COMP1531

🔎 Requirements - Use Cases, User Stories

Lecture 9.2

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In This Lecture

- **Why? 🤔**
  - Requirements can be very human, and express complex flows. We need ways to model this.

- **What? 📰**
  - User Stories
  - User Acceptance Tests
  - Use Cases
  - Use Case Representations

User Stories

Overview

User Stories are a method of requirements engineering used to inform the development process and what features to build with the **user at the centre.**

💭 User Stories

Structure

When a customer tells you what they want, try and express it in the form **As a < type of user >, I want < some goal > so that < some reason >**

- E.G. They say:
  - A student can purchase monthly parking passes online
- But your story becomes:
  - As a student, I want to purchase a parking pass so that I can drive to school

💭 User Stories

Attributes

- Are written in non-technical language
- Are focused on keeping the customer at the core of the experience
- Are user-goal focused, not product-feature focused
  - User stories ideally describe problems, not solutions

User Stories

Activity

Let's write out some user stories for a to-do list!

💭 User Stories

Good properties of user stories:

- Independent: Can be developed/delivered independently
- Negotiable: avoid too much detail.
- Valuable: must hold some value to the client
- Estimable: we'll get to this in a later lecture
- Small: user story should be small
- Testable

User Stories

Further Reading

- Atlassian User Stories

✅ User Acceptance Criteria

We need a method to help us "test" weather a user story has been satisfied.

- Break down a user story into criteria that must be met for the user, or customer, to accept.
- Written in natural language.
- Can be refined before implementation.

✅ User Acceptance Criteria

For example: *As a user, I want to use a search field to type a city, name, or street, so that I can find matching hotel options.*

User Acceptance Criteria:

- The search field is placed on the top bar
- Search starts once the user clicks “Search”
- The field contains a placeholder with a grey-colored text: “Where are you going?”
- The placeholder disappears once the user starts typing
- Search is performed if a user types in a city, hotel name, street, or all combined
- The user can’t type more than 200 symbols

✅ User Acceptance Criteria

For example: *As a user, I can log in through a social media account, because I always forget my passwords*

User Acceptance Criteria:

- Can log in through Facebook
- Can log in through LinkedIn
- Can log in through Twitter

✅ User Acceptance Criteria

- Acceptance criteria should not be too broad (but nor should they be too narrow).
- Minimise technical detail. They can be more technical than the story itself, but client still needs to understand them.
- While they can be updated during development, they should first be written before it starts.
- **Acceptance Tests** are tests that are performed to ensure acceptance criteria have been met.
- Not all acceptance criteria can easily be mapped to automated acceptance tests. Sometimes you need to setup **User Acceptance Testing** environments for real users to manually use it and provide feedback.
- Acceptance tests are black-box tests.

🐳 Alternative: Scenario Oriented

- The Acceptance criteria from before are often referred to a **rule-based AC**
- Sometimes it is preferable to have AC that describe a scenario
- This can be done in the Given/When/Then format:
  - Given some precondition
  - When I do some action
  - Then I expect some result

Alternative: Scenario Oriented

Example: *As a user, I want to be able to recover the password to my account, so that I will be able to access my account in case I forgot the password.*

User Acceptance Criteria:

- **Scenario**: Forgot password
- **Given**: The user has navigated to the login page
- **When**: The user selected forgot password option
- **And**: Entered a valid email to receive a link for password recovery
- **Then**: The system sent the link to the entered email
- **Given**: The user received the link via the email
- **When**: The user navigated through the link received in the email
- **Then**: The system enables the user to set a new password

🤨 Which One To Use?

- Rule-based acceptance criteria are simpler and generally work for all sorts of stories
- Scenario-based AC work for stories that imply specific user actions, but don't work for higher-level system properties (e.g. design)
- Scenario-based AC are more likely to be implementable as tests

🌽 Use Cases

- Represent a dialogue between the user and the system, with the aim of helping the user achieve a business goal.
- The user initiates actions and the system responds with reactions.
- They consider systems as a black box, and are only focused on high level understanding of flow.

