

Project: Design and Document a System Using Object-Oriented Principles

Instructions:

- Choose a real-world system of your interest (e.g., an e-commerce platform, a hotel reservation system, a hospital management system, a banking system, etc.).
- Design the system using object-oriented principles.
- Your design must include:
 1. Use Case Diagram: Show the major use cases and actors involved in the system.
 2. Class Diagram: Represent the main classes, attributes, methods, and relationships (e.g., inheritance, associations).
 3. Sequence Diagram: Illustrate the interactions between objects for at least two main use cases.
 4. Activity Diagram: Create an activity diagram showing the flow of a major process in your system, such as user registration, payment processing, or item checkout.
 5. System Documentation: Provide a description of your system, including the purpose, key features, and a short explanation of each class and its responsibilities.

Focus Areas:

- Apply object-oriented principles, such as inheritance, polymorphism, and encapsulation.
- Demonstrate clear class design with appropriate attributes, methods, and relationships between classes.
- Show how the system handles interactions between objects in key processes.
- Use the activity diagram to map out the step-by-step process flow in the system.

Marks Breakdown (10 Marks Total):

- UML Diagrams (4 Marks): Accurate and clear representation of the use case, class, sequence, and activity diagrams.
- Use Case Diagram (1 Mark)
- Class Diagram (1 Mark)

- Sequence Diagram (1 Mark)
- Activity Diagram (1 Mark)
- Object-Oriented Design (3 Marks): Effective use of inheritance, polymorphism, encapsulation, and class relationships.
- Creativity and Complexity (1 Marks): How well the system addresses a real-world problem and the complexity of the design.
- System Documentation (2 Mark): Clear and concise explanations of the system, including class descriptions and key features.

Examples of Systems They Can Choose:

- Online Shopping System
- University Management System
- Inventory Control System
- Social Media Platform
- Car Rental System
- Event Management System
- Fitness App

Tip for Students: Think about a system you are familiar with or passionate about. It could be something you interact with in daily life or a system that you believe needs improvement.