

## UML 2.0 Introduction

- ▶ Unified Modeling Language (UML)
- ▶ A graphical way of describing software systems
- ▶ UML Sketching vs. UML Blueprint
- ▶ Platform Independent / Platform Specific

## UML Development Process

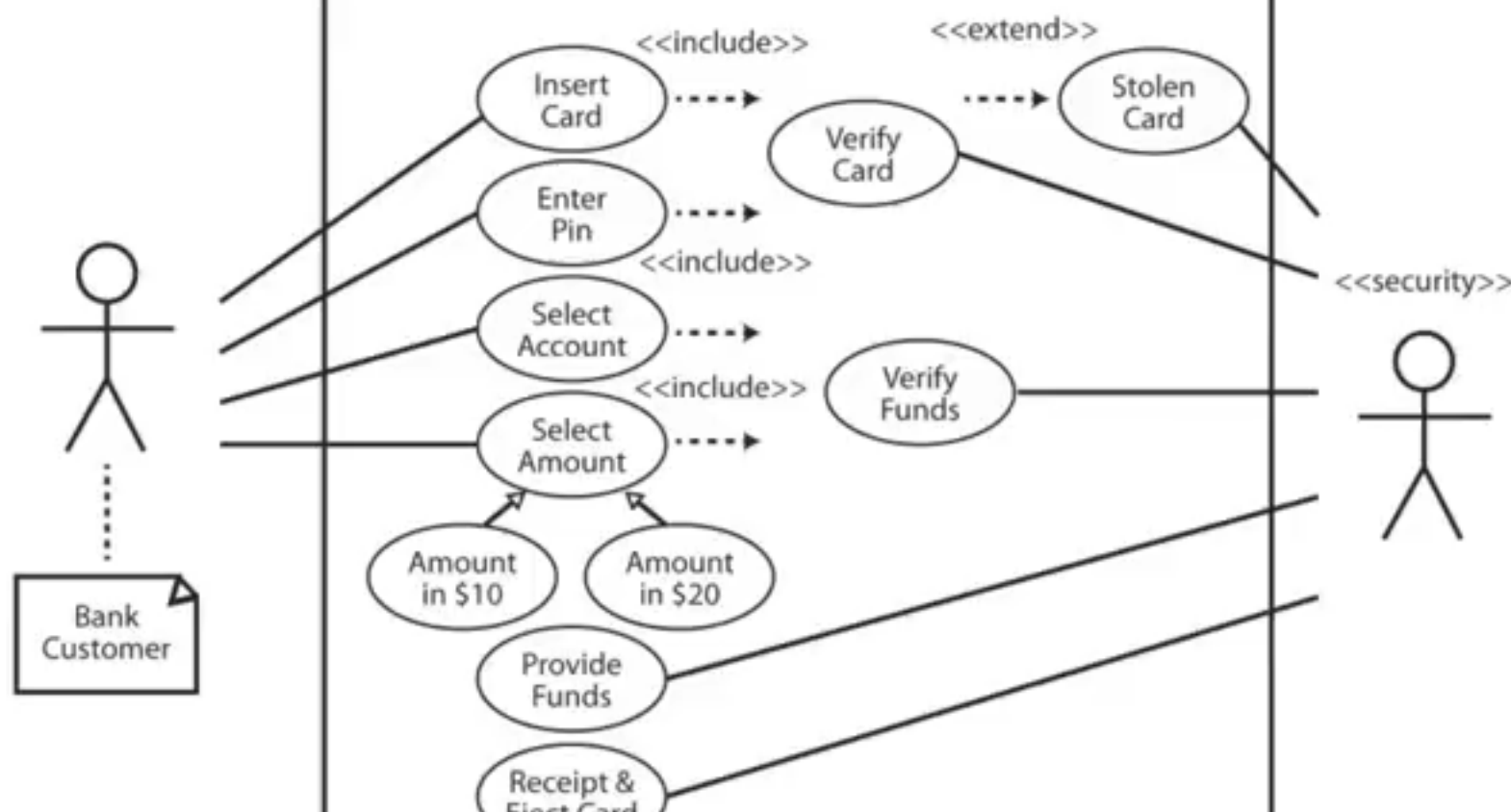
- ▶ Waterfall
  - ▶ Analysis, Design, Coding and Testing
- ▶ Iterative (Most Common)
  - ▶ Solve in pieces

## UML Planning Process

- ▶ Predictive Planning
- ▶ Adaptive Planning (Agile Development)
- ▶ If you can easily list all requirements use Predictive Planning

## Use Case

- ▶ List of steps a system needs to follow to reach a goal
  - ▶ Define what is required and how those requirements are met
  - ▶ Don't try to write code in a Use Case Diagram
  - ▶ Shall vs. Should Requirements
- ▶ These steps normally include interactions with an Actor (Human / External System)



## Use Case Description

- ▶ Description
- ▶ The user enters their card and PIN. Security verifies the card. The user selects the account to use. They select an amount. Security verifies if the amount is available. The system comes to a conclusion on if money is provided. The user selects funds as \$10s or \$20s. Security provides the funds if possible. Security provides a receipt and the users card.

## Use Case Description

- ▶ Trigger
  - ▶ 1. Machine receives a card
  - ▶ 2. User enters a PIN
- ▶ Actors
  - ▶ 1. Customer
  - ▶ 2. Bank Security

## Use Case Description

- ▶ Failed Conclusion
  - ▶ 1. Invalid Card
  - ▶ 2. Invalid PIN
  - ▶ 3. Customer Insufficient Funds
  - ▶ 4. ATM Insufficient Funds
  - ▶ 5. Over Daily Limit
  - ▶ 6. Stolen Card
- ▶ Extensions (Alternatives)
  - ▶ 1. If PIN is Invalid 3 Times (Eat Card)
  - ▶ 2. If Card Marked as Stolen (Eat Card)

## Use Case Description

- ▶ Steps of Execution (Requirements)
  - ▶ 1. Customer Inserts Card
    - ▶ 1A. Card is Invalid
    - ▶ 1B. Eject Card
  - ▶ 2. Card is Validated
  - ▶ 3. Customer Enters PIN
    - ▶ 3A. PIN is Invalid
    - ▶ 3B. PIN is Invalid 3 Times
    - ▶ 3C. Card Marked as Stolen
  - ▶ 4. PIN is Validated
  - ▶ 5. Account is Selected
  - ▶ 6. Amount is Selected

## Use Case Description

- ▶ 6A. Over Daily Maximum
- ▶ 6B. Over Account Funds Available
- ▶ 6C. Over Funds in Machine
- ▶ 6D. Ask for New Amount
- ▶ 7. Provide \$10 or \$20
- ▶ 8. Provide Funds
- ▶ 9. Provide Receipt
- ▶ 10. Eject Card