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FA20-BSE-7B-165

LAB-MIDS

Observer Pattern:

ObserverPattern.Java:

```
/*
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 */
package observerpattern;

/**
 *
 * @author FA20-BSE-165
 */
public class ObserverPattern {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        MatchSubject matchSubject = new MatchSubject();
        Student student1 = new Student("Ali", matchSubject);
        Student student2 = new Student("Afaq", matchSubject);
        Student student3 = new Student("Abdullah", matchSubject);

        Match match = new Match("Comstas University Match", 10, 5);

        matchSubject.notifyObservers(match);
    }

}
```

Match.java:

```
/*
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 */
package observerpattern;

/**
 *
 * @author FA20-BSE-165
 */
public class Match {
    private String name;
    private int scoreTeamA;
    private int scoreTeamB;
    public Match(String name, int scoreTeamA, int scoreTeamB) {
        this.name = name;
        this.scoreTeamA = scoreTeamA;
        this.scoreTeamB = scoreTeamB;
    }

    public String getName() {
        return name;
    }

    public int getScoreTeamA() {
        return scoreTeamA;
    }

    public int getScoreTeamB() {
        return scoreTeamB;
    }
}
```

MatchSubject.java:

```
/*
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 */
```

```
package observerpattern;

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

/**
 *
 * @author FA20-BSE-165
 */
public class MatchSubject implements Subject {
    private final List<Observer> observers = new ArrayList<>();

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

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

    public void notifyObservers(Match match) {
        observers.forEach((observer) -> {
            observer.onMatchUpdate(match);
        });
    }
}
```

Observer.java:

```
/*
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 */
package observerpattern;

/**
 *
 * @author FA20-BSE-165
 */
public interface Observer {
   void onMatchUpdate(Match match);
}
```

Student.java:

```
/*
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 */
package observerpattern;

/**
 *
 * @author FA20-BSE-165
 */
```

```
public class Student implements Observer {
   private String name;
   private Subject matchSubject;

   public Student(String name, Subject matchSubject) {
      this.name = name;
      this.matchSubject = matchSubject;
      matchSubject.registerObserver(this);
   }

   public String getName() {
      return name;
   }

   public Subject getMatchSubject() {
      return matchSubject;
   }

   @Override
   public void onMatchUpdate(Match match) {
      System.out.println(name + " received match update: " + match.getName() + " (" + match.getScoreTeamA() + " - " + match.getScoreTeamB() + ")");
   }
}
```

Subject.java

```
/*
```

```
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 */
package observerpattern;

/**
 *
 * @author FA20-BSE-165
 */
public interface Subject {
    void registerObserver(Observer observer);
    void unregisterObserver(Observer observer);
    void notifyObservers(Match match);
}
```