

Assignment 1

1. Create a program that declares and initializes all primitive data types in Java and prints their default and assigned values.

Ans:

Input:

```
class Primitive {  
  
    byte a;  
    short b;  
    int c;  
    long d;  
    float e;  
    double f;  
    char g;  
    boolean h;  
  
    public static void main(String[] args) {  
  
        Primitive obj = new Primitive();  
  
        System.out.println("Default Values:");  
        System.out.println("byte: " + obj.a);  
        System.out.println("short: " + obj.b);  
        System.out.println("int: " + obj.c);  
        System.out.println("long: " + obj.d);  
        System.out.println("float: " + obj.e);  
        System.out.println("double: " + obj.f);  
        System.out.println("char: [" + obj.g + "]);
```

```
System.out.println("boolean: " + obj.h);
```

```
System.out.println("\nAfter Assigning Values:");
```

```
byte a = 10;
```

```
short b = 20;
```

```
int c = 30;
```

```
long d = 40L;
```

```
float e = 50.5f;
```

```
double f = 60.6;
```

```
char g = 'A';
```

```
boolean h = true;
```

```
System.out.println("byte: " + a);
```

```
System.out.println("short: " + b);
```

```
System.out.println("int: " + c);
```

```
System.out.println("long: " + d);
```

```
System.out.println("float: " + e);
```

```
System.out.println("double: " + f);
```

```
System.out.println("char: " + g);
```

```
System.out.println("boolean: " + h);
```

```
}
```

```
}
```

Output:

```
C:\Windows\System32\cmd.e  X  +  v

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac primitive.java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Primitive
Default Values:
byte: 0
short: 0
int: 0
long: 0
float: 0.0
double: 0.0
char: []
boolean: false

After Assigning Values:
byte: 10
short: 20
int: 30
long: 40
float: 50.5
double: 60.6
char: A
boolean: true
```

2. Write a program to convert an int value to double automatically and display both values.

Ans:

Input:

```
class convert{

    public static void main(String[] args) {

        int a = 10;

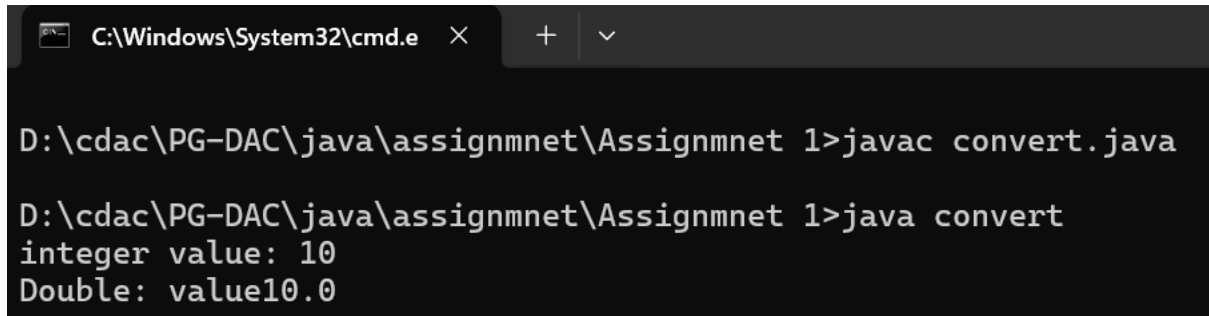
        double b= a;

        System.out.println("integer value: " + a);

        System.out.println("Double: value" + b);
```

```
}  
}
```

Output:



```
C:\Windows\System32\cmd.e  ×  +  ∨  
  
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac convert.java  
  
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java convert  
integer value: 10  
Double: value10.0
```

3. Write a program to convert a double value to int using typecasting and explain the data loss.

Ans:

Input:

```
class convert1{  
  
    public static void main(String[] args) {  
        double a = 10.99;  
        int b = (int) a;  
        System.out.println("Double value: " + a);  
        System.out.println("Int value: " + b);  
  
    }  
}
```

Output:

```
C:\Windows\System32\cmd.e  X  +  v

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac convert1.java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java convert1
Double value: 10.99
Int value: 10
```

4. Write a program to calculate the average of three int numbers using typecasting to display the result in double.

Ans:

