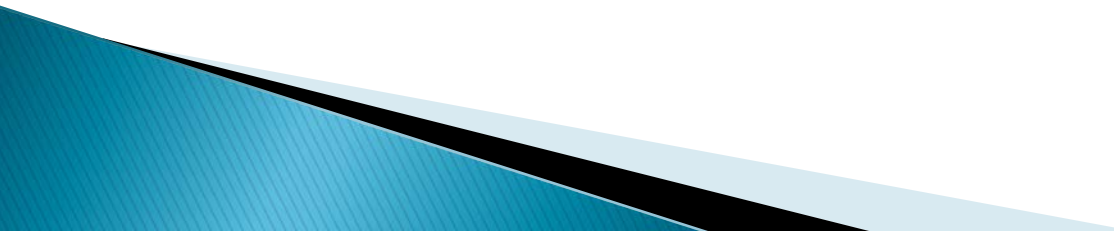


Use Case

What does the customer want?

- ▶ Ways to specify requirements:
 - Use case (written by programmers)
 - Stories (usually written by clients)
 - ▶ How to use
 - Stories collect high-level goals, used to prioritize tasks
 - Use cases provide more structure
- 

Example Story

Grade calculation

Create a program that will help me calculate my grade for a course
I want to enter the scores and percentages for each type of item
Program will calculate and display the grade

Generates questions to be discussed with client.

- How many scores?
- Should number of scores vary?
- What is grading scale?
- Do you want to store the information?

Grade Calculation Use Case

Calculate course grade

1. Enter midterm %
2. Enter final %
3. Enter homework %
4. Enter midterm score
5. Enter final score
6. Enter homework score
7. Click Calculate button
8. Course score is displayed

Alternate Flow: Invalid %

1. If at 1, 2 or 3 and user enters a value that is <0 or >100 , display invalid % error

Alternate Flow: Invalid score

1. If at 4, 5 or 6 and user enters a value that is <0 or >100 , display invalid score error

Alternate Flow: Incorrect % total

1. When Calculate button is pressed, if $\text{midterm \%} + \text{final \%} + \text{homework \%}$ do not equal 100%, display invalid total % error

Example Story

Tic-Tac-Toe

Create a program that will allow two players to play tic-tac-toe

Tic-Tac-Toe use case

Play tic-tac-toe

1. 3x3 playing board is displayed
2. Player 1 places an 'X' on one of the cells
 - 2a. Cell is not available, display error and repeat 2
 - 2b. Player has 3 Xs in a row, diagonal or column.
Display "winner" message and end game
3. Player 2 places an 'O' on one of the cells
 - 3a. Cell is not available, display error and repeat 3
 - 3b. Player has 3 Os in a row, diagonal or column.
Display "winner" message and end game
4. Repeat 2-3 until end of game OR no cells are empty.

Simple Example 3

Place order

1. The **User Logs In**
2. User selects item from list
3. **User Checks Out**

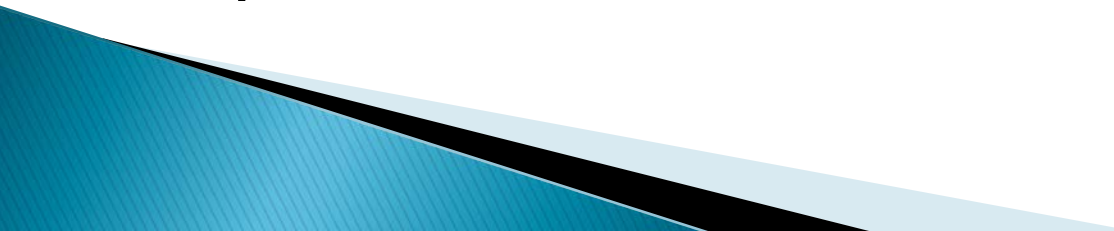
User Logs In

1. Enter user ID
 - 1a. User ID is invalid. Display error message.
2. Enter password
 - 2a. Password is invalid. Display error message.
3. Order screen is displayed.

What would be in **User Checks Out**?

Use Case Overview

From Wikipedia:

- Use cases describe the system from the user's point of view.
 - Each use case is a complete series of events, described from the point of view of the actor.
 - Each use case focuses on describing how to achieve one goal or task.
 - For most software projects this means that multiple, perhaps dozens, of use cases are needed to define the scope of the new system.
- 

Use Case Focus

Again from Wikipedia:

- The degree of formality of a particular software project and the stage of the project will influence the level of detail required in each use case.
- Use cases should not be confused with the features of the system under consideration. A use case may be related to one or more features, and a feature may be related to one or more use cases.

Feature: place call to customer

Use Cases: set up customer, make contact

Features in requirements doc or stories

Use Case Pitfalls (common mistakes)

- ▶ Use cases treat the system as a black box*
- ▶ Interactions with the system, including system responses, are from *user's* perspective
- ▶ Use cases focus on what the system must do, not *how* it is to be done (avoids the trap of making assumptions about how the functionality will be accomplished).

*e.g., “store item in an array” would not be part of a use case

Use Case Templates

- ▶ No standard template for documenting detailed use cases.
- ▶ There are a number of competing schemes, you should use templates that work best for your particular project.
- ▶ Possible sections include:
 - Name, written in verb–noun form such as Borrow Books, Withdraw Cash
 - Pre– and Post–conditions
 - Alternative Paths
- ▶ Wikipedia includes others...

Helpful sites

- ▶ http://www.cragssystem.com/use_case_tutorial.htm
 - ▶ <http://www.readysetpro.com/whitepapers/usecasetut.html>
 - ▶ <http://www.parlezuml.com/tutorials/usecases.htm>
- 