🌽 Use Cases

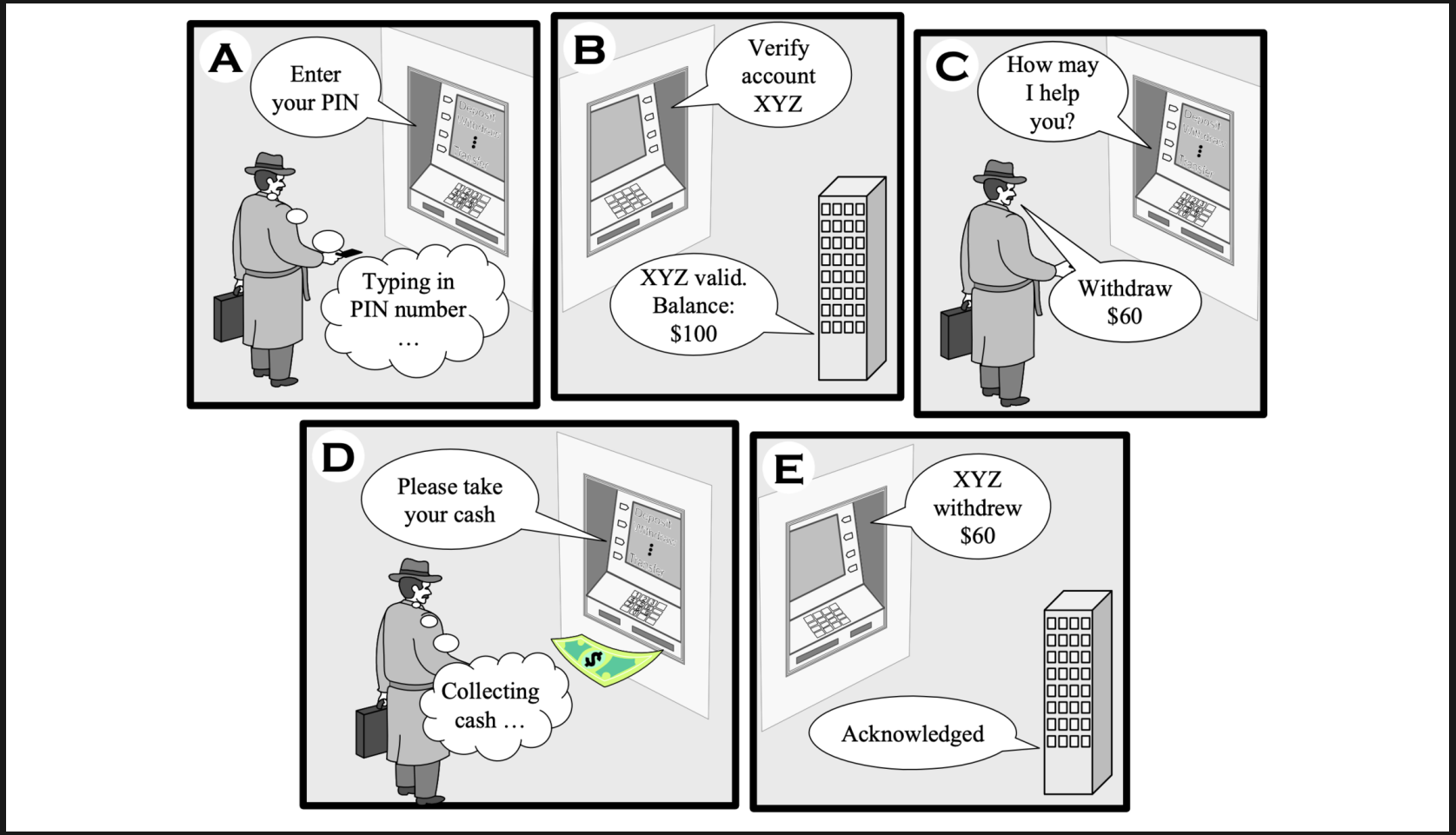
- Generally you can represent use cases as:
  - Informal list of steps (written)
  - Diagramatic (visual)
- There is a range of different approaches that can be taken too, e.g. Cockburn style (not required reading)

🌽 Use Cases

Template for providing background.

- **Use Case**: [the name should be the goal as a short active verb phrase]
- **Goal in Context**: [a longer statement of the goal, if needed]
- **Scope**: [what system is being considered black-box under design]
- **Preconditions**: [what we expect is already the state of the world]
- **Success End Condition**: [the state of the world upon successful completion]
- **Failed End Condition**: [the state of the world if goal abandoned]
- **Primary Actor**: [a role name for the primary actor, or description]
- **Trigger**: [the action upon the system that starts the use case, may be time event]

🎨 Use-Case Diagrams



✍🏽 Use-Case List

We can provide a use case in written form.

- Step 1. ATM asks customer for pin
- Step 2. Customer enters pin
- Step 3. ATM asks bank to verify pin and account
- Step 4. Bank informs ATM of validity and balance of account
- Step 5. ATM asks customer what action they wish to take
- Step 6. Customer asks to withdraw an amount of money
- Step 7. ATM Dispenses money to customer
- Step 8. ATM informs bank of withdrawal

Monorail Requirements

Let's take the opportunity to build our requirements for a UNSW monorail. Ensure some of the requirements are expressed in terms of user stories and/or use cases.

📚 Further Reading

- If you wish to know more about use cases, see here:
  - Software Engineering - Ivan Marsic (Chapter 2, Section 4)
  - http://www.cs.otago.ac.nz/coursework/cosc461/uctempla.htm
  - Writing Effective Use Cases - Alistair Cockburn
- https://www.mountaingoatsoftware.com/blog/the-two-ways-to-add-detail-to-user-stories
- https://www.altexsoft.com/blog/business/acceptance-criteria-purposes-formats-and-best-practices/
- https://dzone.com/articles/acceptance-criteria-in-software-explanation-exampl

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