SYSTEM ANALYSIS AND DESIGN

UNIT – 1

System Study and System Development Life Cycle

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Fact Finding Techniques

- Record review
- Observing the current system
- Questionnaires
  - Questions can follow four formats:
    - Multiple choices
    - Open ended
    - Rating
    - Ranking
- Interviewing
  - Formal Vs. Informal
  - Primary Vs. Detailed

The following questions can help accomplish this goal.

- Who is involved with what you do?
- What do you do?
- Where do you do it?
- When do you do it?
- Why do you do it the way you do?
- How do you do it?
- Do you have suggestions for change?

UML

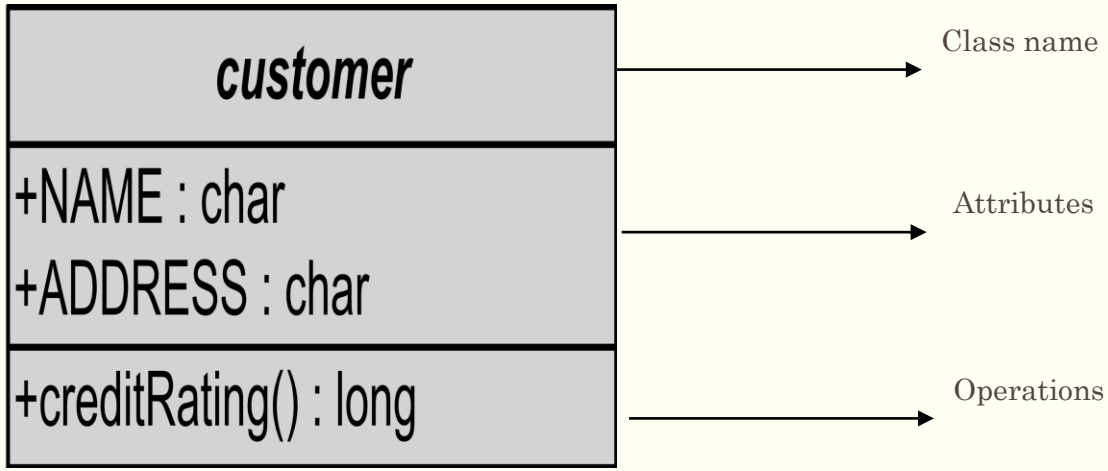
- The Unified Modeling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the piece of software systems, as well as for business modeling and other non-software systems.
- The UML uses mostly graphical notations to express the design of software projects. Using the UML helps project teams communicate, explore potential designs, and validate the architectural design of the software.

