2. Provide the code for the following diagram:
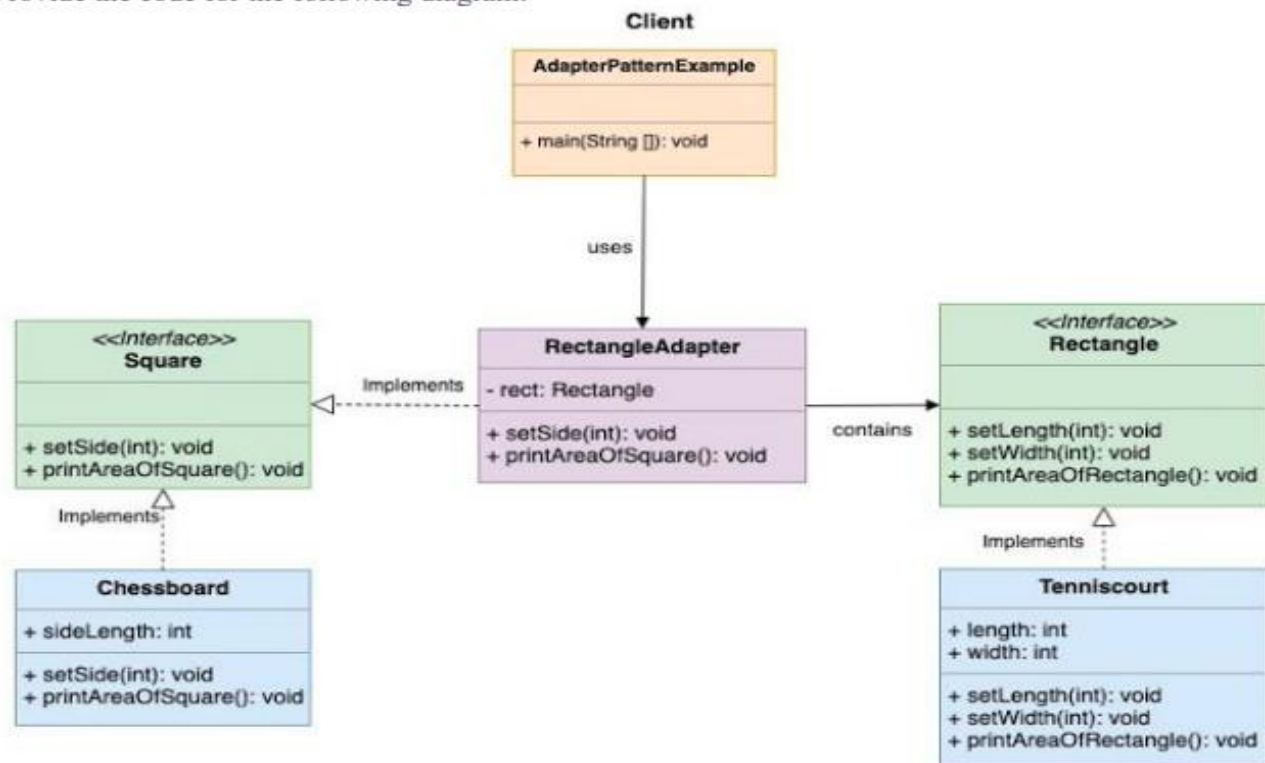

Figure 2.2 Adapter Pattern Example

Step 1: Create Square.java and Rectangle.java interfaces

```java
Square.java
1
2  public interface Square {
3      int setSide(int a);
4      public void printAreaOfSquare(int a);
5
6  }
```

```java
*Rectangle.java
1
2  interface Rectangle {
3      int setLength(int a);
4      int setWidth(int b);
5      public void printAreaOfRectangle(int a,int b);
6  }
7
```

Step 2: Create concrete classes implementing the interfaces

```java
*Chessboard.java

1   class Chessboard implements Square {
2       public int setSide(int a) {
3           return a;
4       }
5       public void printAreaOfSquare(int a) {
6           System.out.println("Area of square is "+a*a);
7
8       }
9   }
```

```java
Tenniscourt.java

1
2   public class Tenniscourt implements Rectangle {
3
4       public int setLength(int a) {
5           return a;
6       }
7       public int setWidth(int b) {
8           return b;
9       }
10      public void printAreaOfRectangle(int a,int b) {
11          System.out.println("Area of rectangle is "+a*b);
12      }
13  }
14
```

Step 3: Create the adapter class implementing the adaptee interface

```java
*RectangleAdapter.java

1
2   class RectangleAdapter implements Square {
3       Rectangle rect;
4       public RectangleAdapter(Rectangle rect) {
5           this.rect=rect;
6       }
7       public int setSide(int a) {
8           rect.setLength(a);
9           rect.setWidth(a);
10          return a;
11      }
12      public void printAreaOfSquare(int a) {
13          rect.printAreaOfRectangle(a, a);
14
15      }
16  }
17
```

Step 4: Create the main class demonstrating the adapter design pattern

```
J Main.java ⊠
 1  class Main {
 2
 3⊖     public static void main(String[] args) {
 4           Chessboard chessboard= new Chessboard();
 5           Tenniscourt tenniscourt= new Tenniscourt();
 6
 7           Square rectangleAdapter = new RectangleAdapter(tenniscourt);
 8
 9           System.out.println("Tenniscourt...");
10           int a=tenniscourt.setLength(3);
11           int b=tenniscourt.setWidth(4);
12           tenniscourt.printAreaOfRectangle(a, b);
13
14           System.out.println("Chessboard...");
15           int c=chessboard.setSide(2);
16           chessboard.printAreaOfSquare(c);
17
18           System.out.println("RectangleAdapter...");
19           rectangleAdapter.printAreaOfSquare(c);
20
21       }
22
23  }
```

Output:

```
<terminated> Main [Java Application] C:\User
Tenniscourt...
Area of rectangle is 12
Chessboard...
Area of square is 4
RectangleAdapter...
Area of rectangle is 4
```