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Assignment 01 (OOPJ)

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

```java
class practice{
        int a;
        String s;
        short b;
        byte c;
        long d;
        char ch;
        boolean e;
        float f;
        double g;

    public static void main(String args[]){

        practice obj=new practice();
        System.out.println(obj.a);
        System.out.println(obj.s);
        System.out.println(obj.b);
        System.out.println(obj.c);
        System.out.println(obj.d);
        System.out.println(obj.ch);
```

```java
            System.out.println(obj.e);
            System.out.println(obj.f);
            System.out.println(obj.g);
        }
}
```

```
D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
0
null
0
0
0

false
0.0
0.0

D:\CDAC\OOP Java\Day 1>
```

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

```java
class practice{
        public static void main(String args[]){

        int a=10;
        double b=a;
        System.out.println(b);
        }
}
```

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

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
10.0

D:\CDAC\OOP Java\Day 1>|
```

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

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

    double b=10;
    int a=(int)b;
    System.out.println(a);
    }
}

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

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
10

D:\CDAC\OOP Java\Day 1>
```

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

```
class practice{
     public static void main(String args[]){
     int a=10;
     int b=20;
     int c=30;
     double avg=(a+b+c)/3;
     System.out.println(avg);
     }
}
```
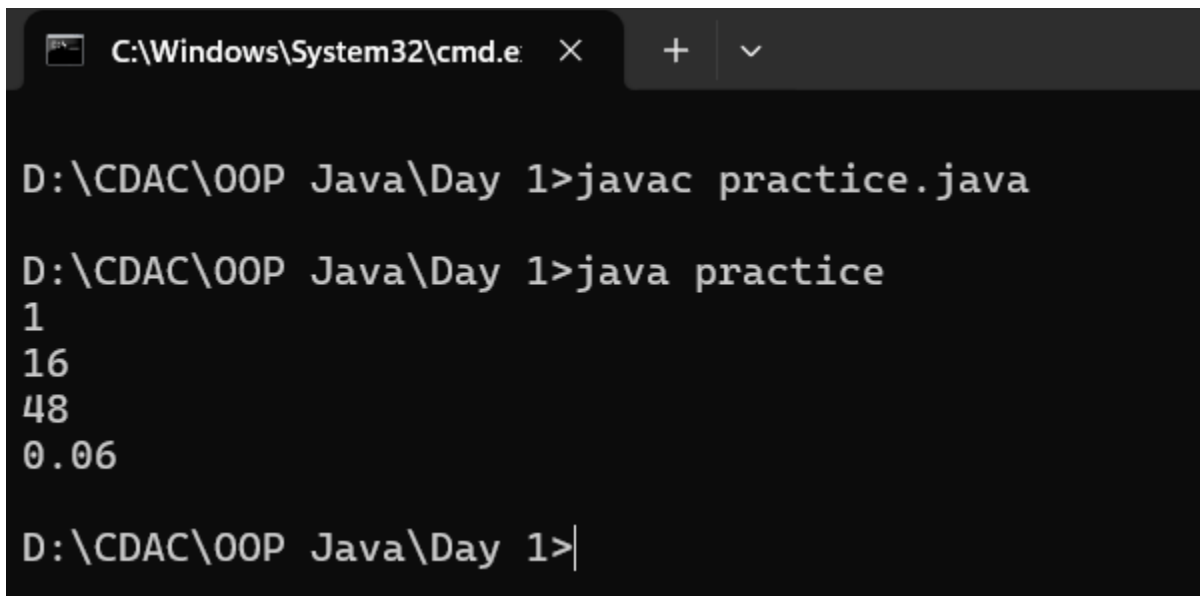
```
C:\Windows\System32\cmd.e    X    +    v

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
20.0

D:\CDAC\OOP Java\Day 1>
```

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

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

        int a=1;
        int b=020;
        int c=0x30;
        float f=0.06f;

        System.out.println(a);
        System.out.println(b);
        System.out.println(c);
        System.out.println(f);
    }
}
```

C:\Windows\System32\cmd.e   ×   +   ∨

```
D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
1
16
48
0.06

D:\CDAC\OOP Java\Day 1>
```

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