Goals of UML

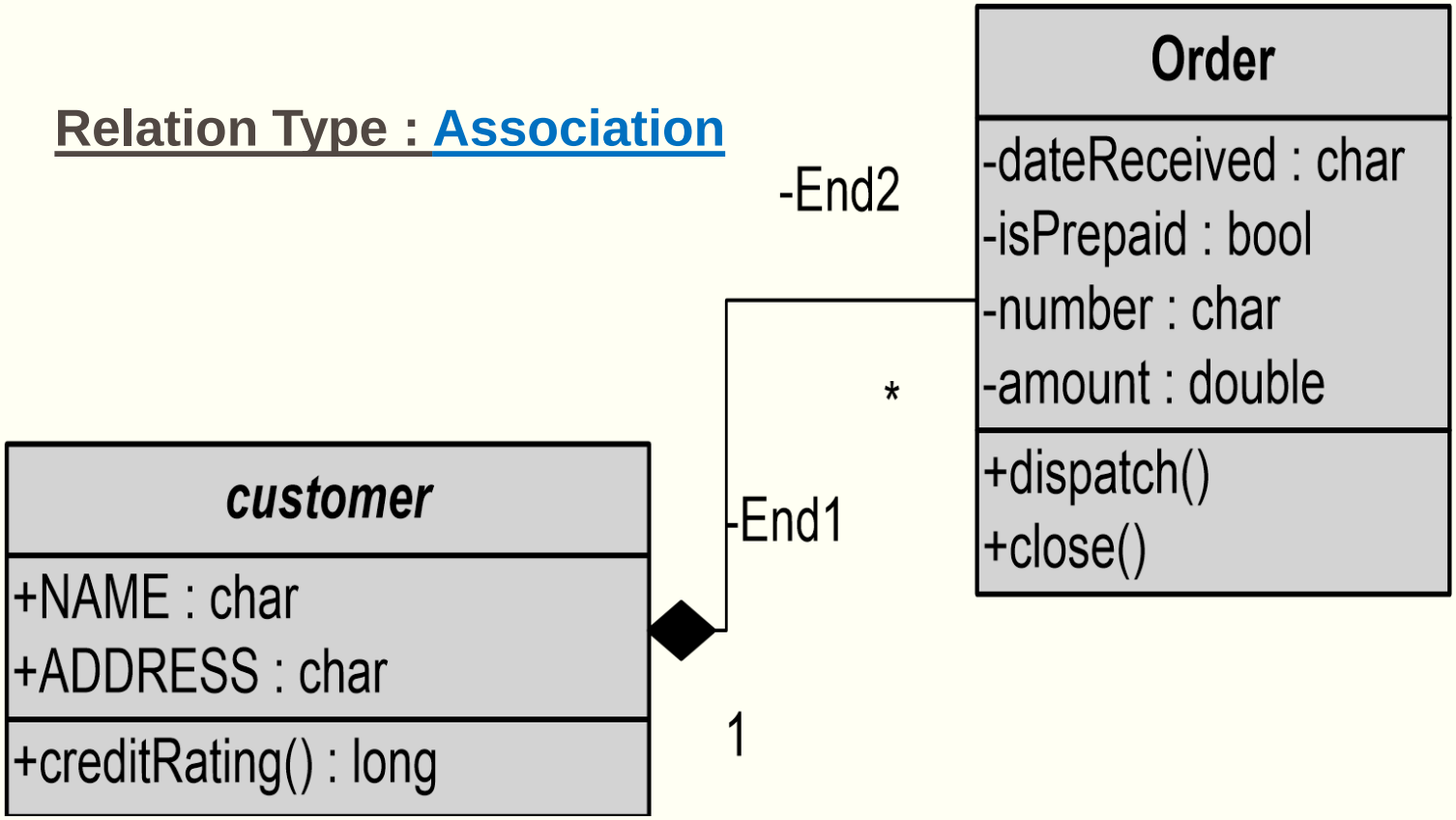
- Provide users with a ready-to-use, expressive visual modeling language so they can develop and exchange meaningful models.
- Provide extensibility and specialization mechanisms to extend the core concepts.
- Be independent of particular programming languages and development processes.
- Provide a formal basis for understanding the modeling language.
- Encourage the growth of the OO tools market.
- Support higher-level development concepts such as collaborations, frameworks, patterns and components.
- Integrate best practices.

