

CSSE 220 – Object-Oriented Software Development  
**Rose-Hulman** Institute of Technology

Worksheet 13

Name (Print): \_\_\_\_\_ Section: \_\_\_\_\_

1. In helper method recursion, the \_\_\_\_\_ method sets up the initial values and calls the \_\_\_\_\_ method, which contains the core recursive logic and any additional parameters.
2. Complete a Java program that prints all numbers from 1 up to n, using recursion and a helper method.

```

1 public static void countUp(int n){
2 // TODO: call the helper method to start recursion
3 -----
4 }
5 private static void countUpHelper(int current, int end){
6 // TODO: base case
7 -----
8 System.out.println(current);
9 // TODO: recursive case
10 -----;
11 }
12 public static void main(String[] args) {
13     countUp(5); // prints 1,2,3,4,5
14 }

```

3. True/False All swing containers use Layout Managers to size and position their components
4. Fill in the blanks:
  - (a) A JPanel uses \_\_\_\_\_ as its default layout, placing components left-to-right.
  - (b) A JFrame uses \_\_\_\_\_ as its default layout, which has five regions: NORTH, SOUTH, EAST, WEST, and CENTER.
5. Which layout manager would you use to arrange components of equal size in a 2×2 table?  
 \_\_\_\_\_
6. Which method tells a JFrame to automatically resize itself so that all its components fit their preferred sizes?  
 \_\_\_\_\_

## 7. Design Principles (Consult Design Principle Guidelines)

A government agency collects hospital data to generate monthly reports. Hospitals submit two types of reports (A and B) at different times. Each report contributes a partial score, which is combined into an aggregate score. Hospitals are displayed on a state map using color, indicating the hospital's overall status based on the aggregate score and its position (latitude/longitude). The map also includes state borders and major roads

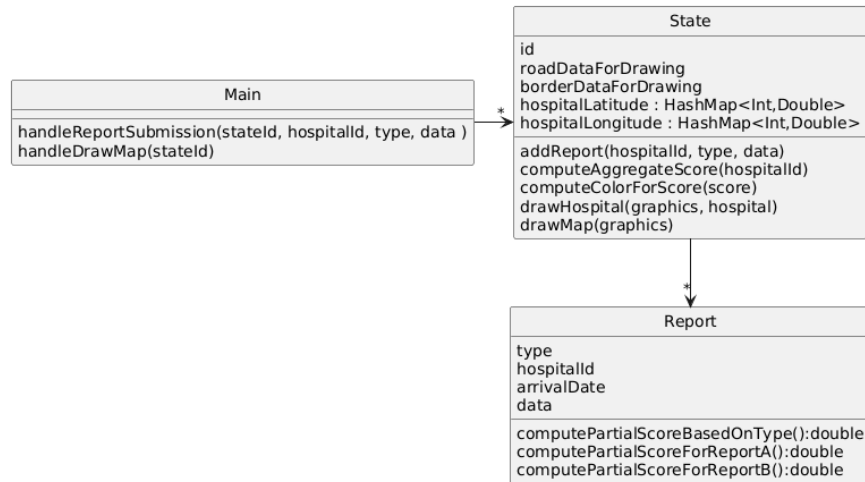


Figure 1: Design A

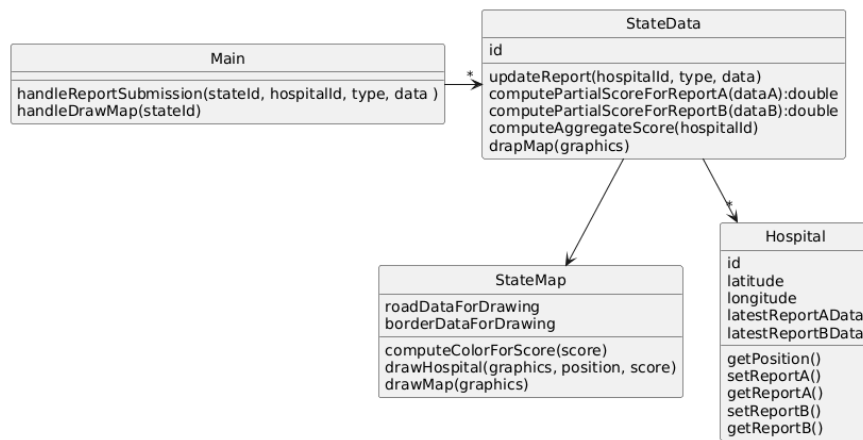


Figure 2: Design B

- Identify ONE core design principle violated in Design A.
- Identify ONE secondary design principle violated in Design A.
- Explain how Design B improves the design
- Identify one or more principles Design B violates