



- b. Difference between a State Diagram and a Flowchart? (3 marks)
- c. List and Explain the steps required to develop an SSD (4 marks)
- d. List ANY TWO rules for creating a Package Diagrams (4 marks)
- e. List Four open-source UML development Tools (4 marks)
- f. Name the elements not suitable in a domain model? (2 marks)
- g. Why are UML conceptual models considered important in software development? [4 marks]
- h. How is UML different from programming languages such as Java, C++ [3 marks]

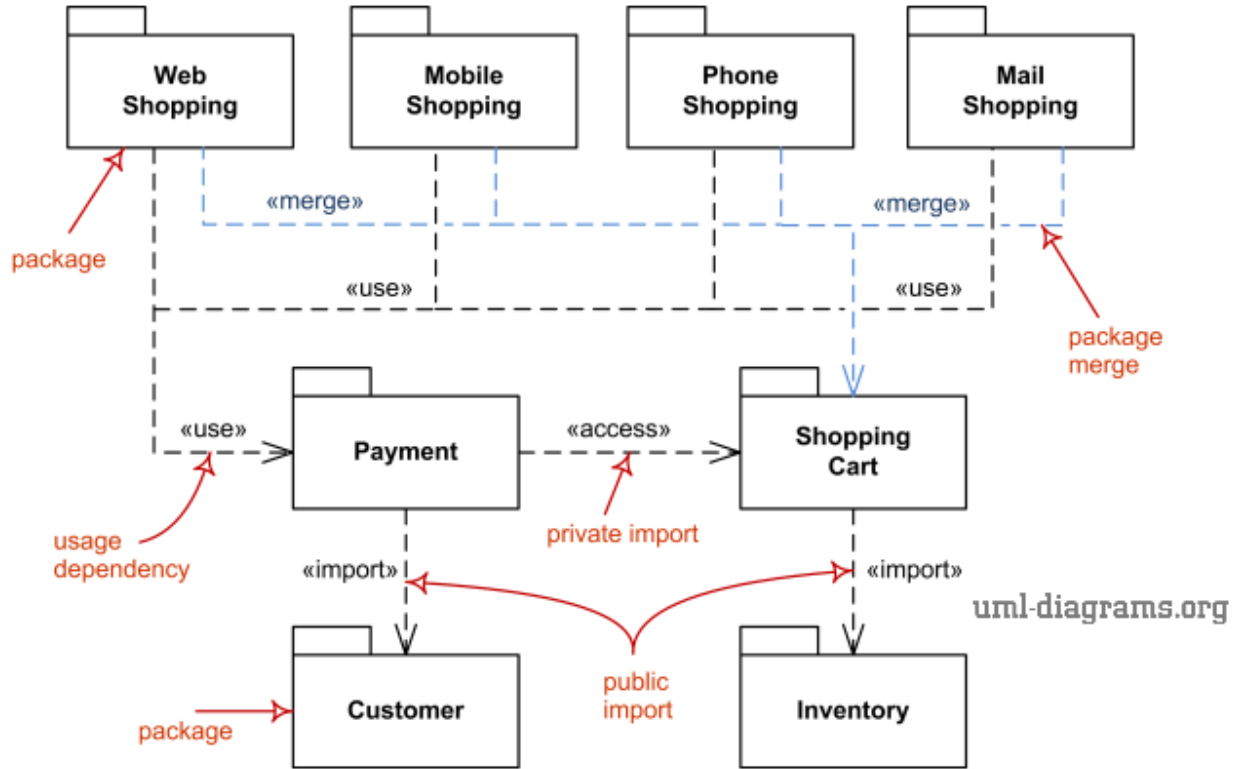
**SECTION B (Answer any TWO questions Only)**

**QUESTION TWO (20 Marks)**

- a. Things are the most important building blocks of UML, Explain (10 marks)
- b. Explain the following notations in UML (10 marks)
  - i. Class Notation
  - ii. Interface Notation
  - iii. Collaboration Notation
  - iv. Initial State Notation
  - v. Final State Notation

**QUESTION THREE (20 Marks)**

- a. The following is an example of a UML system:



- i. Classify the UML diagram (2 marks)
  - ii. List Five major elements of diagram (5 marks)
  - iii. Explain TRANSACTION of above UML diagram (8marks)
- b. State and Explain Four scenarios where State chart Diagrams would be most applicable. (5 marks)

**QUESTION FOUR (20 Marks)**

a. GoF/Gang of four created 23 patterns as the basis of all other UML patterns, briefly explain the following GoF patterns (10 marks)

1. **Abstract Factory:**
2. **Builder:**
3. **Adapter:**
4. **Bridge:**
5. **Memento:**

b. List and Explain, any 5 fundamental objects of UML (10 marks)

**QUESTION FIVE (20 Marks)**

**a.** Choose a software system of your choice, Describe the steps you would use to create a UML Diagram for your chosen software system (10 marks)

**b.** Briefly explain the following relationships in class diagrams (10 marks)

- i. Directed Association
  - ii. Reflexive Association
  - iii. Multiplicity
  - iv. Aggregation
  - v. Composition
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