```java
class practice{
    public static void main(String args[]){
    char charLiteral = 'A';
     System.out.println("Character Literal: " + charLiteral + ", ASCII Value: " + (int) charLiteral);

    String str = "Hello";
    System.out.println("String Literal: " + str);
    System.out.println("ASCII values of string char :");
    for(int i=0 ; i<str.length(); i++){
        char ch = str.charAt(i) ;
        System.out.println((int)ch);
    }
    }
}
```

```
D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
Character Literal: A, ASCII Value: 65
String Literal: Hello
ASCII values of string characters:
72
101
108
108
111

D:\CDAC\OOP Java\Day 1>|
```

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

```java
class practice{
    public static void main(String args[]){

        boolean age = false;

        if (age) {
            System.out.println("You are eligible to vote");
        }
        else if(!age){
            System.out.println("You are NOT eligible to vote yet.");
        }
    }
}
```

```
D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
You are NOT eligible to vote yet.

D:\CDAC\OOP Java\Day 1>
```

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

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

        int num1=12;
        int num2=8;
        System.out.println("Addition of "+num1+" and "+num2+" is: "+(num1+num2));
        System.out.println("Subtraction of "+num1+" and "+num2+" is: "+(num1-num2));
        System.out.println("Multiplication of "+num1+" and "+num2+" is: "+(num1*num2));
        System.out.println("Division of "+num1+" and "+num2+" is: "+(num1/num2));
        System.out.println("Remainder when "+num1+" is divided by "+num2+" is: "+(num1%num2));
    }
}
```

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

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
Addition of 12 and 8 is: 20
Subtraction of 12 and 8 is: 4
Multiplication of 12 and 8 is: 96
Division of 12 and 8 is: 1
Remainder when 12 is divided by 8 is: 4

D:\CDAC\OOP Java\Day 1>
```

10. Write a program to compare two integers using all relational operators (==, !=, >, <, >=, <=) and display the results.
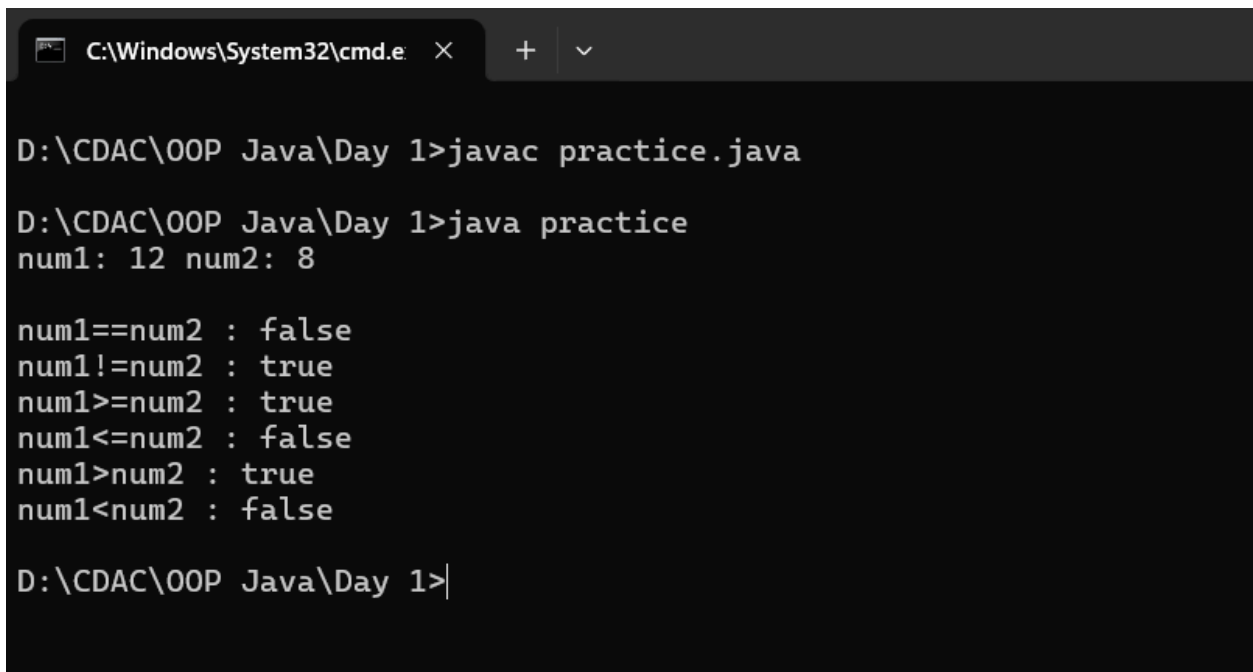
class practice{
    public static void main(String args[]){

        int num1=12;
        int num2=8;

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

        System.out.println("\nnum1==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));
        System.out.println("num1<num2 :
"+(num1<num2));


    }
}
```

