product.java

D:\CDAC22\Assignments\Assignment2>java Product
Enter first numbers :
25
Enter second numbers :
5
Product of two numbers = 125
```

6. Write a Java program to print the sum (addition), multiply, subtract, divide and remainder of two numbers. Test Data: Input first number: 125
Input second number: 24 Expected Output : $125 + 24 = 149$ $125 - 24 = 101$
 $125 \times 24 = 3000$ $125 / 24 = 5$ $125 \text{ mod } 24 = 5$

Source Code:

```
import java.util.Scanner;
class Calculator
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Input first number : ");
        int num1= sc.nextInt();
        System.out.println("Input second number : ");
        int num2= sc.nextInt();

        System.out.println(num1 +"+"+ num2 +"=" +(num1+num2));
        System.out.println(num1 +"-"+ num2 +"=" +(num1-num2));
        System.out.println(num1 +"*"+ num2 +"=" +(num1*num2));
        System.out.println(num1 +"/"+ num2 +"=" +(num1/num2));
        System.out.println(num1 +"%"+ num2 +"=" +(num1 % num2));

    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac Calculator.java

D:\CDAC22\Assignments\Assignment2>java Calculator
Input first number :
125
Input second number :
24
125+24=149
125-24=101
125*24=3000
125/24=5
125%24=5
```

7. Write a Java program that takes a number as input and prints its multiplication table upto 10. Test Data: Input a number: 8 Expected Output : 8 x 1 = 8 8 x 2 = 16 8 x 3 = 24 ... 8 x 10 = 80

Source Code:

```
import java.util.Scanner;
class Table
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the number :");
        int num=sc.nextInt();
        for(int i=1;i<=10;i++)
        {
            int table=num*i;
            System.out.println(num +"X" + i+" = " +(num*i) );
        }
    }
}
```

Output:

```

D:\CDAC22\Assignments\Assignment2>java Table
Enter the number :
8
8X1 = 8
8X2 = 16
8X3 = 24
8X4 = 32
8X5 = 40
8X6 = 48
8X7 = 56
8X8 = 64
8X9 = 72
8X10 = 80

```

8. Write a Java program to display the following pattern.

```

    J   a   v       v   a
      J   a a   v   v   a a
J   J aaaaa   V V   aaaaa
  J J a       a   V   a       a

```

Source Code:

```

class JavaPattern
{
    public static void main(String args[])
    {
        System.out.println(" J   a   v   v   a ");
        System.out.println(" J   a a   v   v   a a");
        System.out.println("J J   aaaaa   v v   aaaaa ");
        System.out.println("JJ   a   a   v   a   a");
    }
}

```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac JavaPattern.java
```

```
D:\CDAC22\Assignments\Assignment2>java JavaPattern
```

```
  J      a  v      v  a
  J      a a  v      v  a a
J  J      aaaaa  v v  aaaaa
JJ      a      a  v  a      a
```

9. Write a Java program to compute the specified expressions and print the output. Test Data: $((25.5 * 3.5 - 3.5 * 3.5) / (40.5 - 4.5))$ Expected Output 2.138888888888889

Source Code:

```
class Expression1
{
    public static void main(String args[])
    {
        double d = ((25.5 * 3.5 - 3.5 * 3.5) / (40.5 - 4.5));
        System.out.println(d);
    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac Expression1.java
```

```
D:\CDAC22\Assignments\Assignment2>java Expression
2.9760461760461765
```

10. Write a Java program to compute a specified formula. Specified Formula : $4.0 * (1 - (1.0/3) + (1.0/5) - (1.0/7) + (1.0/9) - (1.0/11))$ Expected Output 2.9760461760461765

Source Code:

```
class Expression
{
    public static void main(String args[])
    {
        double d = 4.0 * (1 - (1.0/3) + (1.0/5) - (1.0/7) + (1.0/9) - (1.0/11));
    }
}
```



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

Output:

```
D:\CDAC22\Assignments\Assignment2>java Expression
2.9760461760461765
```

11. Write a Java program to print the area and perimeter of a circle. Test Data: Radius = 7.5 Expected Output Perimeter is = 47.12388980384689 Area is = 176.71458676442586

Source Code:

```
class Circle
{
    public static void main(String args[])
    {
        float radius=7.5f;
        double Perimeter;
        double Area;
        Perimeter=2*3.1428*radius;
        Area=3.1428*radius*radius;
        System.out.println("Perimeter is " +Perimeter);
        System.out.println("Area is "+ Area);
    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac Circle.java

D:\CDAC22\Assignments\Assignment2>java Circle
Perimeter is 47.141999999999996
Area is 176.78249999999997
```

12. Write a Java program that takes three numbers as input to calculate and print the average of the numbers.

Source Code:

```

import java.util.Scanner;
class Average
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter first number :");
        int num1=sc.nextInt();

        System.out.println("Enter second number :");
        int num2=sc.nextInt();

        System.out.println("Enter third number :");
        int num3=sc.nextInt();

        int Avg=num1+num2+num3/3;
        System.out.println("Average off 3 numbers is "+Avg);
    }
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>javac Average.java

D:\CDAC22\Assignments\Assignment2>java Average
Enter first number :
4
Enter second number :
8
Enter third number :
7
Average off 3 numbers is 14

