



GOVERNMENT OF ANDHRA PRADESH COMMISSIONERATE OF COLLEGIATE EDUCATION



REQUIREMENT ENGINEERING – BUILD THE MODEL

Software Engineering
Computer Science

Smt. G.Sumalatha MTech,(PhD)

Govt. Degree College , Salur
Email. Id : sumalathagopathoti@gmail.com

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Objectives

- Describe requirement model.
- Define various elements of requirement model.
- Illustrate scenario based elements.
- Demonstrate class-based elements.
- Explain behavioral elements.
- Describe flow-oriented elements.

Requirement Model

- First technical representation of the system.
- It is not a single model, rather it consist of set of models.

Elements of requirement models

- Scenario-based elements
- Class-based elements
- Behavioral elements
- Flow-oriented elements

Scenario-based Elements

- Represent the system from user perspective.
- These are basic usecases and their corresponding usecase diagrams.
- These are the first part of the system that is being developed.
- These are used to create another models such as UML activity diagrams.

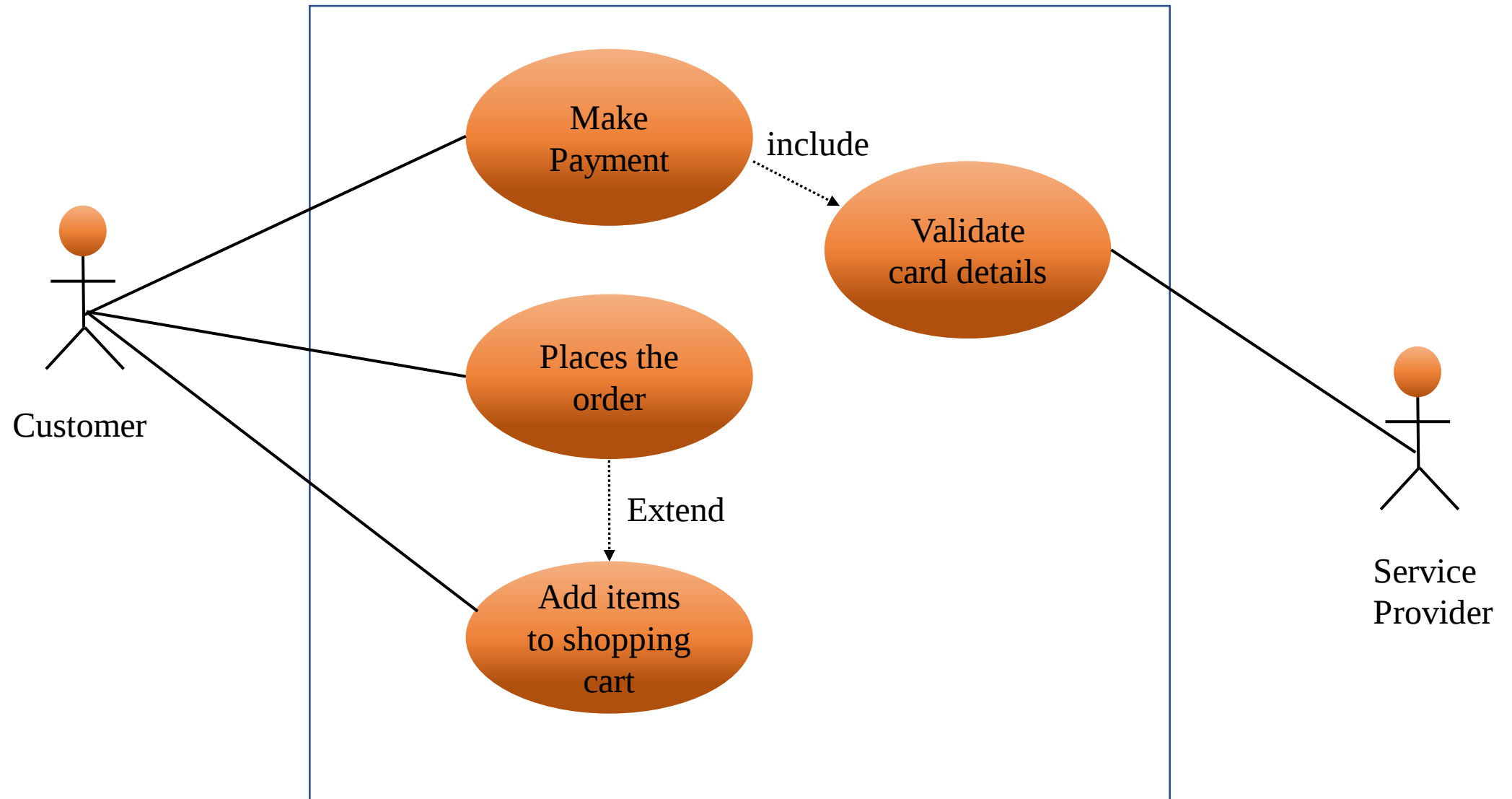


Figure: Usecase diagram for placing the order

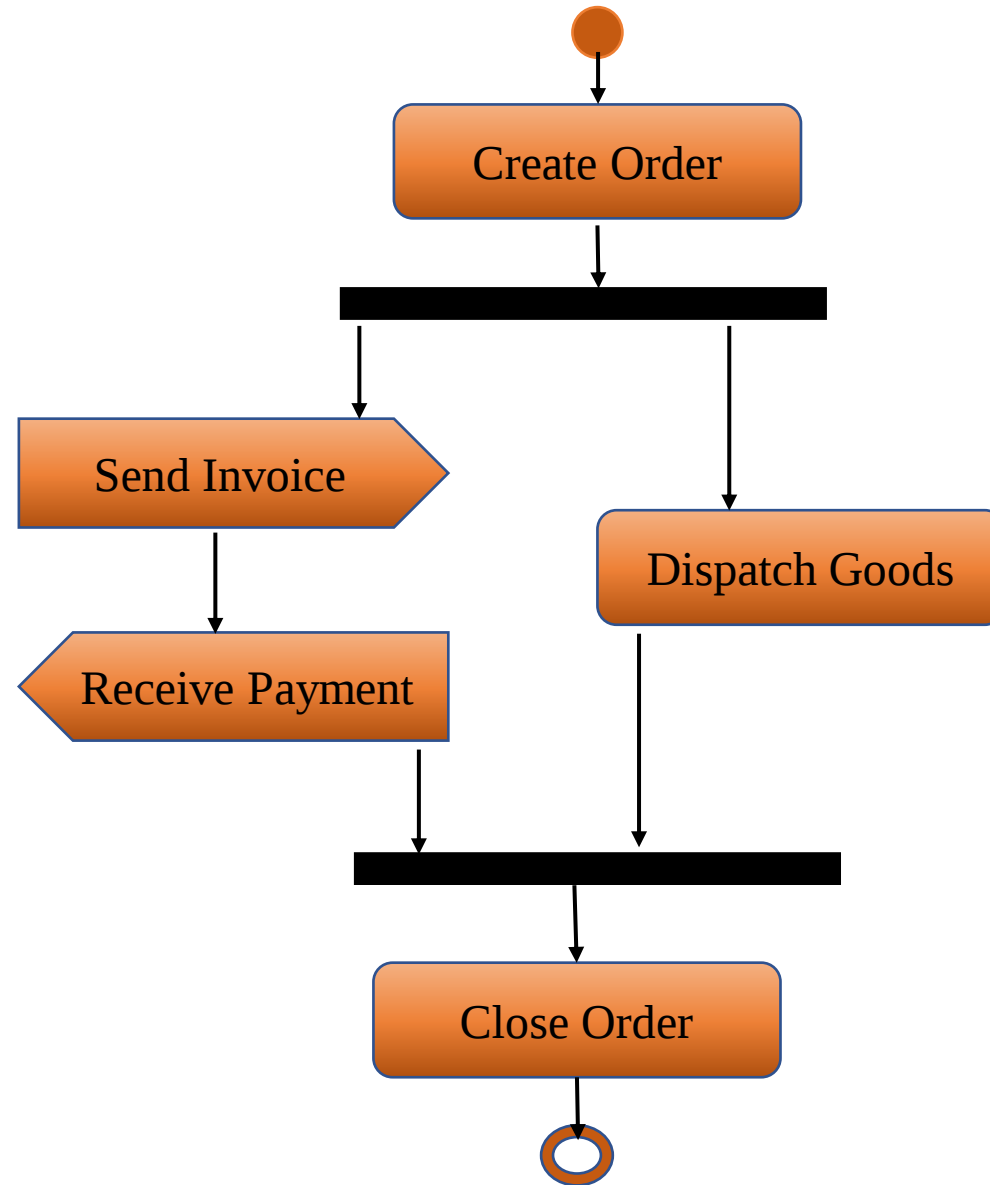


Figure: Activity diagram for placing the order

Class-based Elements

- In each usage scenario implies set of objects that are manipulated when actor interacting with the system.
- Objects are categorized into classes that share common attributes and behaviors.
- Classes are modeled by a rectangle with three parts –class name, attributes and behaviors.
- Classes may have collaboration among them.
- Class-based elements are used to model UML class diagrams and collaboration diagrams