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

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
num1: 12 num2: 8

num1==num2 : false
num1!=num2 : true
num1>=num2 : true
num1<=num2 : false
num1>num2 : true
num1<num2 : false

D:\CDAC\OOP Java\Day 1>
```
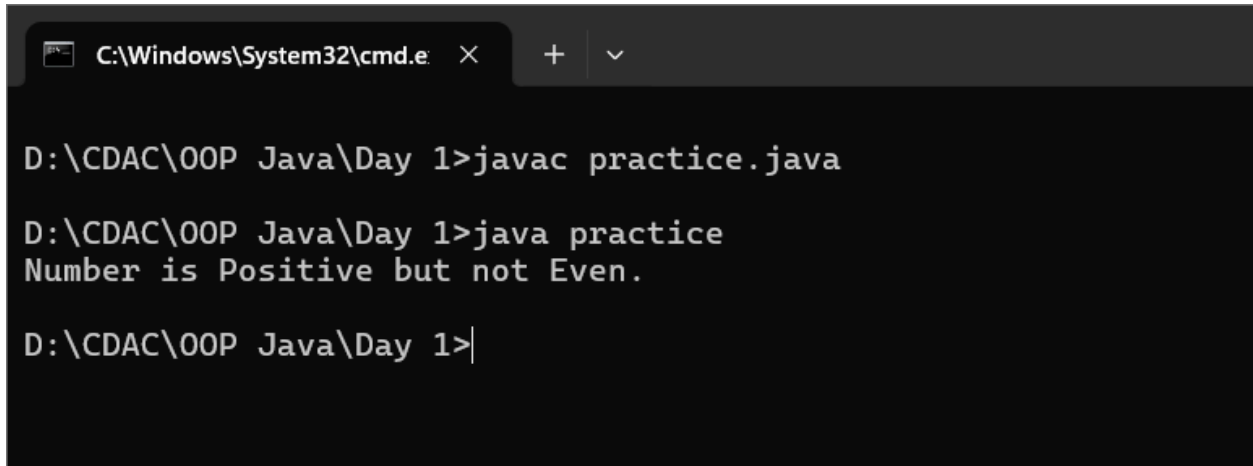
11. Write a program to check if a number is positive and even using logical operators (&&, ||, !).

```java
class practice{
    public static void main(String args[]){

        int num=11;

        if(num>0 && num%2==0){
            System.out.println("Number is Positive and Even.");
        }
        else if(num>0 || num%2==0){
            if(num>0){
                System.out.println("Number is Positive but not Even.");
            }
            else if(num%2==0){
                System.out.println("Number is Even but not Positive.");
            }
        }
        else{
            System.out.println("The number is neither even nor positive.");
        }
```

```
}}
```



```
D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
Number is Positive but not Even.

D:\CDAC\OOP Java\Day 1>
```

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

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

        int num1=10;
        int num2=5;

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

        System.out.println("\nnum1=num2 : ");
        num1=num2;
        System.out.println("num1: "+num1+" num2: "+num2);
        System.out.println();
```