```

13. Write a Java program to print the area and perimeter of a rectangle.
 Test Data: Width = 5.5 Height = 8.5 Expected Output Area is $5.6 * 8.5 = 47.60$ Perimeter is $2 * (5.6 + 8.5) = 28.20$

Source Code:

```

class Rectangle
{
    public static void main(String args[])

```

```

{
    float w=5.6f;
    float h=8.5f;
    float Perimeter;
    float Area;
    Perimeter= 2*(w+h);
    Area=w*h;
    System.out.println("Perimeter is " +Perimeter);
    System.out.println("Area is "+ Area);
}
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>javac Rectangle.java

D:\CDAC22\Assignments\Assignment2>java Rectangle
Perimeter is 28.2
Area is 47.6

```

14. Write a Java program to print an American flag on the screen.

Source Code:

```

class AmericanFlag
{
    public static void main(String args[])
    {
        System.out.println("* * * * *
=====");
        System.out.println(" * * * * *
=====");
        System.out.println("* * * * *
=====");
        System.out.println(" * * * * *
=====");
        System.out.println("* * * * *
=====");
        System.out.println(" * * * * *
=====");
        System.out.println("* * * * *
=====");
    }
}

```

```

        System.out.println(" * * * * *
=====");
        System.out.println(" * * * * *
=====");

        System.out.println("=====
=====");

        System.out.println("=====
=====");

        System.out.println("=====
=====");

        System.out.println("=====
=====");

        System.out.println("=====
=====");

    }
}

```

Output:

```
D:\CDAC22\Assignments\Assignment2>java AmericanFlag
* * * * * =====
* * * * * =====
* * * * * =====
* * * * * =====
* * * * * =====
* * * * * =====
* * * * * =====
* * * * * =====
=====
=====
=====
=====
=====
=====
```

15. Write a Java program to swap two variables.

Source Code:

```
import java.util.Scanner;
class Swap
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter first number :");
        int num1=sc.nextInt();

        System.out.println("Enter second number :");
        int num2=sc.nextInt();

        System.out.println("Before Swapping : num1 = "+ num1 +"
num2 = "+ num2);
        int temp=num1;
        num1=num2;
        num2=temp;
        System.out.println("After Swapping : num1 = "+ num1 +"
num2 = "+ num2);
```

```
}  
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>java Swap  
Enter first number :  
4  
Enter second number :  
5  
Before Swapping : num1 = 4 num2 = 5  
After Swapping : num1 = 5 num2 = 4
```

16. Write a Java program to print a face.

Source Code:

```
class Face  
{  
    public static void main(String args[])  
    {  
        System.out.println(" ++++++");  
        System.out.println("[ o o ]");  
        System.out.println(" | ^ |");  
        System.out.println(" | '-' |");  
        System.out.println(" +-----+");  
    }  
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>java Face  
+ ' ' ' ' +  
[ | o o | ]  
| ^ |  
| '-' |  
+-----+
```

17. Write a Java program to add two binary numbers. Input Data: Input first binary number: 10 Input second binary number: 11 Expected Output Sum of two binary numbers: 101

Source Code:

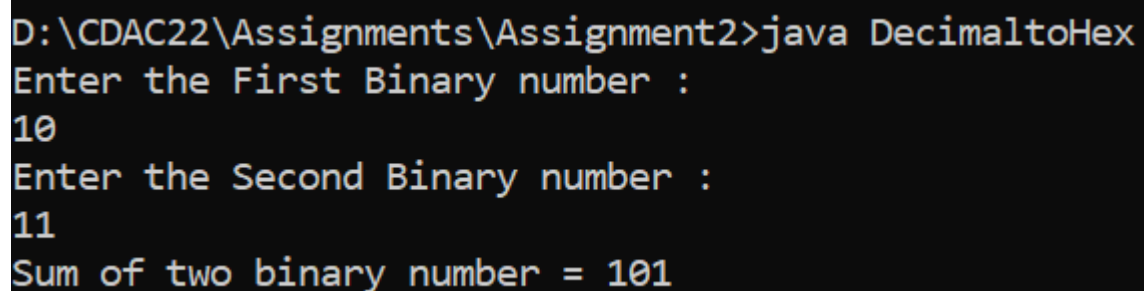
```
import java.util.Scanner;
class DecimaltoHex
{
    public static void main(String arfs[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the First Binary number : ");
        String b1=sc.next();

        System.out.println("Enter the Second Binary number : ");
        String b2=sc.next();

        int n1=Integer.parseInt(b1,2);
        int n2=Integer.parseInt(b2,2);

        System.out.println("Sum of two binary number
        =" +Integer.toBinaryString(n1+n2));
    }
}
```

Output:



```
D:\CDAC22\Assignments\Assignment2>java DecimaltoHex
Enter the First Binary number :
10
Enter the Second Binary number :
11
Sum of two binary number = 101
```

