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Subject: Object Oriented Programming Lab

## Practical-11

- **Problem Definition:**

Write a generic program to add two numbers of two different data types.

- **Program:**

```
class AddNumbers{
    public <T extends Number> Number add(T a, T b) {
        if (a instanceof Double){
            return a.doubleValue() + b.doubleValue();
        }
        return a.intValue() + b.intValue();
    }
}

public class Practical11{
    public static void main(String [] args){
        AddNumbers n = new AddNumbers();
        System.out.println(n.add(44, 51));
        System.out.println(n.add(15.11, 35.67));
    }
}
```

- **Output:**

```
95
50.78
```

- **Screenshot:**

The screenshot displays the Visual Studio Code editor with a Java file named `Practical11.java`. The code defines a generic class `AddNumbers` with a method `add` that takes two arguments of type `T` (where `T` extends `Number`) and returns their sum. The method uses `doubleValue()` for `Double` instances and `intValue()` for other `Number` instances. A `Practical11` class contains a `main` method that tests the `add` method with both integer and double values.

```
1 class AddNumbers{
2     public <T extends Number> Number add(T a, T b) {
3         if (a instanceof Double){
4             return a.doubleValue() + b.doubleValue();
5         }
6         return a.intValue() + b.intValue();
7     }
8 }
9
10 public class Practical11{
11     Run | Debug
12     public static void main(String [] args){
13         AddNumbers n = new AddNumbers();
14         System.out.println(n.add(44, 51));
15         System.out.println(n.add(15.11, 35.67));
16     }
17 }
```

The terminal on the right shows the execution of the program, displaying the output `95` and `50.78`.

```
PS C:\Users\Admin\Desktop\Notes\OOP-Lab> cd "c:\Users\Admin\Desktop\Notes\OOP-Lab\" ; if ($?) { javac Practical11.java } ;
if ($?) { java Practical11 }
95
50.78
PS C:\Users\Admin\Desktop\Notes\OOP-Lab>
```

- **Result:**

By studying concept of generic classes and function in Java, I have successfully completed Practical-11.