

# AHMED BIN KHALID

## FA20-BSE-062

### BSE-7B

#### Case Study 1 (Observer)

Code:

**SportsApp:**

```
/**
```

```
*
```

```
* @author AHMED
```

```
// */
```

```
import java.util.List;
```

```
public interface SportsApp {
```

```
    void attach(Observer observer);
```

```
    void detach(Observer observer);
```

```
    void notifyObservers();
```

```
    List<String> getMatches();
```

```
}
```

### **COMSATS-Sports-App:**

```
import java.util.ArrayList;
```

```
import java.util.List;
```

```
public class COMSATSSportsApp implements Subject {  
    private List<Observer> observers = new ArrayList<>();  
    private List<String> matchList = new ArrayList<>();
```

```
@Override
```

```
public void attach(Observer observer) {  
    observers.add(observer);  
}
```

```
@Override
```

```
public void detach(Observer observer) {  
    observers.remove(observer);  
}
```

```
@Override
```

```
public void notifyObservers() {
```

```
        for (Observer observer : observers) {  
            observer.update(matchList);  
        }  
    }  
}
```

```
@Override  
public List<String> getMatches() {  
    return matchList;  
}
```

```
public void addMatch(String match) {  
    matchList.add(match);  
}
```

```
public void removeMatch(String match) {  
    matchList.remove(match);  
}  
}
```

### **Observer:**

```
import java.util.List;
```

```
public interface Observer {
```

```
void update(List<String> matches);  
}
```

### **Main:**

```
import java.util.List;
```

```
public class Main {  
    public static void main(String[] args) {  
        COMSATSSportsApp comsatsSportsApp = new  
        COMSATSSportsApp();  
  
        User user1 = new User("User1");  
        User user2 = new User("User2");  
  
        comsatsSportsApp.attach(user1);  
        comsatsSportsApp.attach(user2);  
  
        comsatsSportsApp.addMatch("COMSATS Match CS vs EEE");  
        comsatsSportsApp.notifyObservers();  
    }  
}
```

### **User:**

```
import java.util.List;
```

```
public class User implements Observer {
```

```
    private String username;
```

```
    public User(String username) {
```

```
        this.username = username;
```

```
    }
```

```
    @Override
```

```
    public void update(List<String> matches) {
```

```
        System.out.println(username + " received a match update: " +  
matches);
```

```
    }
```

```
}
```