Tutorial Week 3: UML Modelling

Learning Outcomes

1) Understand the need for modelling.
2) Practice creating models with Astah.
3) Familiarisation with the models needed for CW1.

Open a browser and go to the following site: https://astah.net/support/ Scroll down to the bottom of this page to where it says “Modeling Basics & Best Practices” and go to Explore. I suggest at least watching "UML History and Myths", "Modeling Myth","Zen and the Art of User Requirements", “UML Use Case Diagram”, "UML Class Diagram", and "UML Sequence Diagram" The others get you started with basic UML diagrams.

Astah - UML Modeling

In the tutorials we will be using Astah for creating UML diagrams. You can download Astah for both Windows and Mac (as well as Linux). A link to downloads page: https://astah.net/downloads/. You can get a free license if you register as a student. For the purpose of this tutorial you can just download a free trial.

Practice creating your own diagrams.

The following diagrams are examples of the types of diagram that will be expected for your coursework. Try to understand what each of them is documenting. Then try to duplicate the diagrams in Astah so that you become familiar with the techniques of diagramming.

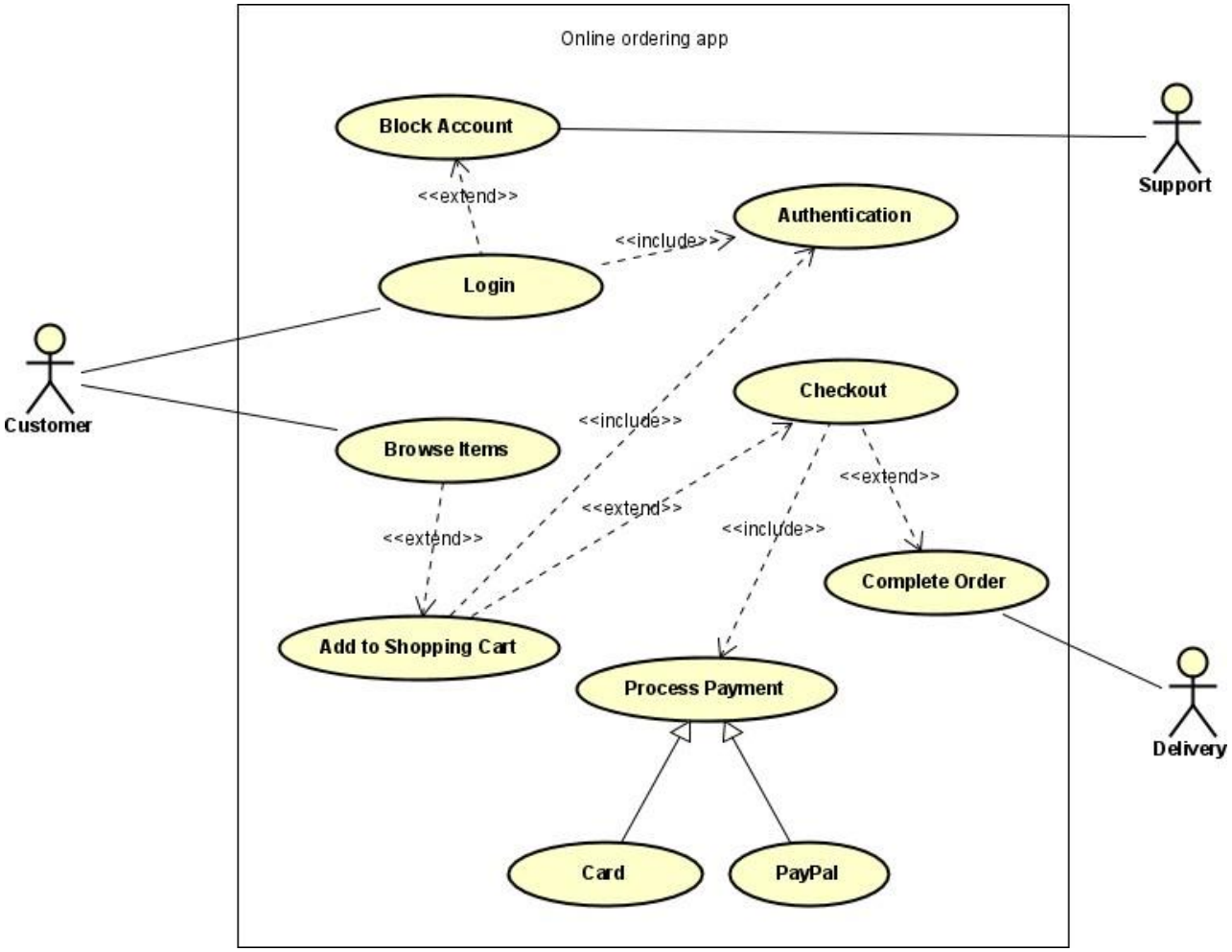
Diagrams

- Use case
- Class
- Sequence
- Activity

Use Case Diagram

Shapes

- Rectangles - Systems
- Stick figures - Actors (Left side - Primary, Right side - Secondary)
- Ovals - Use cases (Represent an action)
- Lines - Relationships (Include, Extend)



Class Diagram

Visibility

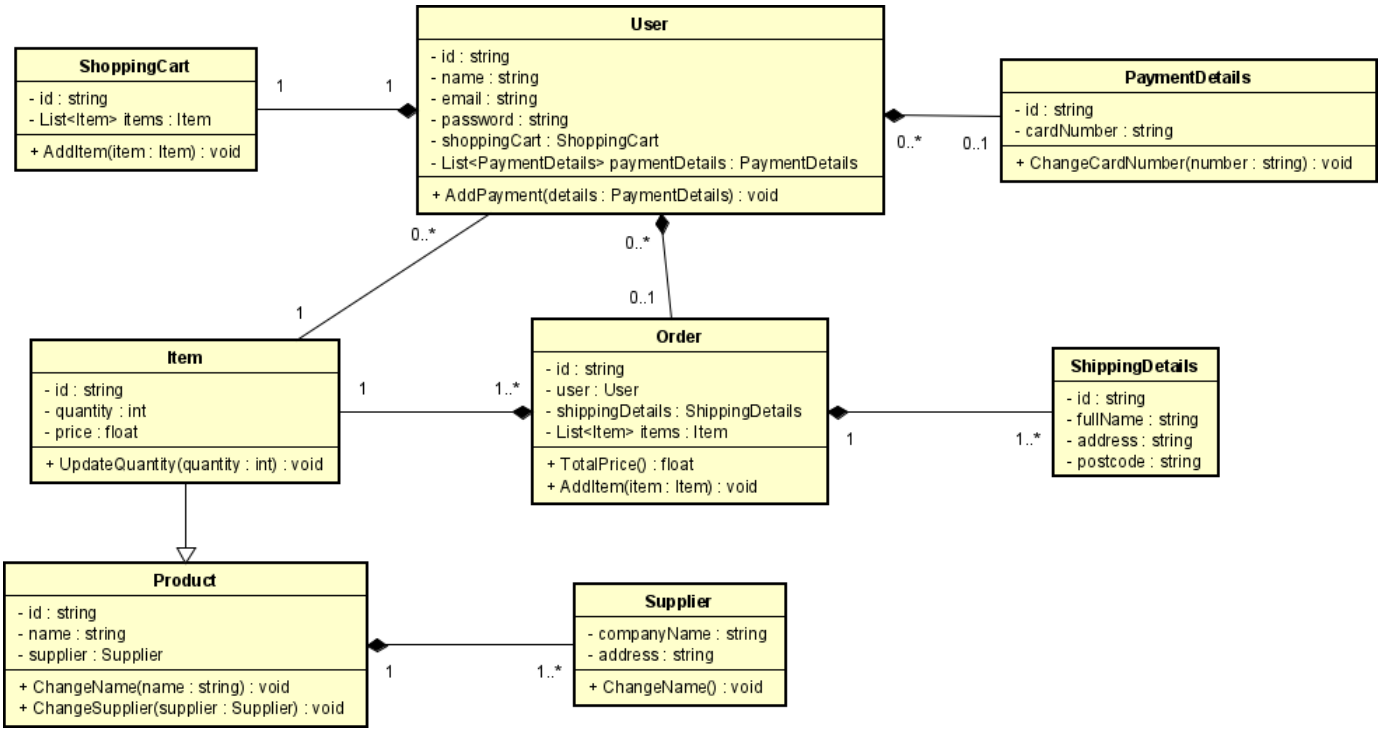
- Private (-)
- Public (+)
- Protected (#)

