**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

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**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

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**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

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**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

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**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

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**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