Class Diagram

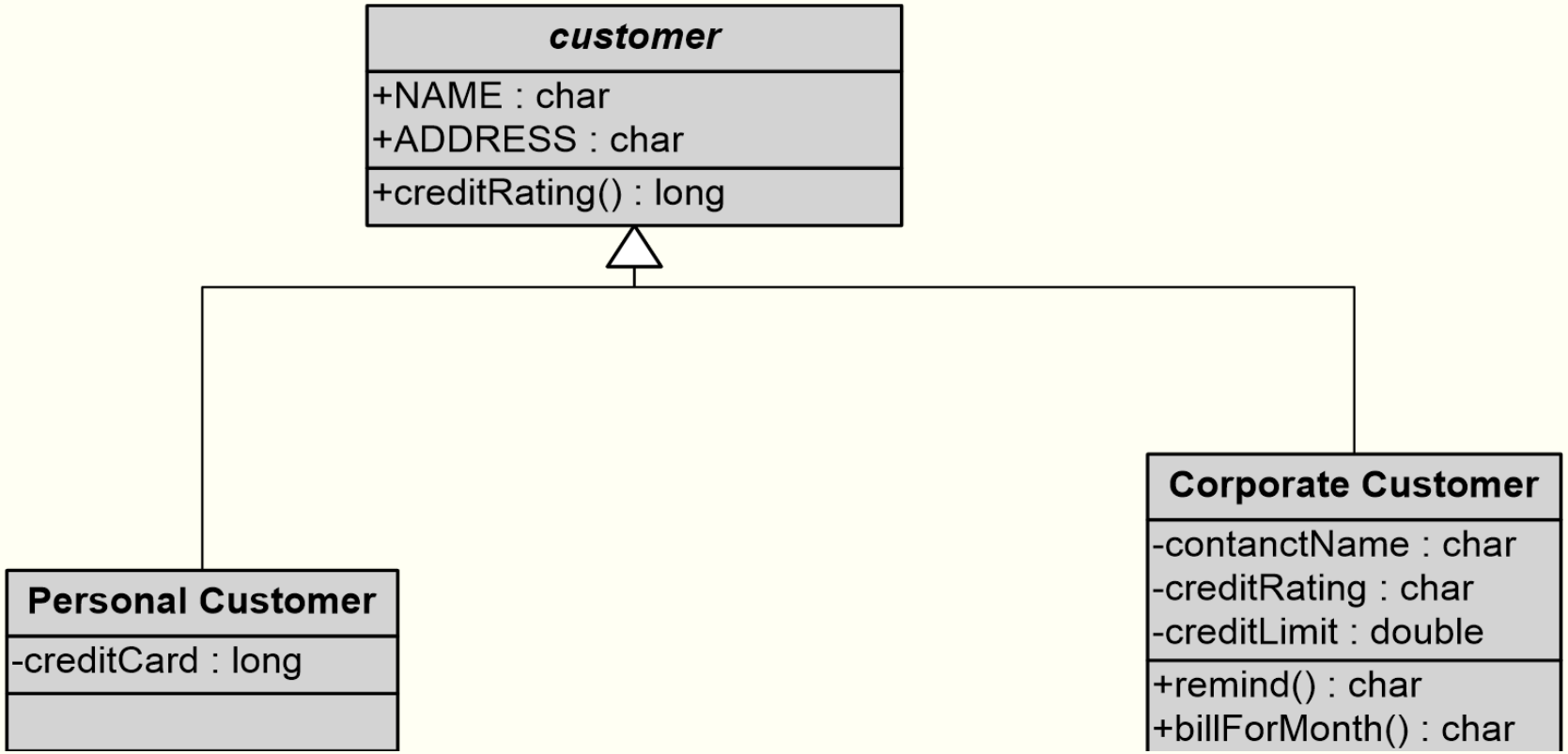
- Classes are composed of three things: a name, attributes, and operations. Below is an example of a class.



