	Course Name: Design Patterns/Thinking LAB	**EXPERIMENT NO. 14**	
	Course Code: 20CP210P **Faculty: Dr. Ketan Sabale**	**Branch: CSE**	**Semester: IV**
(To be filled by Student) **Submitted by: Jangle Parth** **Roll no: 22BCP083**			

Objective: To familiarize students with standard Behavioral design patterns.

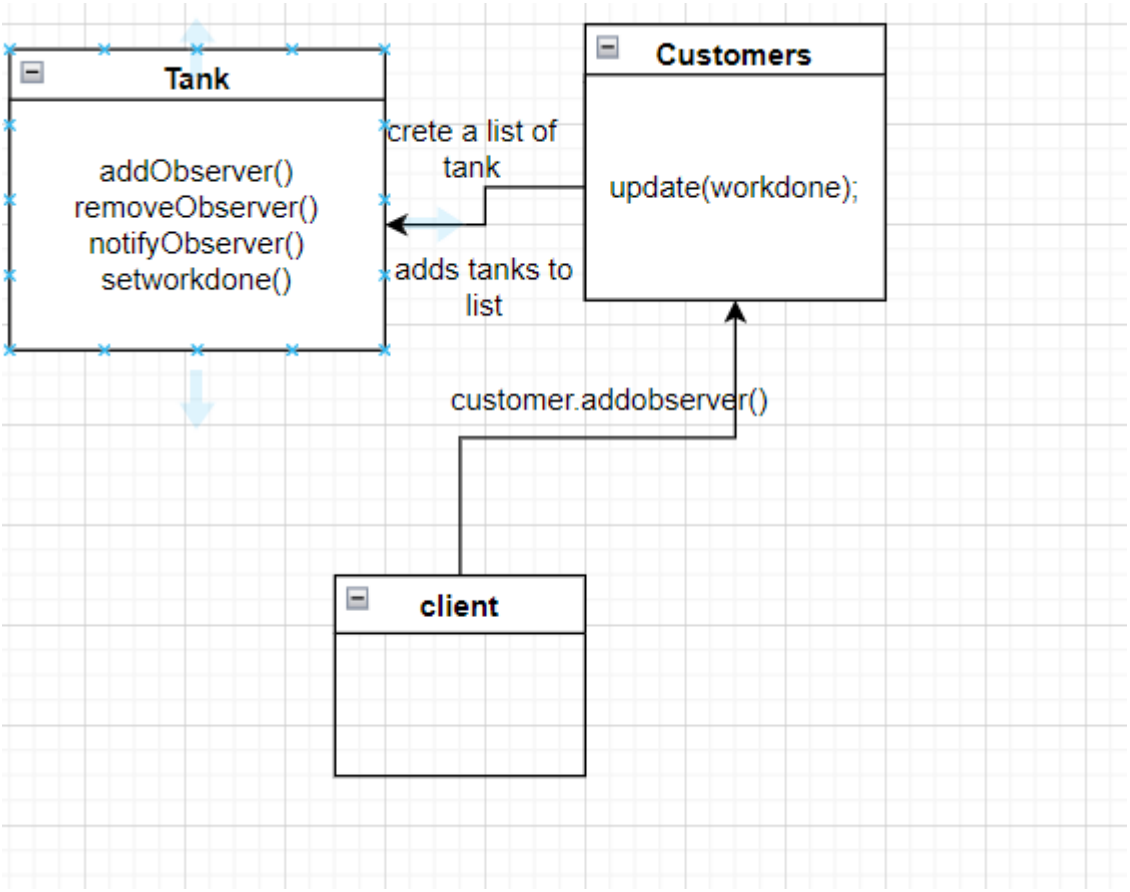
Experiment: Explain the Observer design pattern and write a program using any object-oriented programming language to demonstrate the working of Observer design pattern.

Theory: Imagine a Scenario where you have n no of customers and each customer give n no of orders it is very hard to keep all the customers keep update about their product progress so we use observer patter it updates all the customer of a particular product if there is some change in work

Problem Statement Explanation:

We have a class Customer which is the subject here it has property like add observer , notify observer etc. and we have object tank which has a property update in which we can update the work done on tank. The subject has a list of tanks and for each customer we can add a tank. And notify them when a change occurs

Flowchart Explanation:



Code:

```
package Observer;

import java.util.ArrayList;
import java.util.List;

class Customers {
    List<Tank> tanks = new ArrayList<>();
    String workdone;

    public void addObserver(Tank tank) {
        tanks.add(tank);
    }

    public void removeObserver(Tank tank) {
        tanks.remove(tank);
    }

    public void notifyObservers() {
        for (Tank tank : tanks) {
            tank.update(workdone);
        }
    }

    public void setworkdone(String workdone) {
        this.workdone = workdone;
        notifyObservers();
    }
}

class Tank {
    String workdone;

    public void update(String workdone) {
        this.workdone = workdone;
        System.out.println("Work Done: " + workdone);
    }

}
```

```java
public class observer {
    public static void main(String[] args) {
        Customers tetrapack = new Customers();
        Tank t = new Tank();

        tetrapack.addObserver(t);
        tetrapack.setworkdone("Material Purchased");
    }
}
```

Output:

```
PS C:\Users\onlyf\OneDrive\Desktop\PDEU\Sem4\Design Pattern>  & 'C:\P
kspaceStorage\0dabdf8b0a2dea3cfa522958b7e603a2\redhat.java\jdt_ws\Des
Work Done: Material Purchased
PS C:\Users\onlyf\OneDrive\Desktop\PDEU\Sem4\Design Pattern>
```