Exercise

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

```
class PrimitiveDatatype{
static int a;
static byte b;
static short s;
static long l;
static float f;
static double d;
static char c;
static String str;
static boolean B;
public static void main(String args[]){
int aa=10;
 byte bb=14;
short ss=20;
long ll=30;
 float f1=12;
double dd=4451.23564;
char cc='J';
String str1="Jayashri";
boolean BB=true;
System.out.println("int ->  Default Value:"+a+"  Assigned value : "+aa);
System.out.println("byte ->  Default Value:"+b+"  Assigned value : "+bb);
System.out.println("short ->  Default Value:"+s+"  Assigned value : "+ss);
System.out.println("long ->  Default Value:"+l+"  Assigned value : "+ll);
System.out.println("float ->  Default Value:"+f+"  Assigned value : "+f1);
System.out.println("char ->  Default Value:"+c+"  Assigned value : "+cc);
System.out.println("double ->  Default Value:"+d+"  Assigned value : "+dd);
System.out.println("boolean ->  Default Value:"+B+"  Assigned value : "+BB);
System.out.println("String ->  Default Value:"+str+"  Assigned value : "+str1);
}
}
```

Output:-

int -> Default Value:0 Assigned value : 10

byte -> Default Value:0 Assigned value : 14

short -> Default Value:0 Assigned value : 20

long -> Default Value:0 Assigned value : 30

float -> Default Value:0.0 Assigned value : 12.0

char -> Default Value: Assigned value : J

double -> Default Value:0.0 Assigned value : 4451.23564

boolean -> Default Value:false Assigned value : true

String-> Default Value:null Assigned value : Jayashri

---

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

```
class InttoDouble{
public static void main(String args[]){
int a=58;
double b=a;
System.out.println("Integer value: "+a);
System.out.println("Double value: "+b);
}
}
```

Output:

Integer value: 58

Double value: 58.0

---

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

```
class Narrowing{
```

```
public static void main(String args[]){
double b=552.3214785;
int a=(int)b;
System.out.println("Integer value: "+a);
System.out.println("Double value: "+b);
}
}
```

Output:

Integer value: 552

Double value: 552.3214785

---

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

```
class Average{
public static void main(String args[]){
int a=4,b=29,c=46,d;
d=(a+b+c)/3;
double Avg=d;
System.out.println("Average="+Avg);
}
}
```

Output:

Average=26.0

---

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

```
public class IntegerLiterals{
public static void main(String[] args) {
    int decimalInt = 123;
    int octalInt = 0123;
    int hexInt = 0xABCD;
    int binaryInt = 0b101101;
```

```
        System.out.println("Decimal Integer Literal: " + decimalInt);
        System.out.println("Octal Integer Literal: " + octalInt);
        System.out.println("Hexadecimal Integer Literal: " + hexInt);
        System.out.println("Binary Integer Literal: " + binaryInt);
    }
}
```

Output:

```
Decimal Integer Literal: 123
Octal Integer Literal: 83
Hexadecimal Integer Literal: 43981
Binary Integer Literal: 45
```

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

```
class CharStringWithASCII{
    public static void main(String[] args) {
   char c='A';
   String s="Jaya";
  int a=c;
  int b=s.charAt(0);
  int b1=s.charAt(1);
 int b2=s.charAt(2);
 int b3=s.charAt(3);
 System.out.println("Character :  " +c+"      ASCII code is  "+a);
 System.out.println("String : "+s+"      ASCII code is    "+b+" " +b1+" " +b2+" "+b3);
}
    }
```

Output:

```
Character :  A        ASCII code is    65
String : Jaya          ASCII code is 74 97 121 97
```

---

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

```
class BooleanLiterals{
```

```
public static void main(String args[ ]){
int a=0b0011;
if(a==3)
{
        System.out.println("Decimal conversion of 0011 is:  "+a);
}
else
{
        System.out.println("We are in else loop");
}
}
}
```

Output:

```
Decimal conversion of 0011 is:  3
```

---

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

```
class Arithmetic{
public static void main(String args[]){
int a=88,b=12;
int Add=a+b;
int Sub=a-b;
int Mul=a*b;
int Div=a/b;
int Mod=a%b;
System.out.println("Addition is "+Add+"\n Substraction is "+Sub+"\nMultiplication is "+Mul );
System.out.println("Division is "+Div+"\n Mod is "+Mod );

}
}
```

Output:

```
Addition is 100
 Substraction is 76
Multiplication is 1056
```

Division is 7

Mod is 4

---

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

```
class Compare{
public static void main(String args[]) {
int a=88,b=12;
if (a==b)
        System.out.println("Equal numbers");
        else if(a>b)
        System.out.println("First number is greater than second number" );
        else if(a<b)
        System.out.println("First number is less than second number" );
else if(a!=b)
        System.out.println("Not equal" );
        else if(a>=b)
        System.out.println("First number is greater than or equal to second number" );
        else
        System.out.println("First number is Less than or equal to second number" );
}
}
```

Output:

First number is greater than second number

---

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

```
class LogicalOperator{
public static void main(String args[]) {
int a=88;
if (a>0 && a%2==0)
        System.out.println("The number is Positive and Even number");
        }
```

```
}
```

Output:

The number is Positive and Even number

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

```
class AssignOp{
public static void main(String args[]){
int a=10,b=55;
System.out.println("Value of a: "+a+"  Value of b : "+b);
a=b;
System.out.println(a);
a+=b;
System.out.println(a);
a-=b;
System.out.println(a);
a*=b;
System.out.println(a);
a/=b;
System.out.println(a);
a%=b;
System.out.println(a);
}
}
```

Output:

Value of a: 10 Value of b : 55

55

110

55

3025

55

0