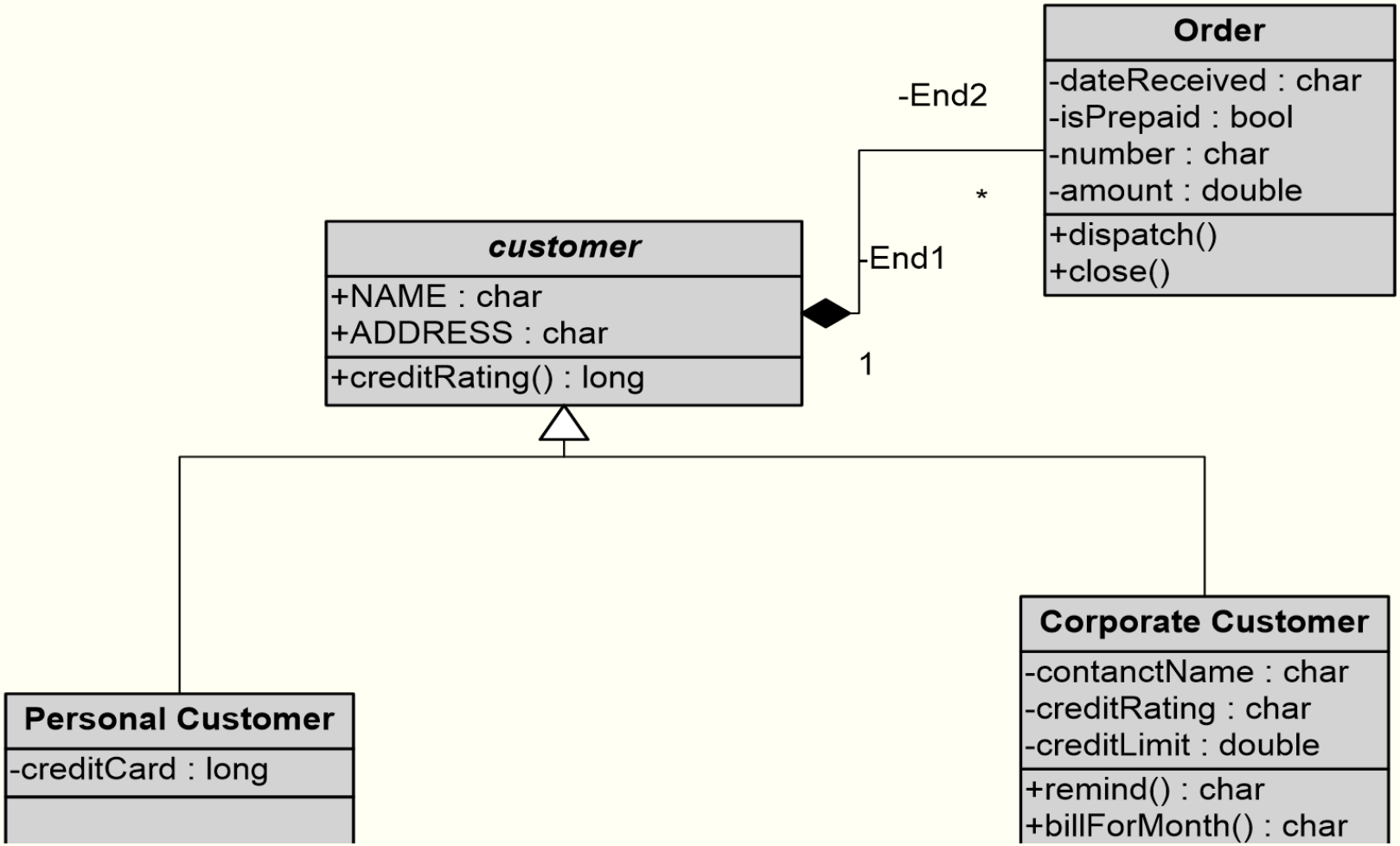
Class diagrams also display relationships such as containment, inheritance and associations.



Inheritance

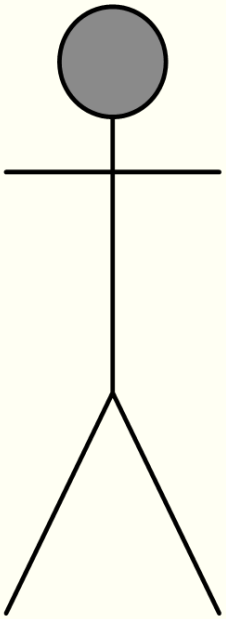


Class Diagram
(All classes are connected to each other)

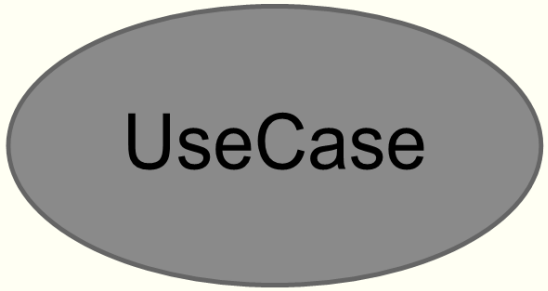


Use Case Diagram

- Use case is a set of scenarios that describing an interaction between a user and a system.
- The two main components of a use case diagram are use cases and actors.
- A use case diagram displays the relationship among actors and use cases.
- An actor is represents a user. A use case is an external view of the system that represents some action the user might perform in order to complete a task.