Input:

```
class Average{

    public static void main(String[] args) {

        int a= 10;

        int b= 20;

        int c= 30;

        double avg= ((double) a+b+c)/3;

        System.out.println("average: " + avg);

    }

}
```

Output:

```
C:\Windows\System32\cmd.e  X  +  v

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Average.java

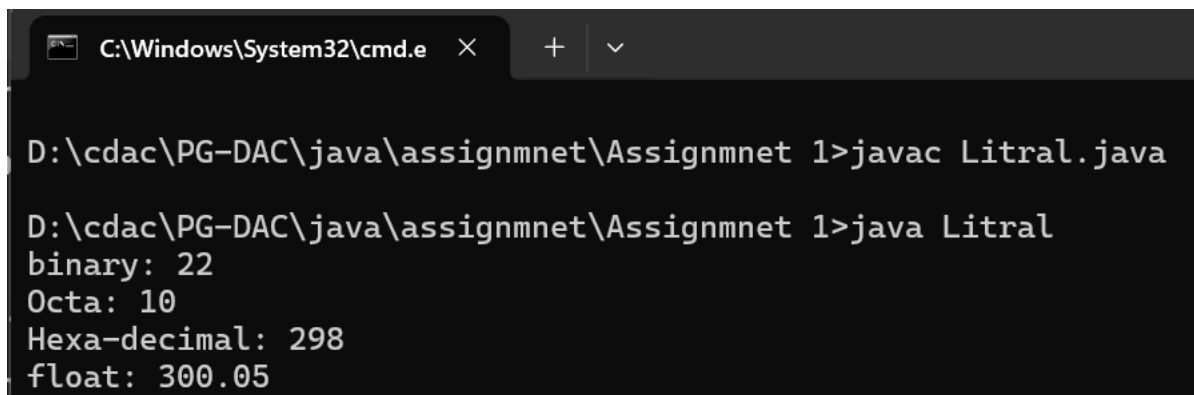
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Average
average: 20.0
```

5. Write a program to demonstrate binary, octal, hexadecimal, and floating-point literals in Java.

Ans:

Input:

```
class Litral{  
    public static void main(String args[]){  
        int a= 0b10110;  
        int b= 012;  
        int c =0x12A;  
        float f= 300.05f;  
        System.out.println("binary: "+ a);  
        System.out.println("Octa: "+ b);  
        System.out.println("Hexa-decimal: "+c);  
        System.out.println("float: "+f);  
    }  
}
```

Output:

The screenshot shows a Windows command prompt window with the title bar 'C:\Windows\System32\cmd.e'. The command prompt is open at the directory 'D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1'. The user has entered the command 'javac Litral.java' to compile the program, followed by 'java Litral' to run it. The output of the program is displayed as follows:

```
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Litral.java  
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Litral  
binary: 22  
Octa: 10  
Hexa-decimal: 298  
float: 300.05
```

6. Write a program to display character and string literals along with their ASCII values.

Ans:**Input:**

```
class Ascii{  
    public static void main(String[] args) {  
        char a = 'A';  
        String b = "Hello";  
        int asciiValue = a;
```

```

System.out.println("Char literal: " + a);

System.out.println("ASCII value of " +a+ ": " + asciiValue);

System.out.println("String literal: " + b);


for (char ch : b.toCharArray())
    {
        System.out.println("ASCII value of '" + ch + "': " + (int) ch);
    }

}
}

```

Output:

```

C:\Windows\System32\cmd.e  X  +  v

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Ascii.java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Ascii
Char literal: A
ASCII value of A: 65
String literal: Hello
ASCII value of 'H': 72
ASCII value of 'e': 101
ASCII value of 'l': 108
ASCII value of 'l': 108
ASCII value of 'o': 111

```

7. Write a program that uses boolean literals to control program flow in an if-else statement.

Ans:

Input:

```

class bolleanlitrals{

    public static void main(String[] args) {

        boolean isRaining = true;

        if (isRaining)
        {
            System.out.println("Take an umbrella.");
        }

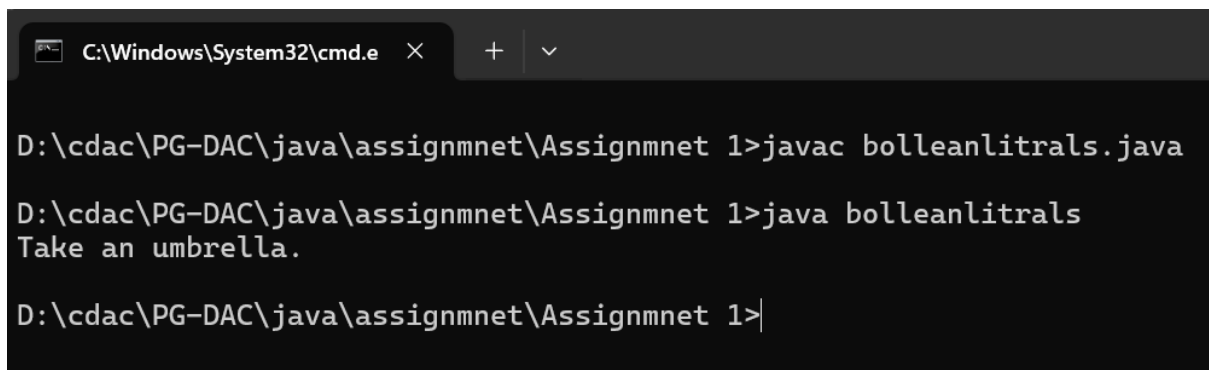
        else
        {
            System.out.println("Its Sunny outside.No need for an umbrella.");
        }

    }

}

```

Output:



```

C:\Windows\System32\cmd.e  X  +  v

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac bolleanlitrals.java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java bolleanlitrals
Take an umbrella.

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>

```

8. Write a program to perform addition, subtraction, multiplication, division, and modulus operations on two integer numbers and display the results.

Ans:

Input:

```

class Arithmetic{

```



```

public static void main(String args[]){

    boolean condition = true;

    int a= 20;

    int b= 10;

    int sum= a+b;

    int sub= a-b;

    int mult=a*b;

    double div= a/b;

    double mod= a%b;

    System.out.println("Numbers are "+a+ "," +b);

    System.out.println("Addition of numbers are: "+sum);

    System.out.println("Subraction of numbers are: "+sub);

    System.out.println("Multiplication of the numbers are: "+ mult);

    System.out.println("Division of the number are: "+div);

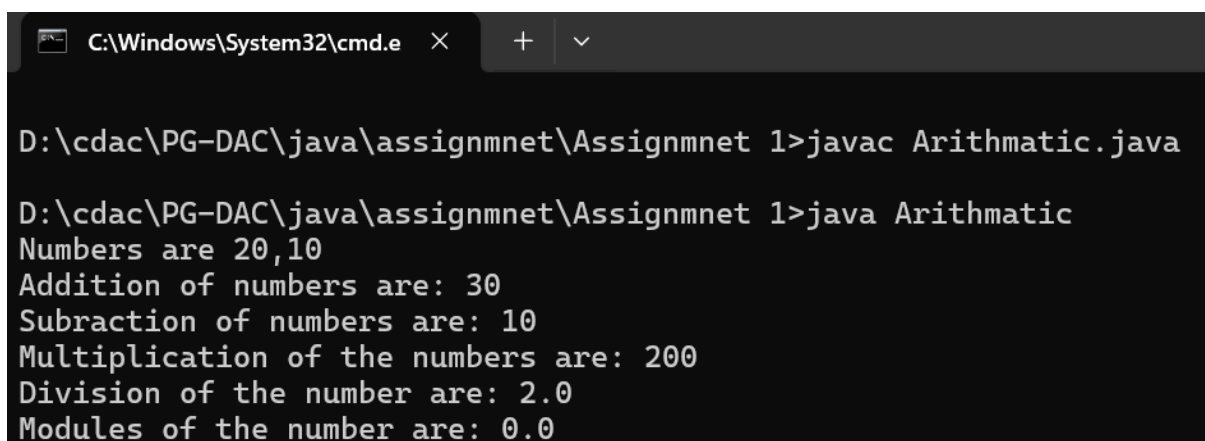
    System.out.println("Modules of the number are: "+mod);

}

}