18. Write a Java program to multiply two binary numbers. Input Data: Input the first binary number: 10 Input the second binary number: 11 Expected Output Product of two binary numbers: 110

Source Code:

```
import java.util.Scanner;
```

```

class BinaryMultiplication
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter First Binary number: ");
        String b1=sc.next();

        System.out.println("Enter Second Binary number: ");
        String b2=sc.next();

        int n1=Integer.parseInt(b1,2);
        int n2=Integer.parseInt(b2,2);

        System.out.println("Multiplication of two Binary numbers in
Decimal form is = "+(n1*n2));
        System.out.println("Multiplication of two Binary numbers in
Binary form is = "+Integer.toBinaryString(n1*n2));
    }
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>javac BinaryMultiplication.java

D:\CDAC22\Assignments\Assignment2>java BinaryMultiplication
Enter First Binary number:
11
Enter Second Binary number:
10
Multiplication of two Binary numbers in Decimal form is = 6
Multiplication of two Binary numbers in Binary form is = 110

```

19. Write a Java program to convert a decimal number to binary number.
Input Data: Input a Decimal Number : 5 **Expected Output** Binary number is: 101

Source Code:

```

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

```



```

    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter first Decimal number:");
        int n1=sc.nextInt();
        System.out.println("Decimal to Binary conversion of
"+Integer.toBinaryString(n1));
    }
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>javac DecimaltoBinary.java

D:\CDAC22\Assignments\Assignment2>java DecimaltoBinary
Enter first Decimal number:
22
Decimal to Binary conversion of 10110

```

20. Write a Java program to convert a decimal number to hexadecimal number. Input Data: Input a decimal number: 15 Expected Output Hexadecimal number is : F

Source Code:

```

import java.util.Scanner;
class DecimaltoHexadecimal
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter Decimal number :");
        int num=sc.nextInt();

        System.out.println("Decimal to octal conversion : " +
Integer.toHexString(num));
    }
}

```

Output:

```
D:\CDAC22\Assignments\Assignment2>java DecimaltoHexadecimal
Enter Decimal number :
15
Decimal to octal conversion :f
```

21. Write a Java program to convert a decimal number to octal number.
Input Data: Input a Decimal Number: 15 Expected Output Octal number is: 17

Source Code:

```
import java.util.Scanner;
class DecimaltoOctal
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter Decimal number :");
        int num=sc.nextInt();

        System.out.println("Decimal to octal conversion : " +
Integer.toOctalString(num));
    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>java DecimaltoOctal
Enter Decimal number :
15
Decimal to octal conversion :17
```

22. Write a Java program to convert a binary number to decimal number.
Input Data: Input a binary number: 100 Expected Output Decimal Number: 4

Source Code:

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

```

Scanner sc= new Scanner(System.in);
System.out.println("Enter Binary number :");
String b1=sc.next();
int n=Integer.parseInt(b1,2);

System.out.println("Binary to Decimal conversion :" + n);
}
}

```

Output:

```

D:\CDAC22\Assignments\Assignment2>java BinarytoDecimal
Enter Binary number :
100
Binary to Decimal conversion :4

```

23. Write a Java program to convert a binary number to hexadecimal number. Input Data: Input a Binary Number: 1101 Expected Output HexaDecimal value: D

Source Code:

```

import java.util.Scanner;
class BinarytoHex
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter Binary number :");
        String b1=sc.next();
        int n1=Integer.parseInt(b1,2);
        String hex=Integer.toHexString(n1);

        System.out.println("Binary to Decimal conversion :" + hex);
    }
}

```

Output:

```
D:\CDAC22\Assignments\Assignment2>java BinarytoHex
Enter Binary number :
1101
Binary to Decimal conversion :d
```

24. Write a Java program to convert a binary number to a Octal number.
Input Data: Input a Binary Number: 111 Expected Output Octal number: 7

Source Code:

```
import java.util.Scanner;
class BinarytoOctal
{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter Binary number :");
        String b1=sc.next();
        int n1=Integer.parseInt(b1,2);
        String octal=Integer.toOctalString(n1);

        System.out.println("Binary to Decimal conversion :" + octal);
    }
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac BinarytoOctal.java

D:\CDAC22\Assignments\Assignment2>java BinarytoOctal
Enter Binary number :
111
Binary to Decimal conversion :7
```

25. Write a Java program to convert a octal number to a decimal number.
Input Data: Input any octal number: 10 Expected Output Equivalent decimal number: 8

Source Code:

```
import java.util.Scanner;
class OctaltoDecimal
```

```
{  
    public static void main(String args[])  
    {  
        Scanner sc= new Scanner(System.in);  
        System.out.println("Enter Octal number :");  
        String o=sc.next();  
  
        int Decimal=Integer.parseInt(o,8);  
  
        System.out.println("Binary to Decimal conversion :" + Decimal);  
    }  
}
```

Output:

```
D:\CDAC22\Assignments\Assignment2>javac OctaltoDecimal.java  
  
D:\CDAC22\Assignments\Assignment2>java OctaltoDecimal  
Enter Octal number :  
10  
Binary to Decimal conversion :8
```