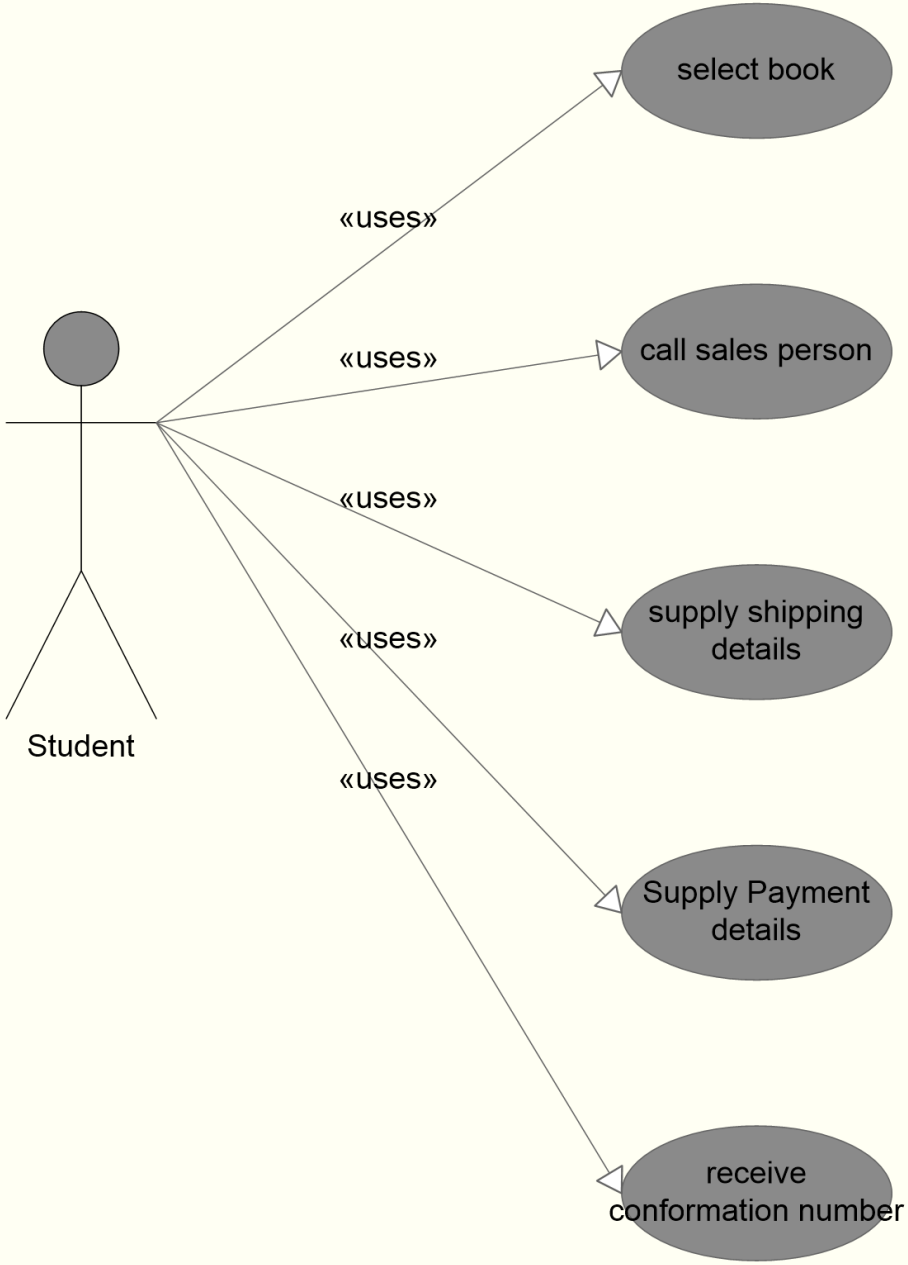


Actor



How to Draw Use Cases Diagrams?