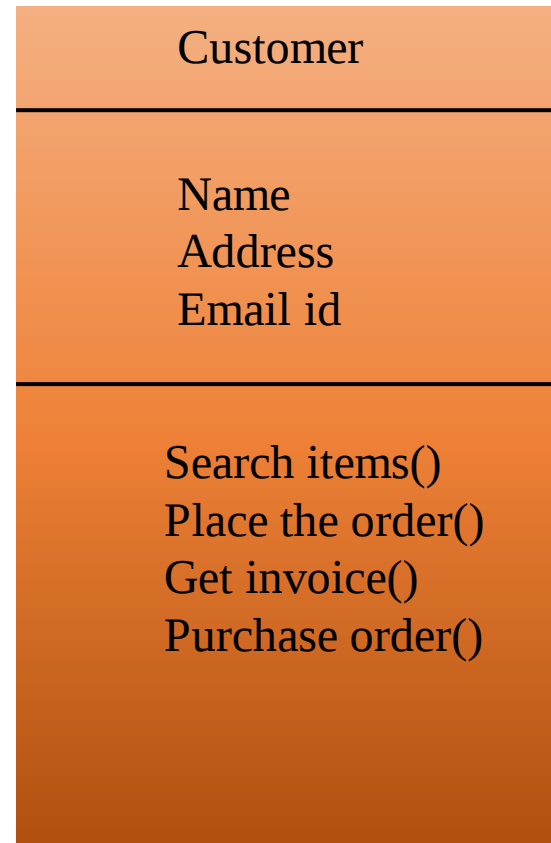


Figure: UML Class Diagrams

Behavioral Elements

- These elements are used to represent the behavior of the system.
- State diagrams are used to represent state of the system and its reaction to external events.
- State is any external mode of behavior.
- behavioral elements are used to model UML state diagrams.
- The behavior of individual classes can be modeled with sequence diagram.