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


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


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


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

```java
        System.out.println();


        System.out.println("num1%=num2 : ");
        num1%=num2;
        System.out.println("num1: "+num1+" num2: "+num2);
        System.out.println();
    }
}
```
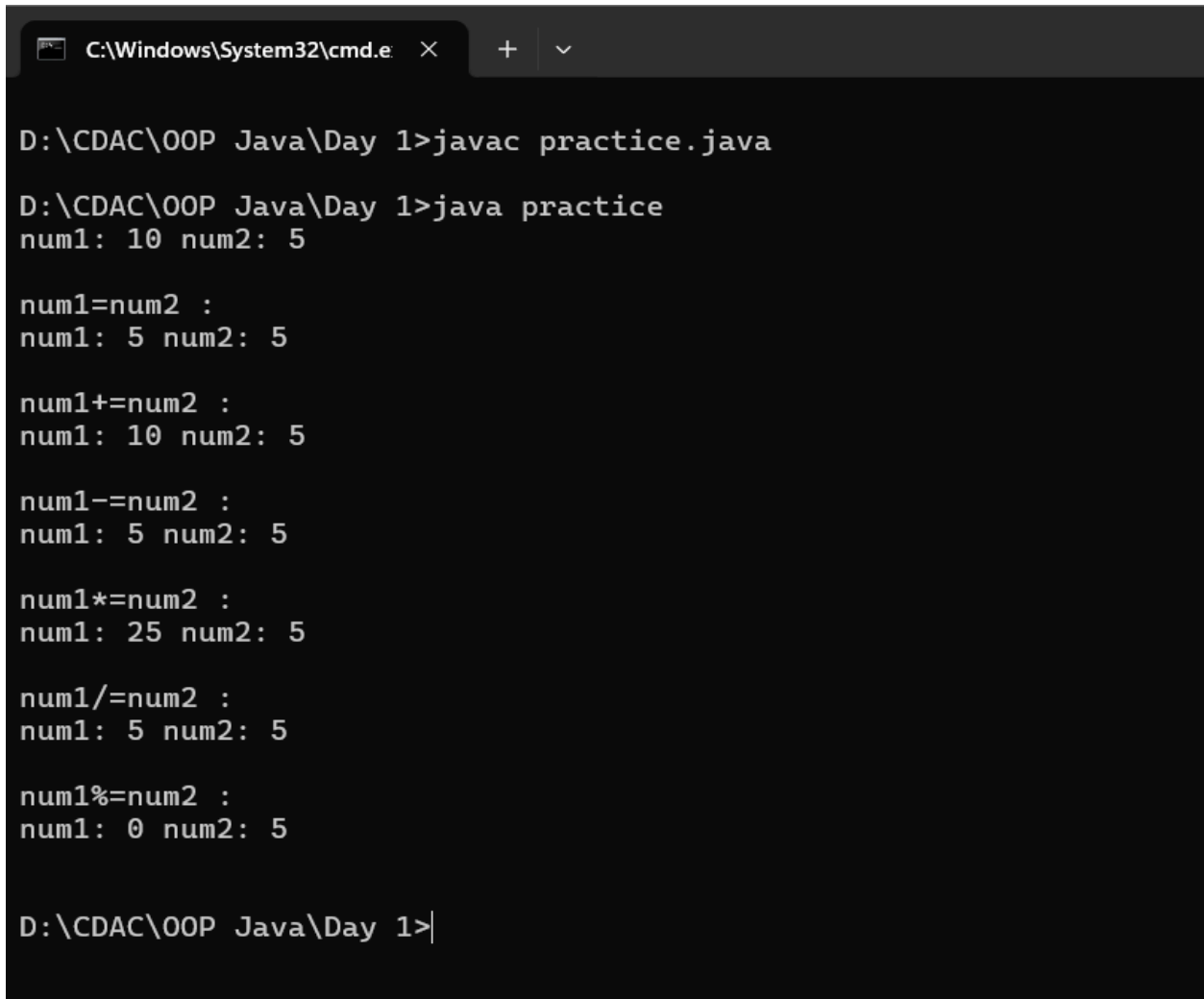
```
C:\Windows\System32\cmd.e    ×    +    ⌄

D:\CDAC\OOP Java\Day 1>javac practice.java

D:\CDAC\OOP Java\Day 1>java practice
num1: 10 num2: 5

num1=num2 :
num1: 5 num2: 5

num1+=num2 :
num1: 10 num2: 5

num1-=num2 :
num1: 5 num2: 5

num1*=num2 :
num1: 25 num2: 5

num1/=num2 :
num1: 5 num2: 5

num1%=num2 :
num1: 0 num2: 5


D:\CDAC\OOP Java\Day 1>
```