- Use cases are a relatively easy UML diagram to draw, but this is a very simplified example. This example is only meant as an introduction to the UML and use cases.
- Start by listing a sequence of steps a user might take in order to complete an action. For example a user placing an order with a book seller company might follow these steps.
  - Browse catalog and select book.
  - Call sales representative.
  - Supply shipping information.
  - Supply payment information.
  - Receive conformation number from salesperson.
  - These steps would generate this simple use case diagram



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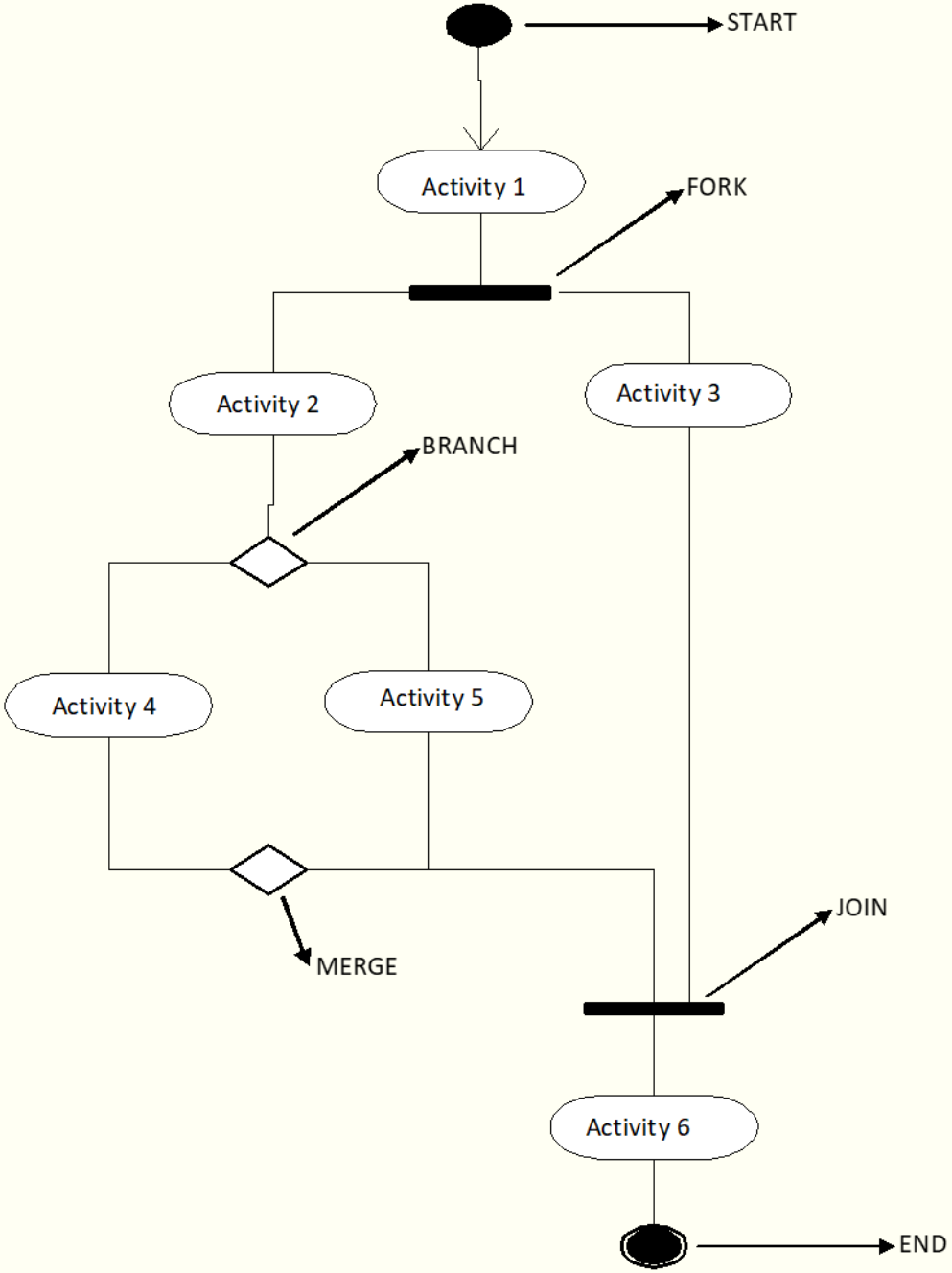
When to Use ‘’Use Case” Diagrams?

- Use cases are used in almost every project. These are helpful in enlightening requirements and planning the project. During the initial stage of a project most use cases should be defined, but as the project continues more might become visible.

Activity Diagram

- The main reason to use activity diagrams is to form the workflow behind the system being designed. Activity Diagrams are also useful for analyzing a use case by describing what actions need to take place and when they should occur, describing a complicated sequential algorithm and modeling applications with parallel processes.