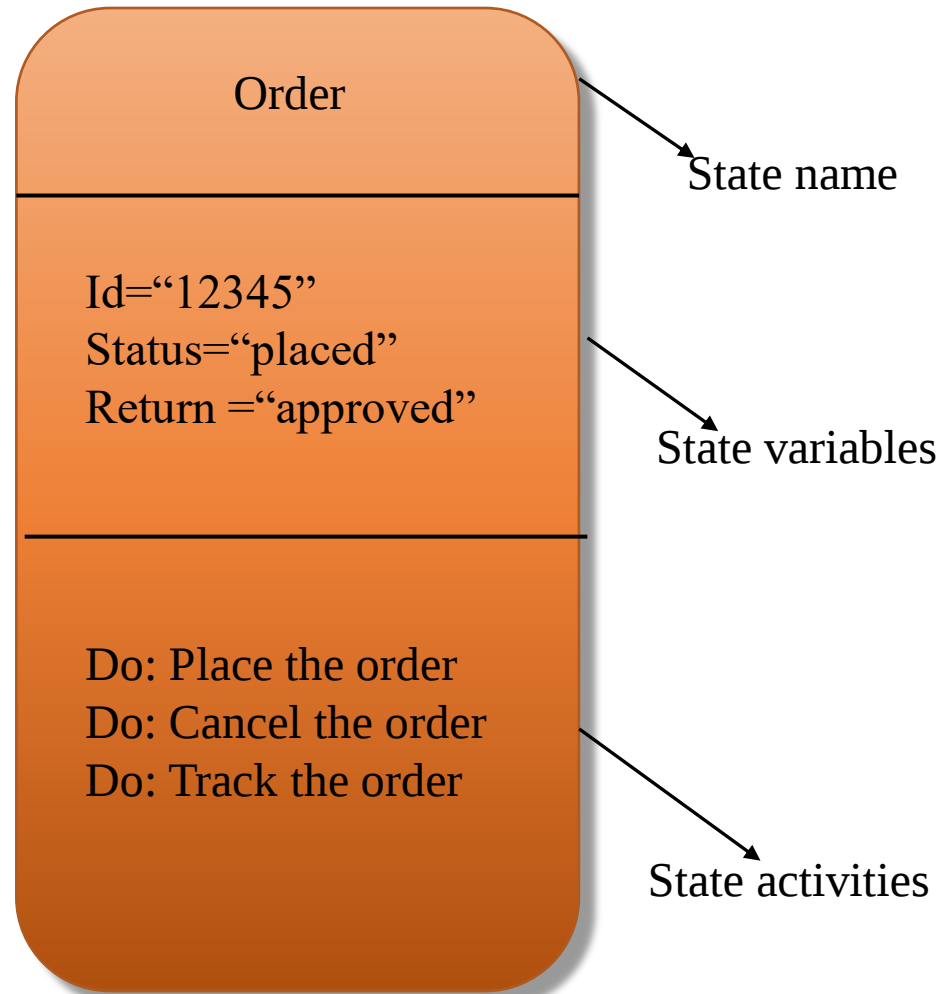


Figure: State Diagram

Flow-oriented Elements

- Information is transformed as it flows through the computer based system.
- These elements are used to show how data objects transformed into another form as they flow through the system.
- These elements are used to model data-flow diagram and control- flow diagrams

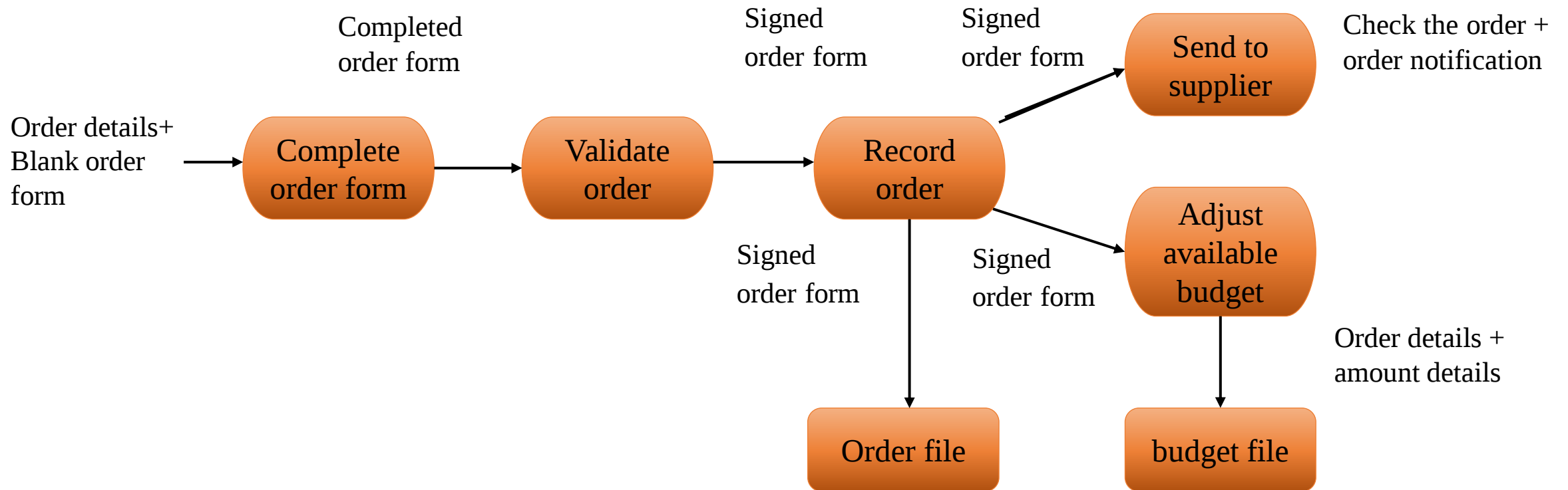


Figure: Data-flow diagram for order processing

Summary

- Requirement model.
- Various elements of requirement model.
- Scenario-based elements represents the system from user perspective.
- Class-based elements represents the set of objects as class.
- Behavioral elements are used to depict system behavior.
- Flow-oriented elements focus on information transmission as it flows through the system.

References

Text Books:

1. Roger Pressman S., “Software Engineering: A Practitioner's Approach”, 7th Edition, McGraw Hill, 2010.
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Thank You



Smt. G. Sumalatha MTech, (PhD),
email ID:sumalathagopathoti@gmail.com