```

Output:



```

C:\Windows\System32\cmd.e
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Arithmetic.java
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Arithmetic
Numbers are 20,10
Addition of numbers are: 30
Subraction of numbers are: 10
Multiplication of the numbers are: 200
Division of the number are: 2.0
Modules of the number are: 0.0

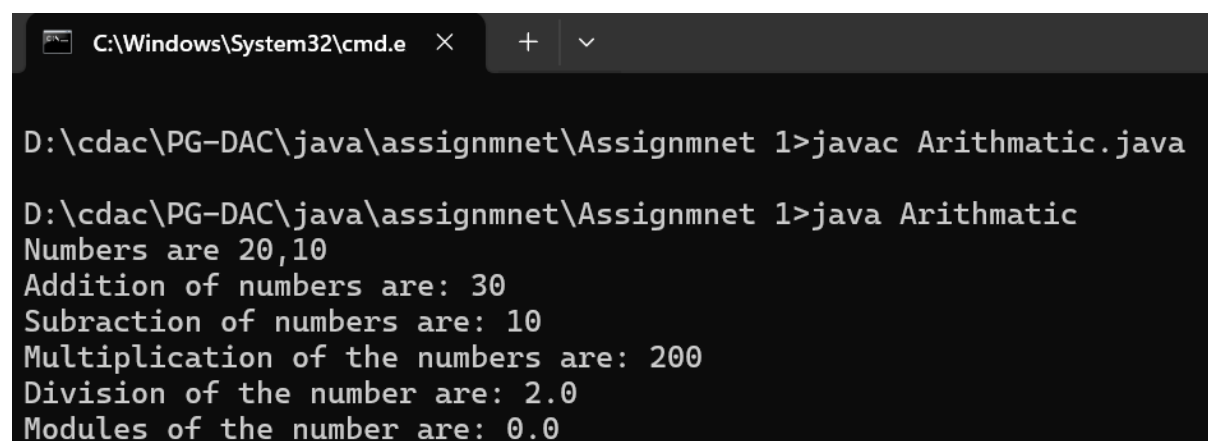
```

9. Write a program to perform addition, subtraction, multiplication, division, and modulus operations on two integer numbers and display the results.

Ans:

Input:

```
class Arithmetic{  
    public static void main(String args[]){  
        boolean condition = true;  
        int a= 20;  
        int b= 10;  
        int sum= a+b;  
        int sub= a-b;  
        int mult=a*b;  
        double div= a/b;  
        double mod= a%b;  
        System.out.println("Numbers are "+a+ "," +b);  
        System.out.println("Addition of numbers are: "+sum);  
        System.out.println("Subraction of numbers are: "+sub);  
        System.out.println("Multiplication of the numbers are: "+ mult);  
        System.out.println("Division of the number are: "+div);  
        System.out.println("Modules of the number are: "+mod);  
    }  
}
```

Output:

The screenshot shows a Windows command prompt window with the title bar "C:\Windows\System32\cmd.e". The command prompt displays the following text:

```
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Arithmetic.java  
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Arithmetic  
Numbers are 20,10  
Addition of numbers are: 30  
Subraction of numbers are: 10  
Multiplication of the numbers are: 200  
Division of the number are: 2.0  
Modules of the number are: 0.0
```

10. Write a program to compare two integers using all relational operators (==, !=, >, <, >=, <=) and display the results.

Ans:

Input:

```
class Relational{  
    public static void main(String args[]){  
        int a=10;  
        int b=20;  
        int c=30;  
        int d=30;  
  
        boolean GT = b > a;  
  
        boolean LT = a < b;  
        boolean ET = c == d;  
        boolean NET = a != b;  
        boolean GOE = b >= a;  
        boolean LOE = a <= b;  
  
        System.out.println("Numbers are a:"+a+ ",b=" +b+ ",c=" +c+ ",d=" +d);  
        System.out.println("b > a: "+GT);  
        System.out.println("a < b: "+LT);  
        System.out.println("c == d: "+ ET);  
        System.out.println("a != b: "+NET);  
        System.out.println("b >= a: "+GOE);  
        System.out.println("a <= b: "+LOE);  
    }  
}
```

Output:

```
C:\Windows\System32\cmd.e  X + v
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Relational.java
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Relational
Numbers are a:10,b=20,c=30,d=30
b > a: true
a < b: true
c == d: true
a != b: true
b >= a: true
a <= b: true
```

11. Write a program to check if a number is positive and even using logical operators (&&, ||, !).

Ans:

Input:

```
import java.util.Scanner;

class Check{

    public static void main(String args[]){

        Scanner input =new Scanner(System.in);

        System.out.println("Enter the number");

        int num= input.nextInt();

        if(num>=0 && (num%2)==0)

        {

            System.out.println("Condition mached");

        }

        else

        {

            System.out.println("Condition not mached");

        }

    }

}
```

Output:

```
C:\Windows\System32\cmd.e  ×  +  ∨

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac Check.java

D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java Check
Enter the number
20
Condition mached
```

12. Write a program to demonstrate the use of assignment operators (=, +=, -=, *=, /=, %=) on two integers.

Ans:

Input:

```
import java.util.Scanner;

class AssignmentOperators {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);

        System.out.println("Enter two number");

        int num1 = input.nextInt();

        int num2 = input.nextInt();

        System.out.println("Initial value of num1: " + num1);

        System.out.println("Initial value of num2: " + num2);

        num1 += num2;

        System.out.println("After "+ num1+ " += "+num2+" : " + num1);

        num1 -= num2;

        System.out.println("After "+ num1+ " -= "+num2+" : " + num1);

        num1 *= num2;
```

```

        System.out.println("After "+ num1+ "*=" +num2+" : " + num1);

        num1 /= num2;

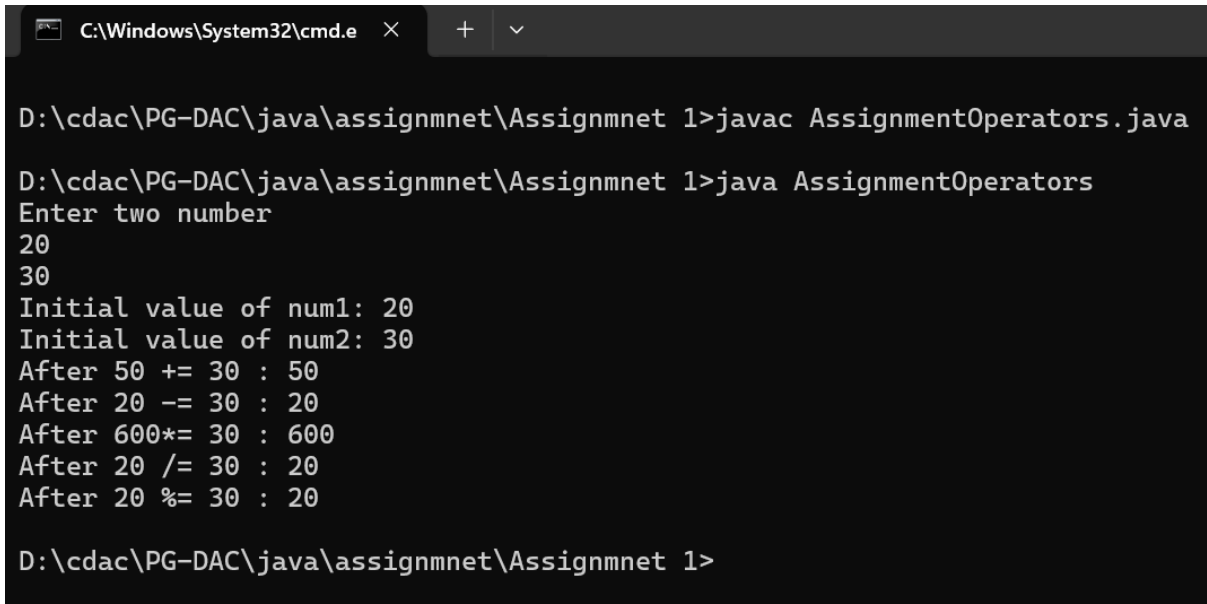
        System.out.println("After "+ num1+ " /=" +num2+" : " + num1);

        num1 %= num2;

        System.out.println("After "+num1+ " %=" +num2+" : " + num1);
    }
}

```

Output:



```

C:\Windows\System32\cmd.e
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>javac AssignmentOperators.java
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>java AssignmentOperators
Enter two number
20
30
Initial value of num1: 20
Initial value of num2: 30
After 50 += 30 : 50
After 20 -= 30 : 20
After 600 *= 30 : 600
After 20 /= 30 : 20
After 20 %= 30 : 20
D:\cdac\PG-DAC\java\assignmnet\Assignmnet 1>

```