

CSE 470 - Quiz 02

Name:

ID:

Section:

Time: 1 hour

Marks: 25

1. You are developing a weather monitoring system where multiple display devices (smartphones, tablets, desktop widgets) need to be notified in real-time whenever the weather data changes. However, you also need a centralized manager that controls access to the weather data to ensure consistency across all displays.
 - a) Which design pattern(s) would be suitable to use in this scenario? Explain the role of the design pattern(s) in the context of the weather monitoring system.
 - b) What methods should be provided by the participants in the design pattern(s) in order for the mentioned functionality to be implemented.

5 + 5 = 10

2. You are tasked with integrating an old payment gateway with your modern e-commerce platform. The legacy payment gateway uses a completely different API format, but you also need to notify multiple modules in the system (such as inventory, shipping, and order processing) whenever a payment is successfully completed.
 - a) Which design pattern(s) would you use to solve this problem? Explain how the pattern(s) help bridge the gap between the old payment gateway and the modern system while ensuring proper notifications to other modules.
 - b) Describe the key characteristics of the pattern(s) in terms of their intent, motivation and participants

5 + 5 = 10

3. You are building a logging system for an application, and you want to ensure that only one instance of the logger is created throughout the application's lifecycle to avoid issues like duplicate log entries or resource contention.

a) Which design pattern would you use for this logging system, and why? Justify why other patterns might not be as suitable for this task.

b) Describe the key characteristics of the pattern(s) in terms of their intent, motivation and participants.

5 + 5 = 10