Relationships

- Inheritance
- Composition
- Aggregation
- Association

Multiplicity

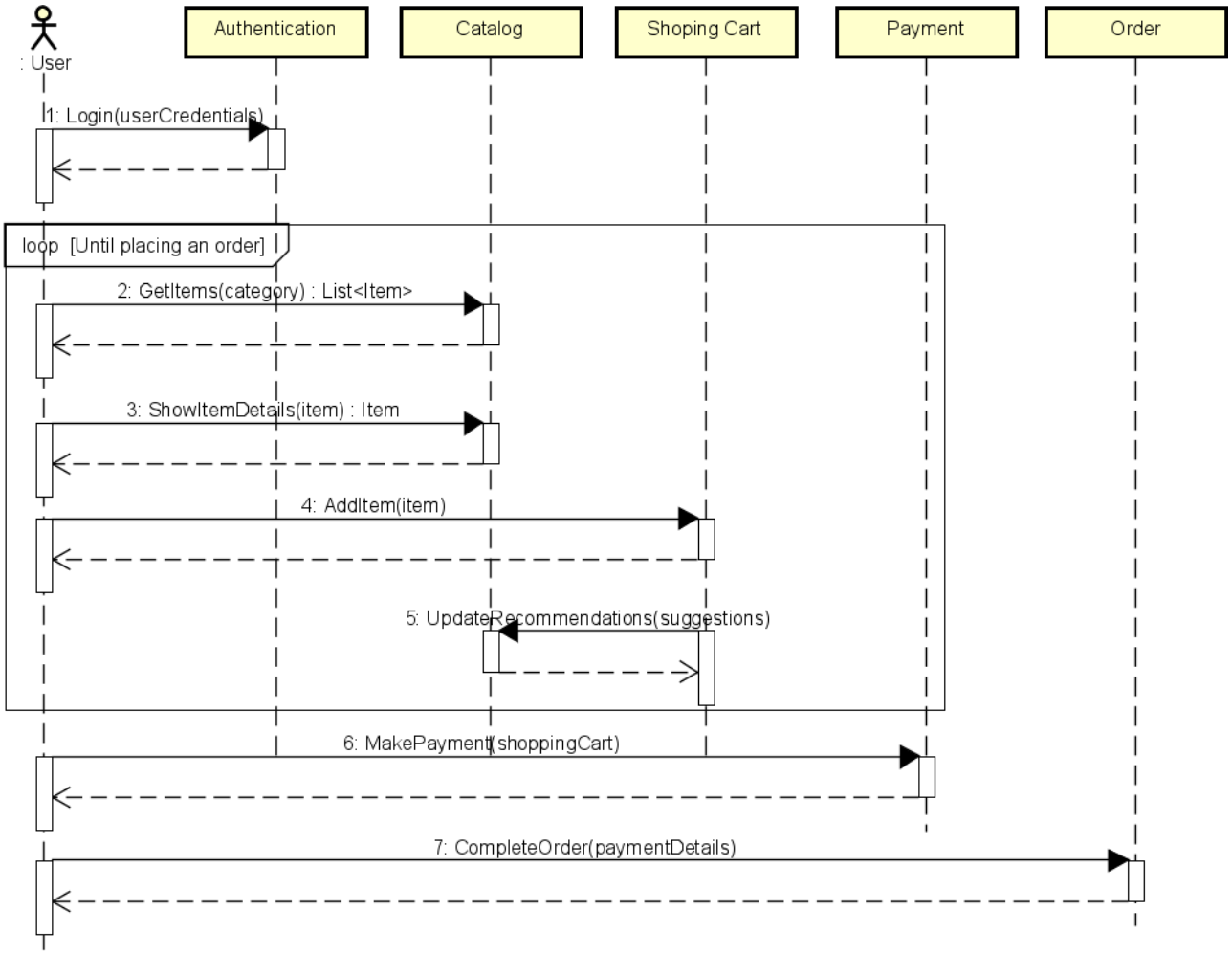
- 0..1 zero to one (optional)
- n specific number
- 0..* zero to many
- 1..* one to many
- n…n



