

PART 3: MINI SCENARIO ANALYSIS (CRITICAL THINKING)

SCENARIO:

You're tasked with designing a ride-sharing app like Uber or Lyft. It needs to handle user logins, vehicle dispatch, route calculation, and live tracking.

QUESTION:

Identify and explain at least two design patterns that could be useful in building this app. Justify why each one would be helpful.

DESIGN PATTERNS FOR RIDE-SHARING APP

1. SINGLETON PATTERN

- Ensures a class has only one instance and provides a global point of access to it.
- Useful for managing shared resources such as configuration settings, logging, or a centralized dispatch system.
- In a ride-sharing app, the dispatch system should be a singleton to ensure consistent and synchronized vehicle assignment.

2. OBSERVER PATTERN

- Defines a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically.
- Useful for implementing live tracking and real-time updates.
- In the app, drivers and riders can observe the trip status and receive updates when the vehicle is approaching or when the route changes.

CONCLUSION

Using the Singleton and Observer design patterns can help ensure that the ride-sharing app is scalable, maintainable, and responsive to real-time events.