- However, activity diagrams should not take the place of interaction diagrams and state diagrams. Activity diagrams do not give detail about how objects behave or how objects collaborate.



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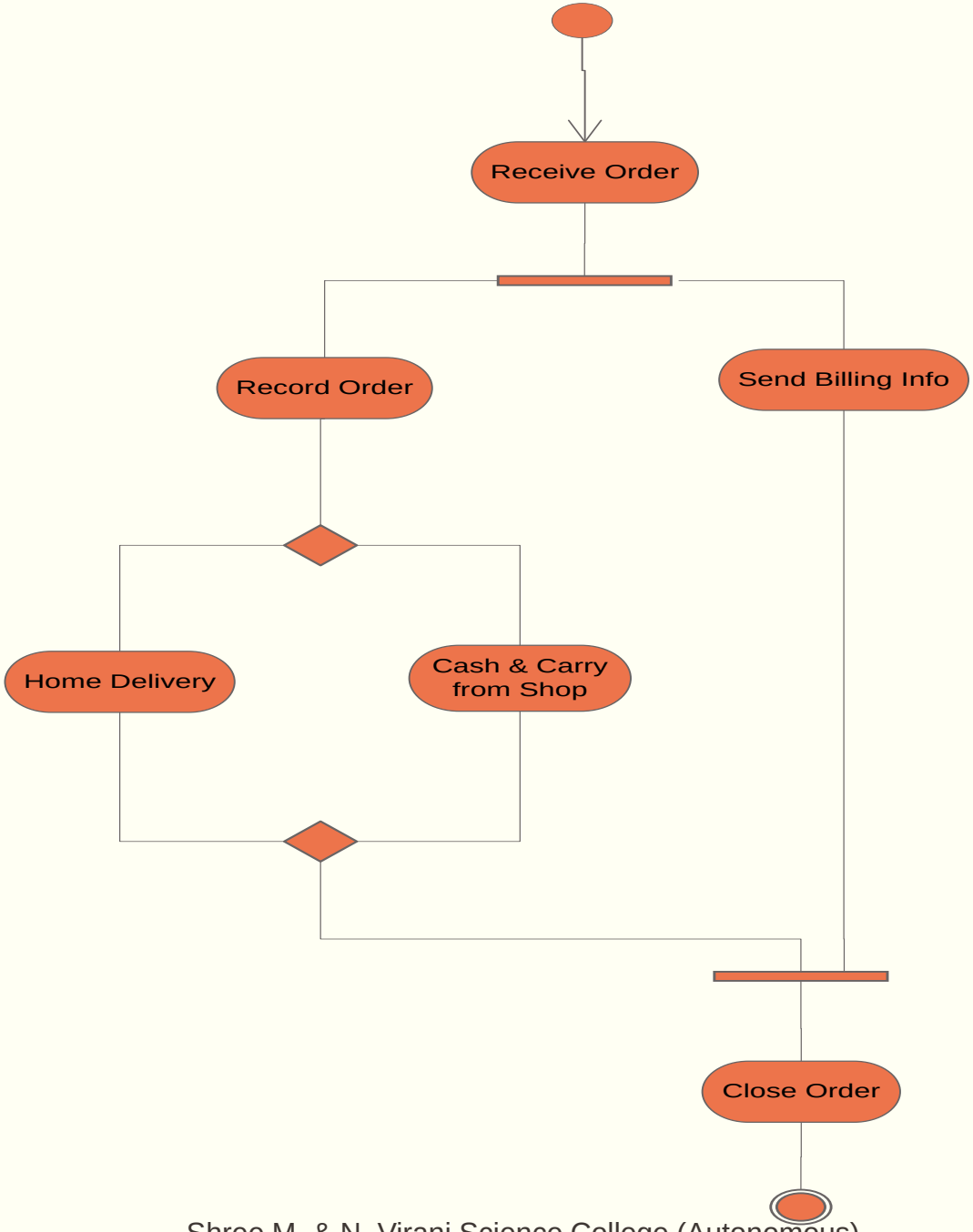

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