Sequence Diagram

Shapes

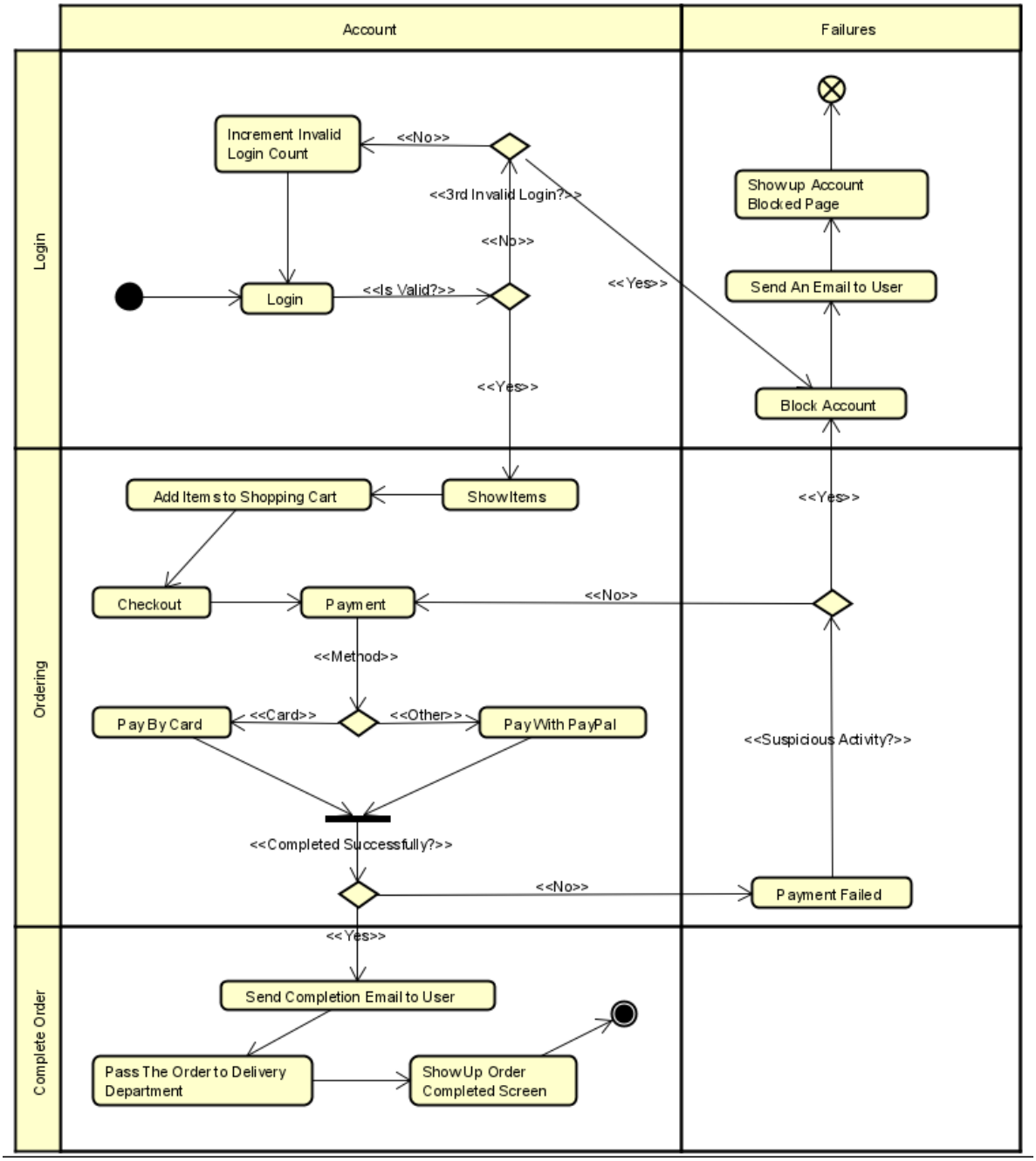
- Lifeline
- Message (Synchronous, Asynchronous)
- Create/Reply Messages
- Combined Fragment (alt, loop, opt)



Activity Diagram

Shapes

- Partitions (Vertical, Horizontal)
- Initial/Final/ Flow Final Nodes
- Ovals - Actions
- Lines - Control Flow
- Decision and Join Nodes



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