Use Cases

Requirements Engineering

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Tao Xie, Professor
Computer Science @ Illinois
Learning Objectives

By the end of this video, you will be able to
• Name the four kinds of use cases, and explain their main purposes.
• Write an actor-goal list given informal requirements.
• Write use case briefs given informal requirements.
• Write a casual use case given an informal requirement.
• Name various parts of a fully dressed use case.
• Write a fully dressed use case given an informal requirement.
Four Kinds of Use Cases

- Actor-goal list
- Use case brief

- Casual use cases
- Fully dressed use cases

Help decide **design scope**
- What is in, what is out
- What is (not) a use case

Given to developers for them to know **what to build**

(Cockburn, 2000)
Actor-Goal List

- Primary actor always has a goal
- Must pick right level for goal
  - Use case for Amazon – buy a book
  - Higher-level goal – learn something, make someone happy
  - Lower-level goal – provide credit card info
- Goals should be on the same level
- Goal should be from point of view of primary actor
- Sort goals by primary actor
- Priority to designer of system, not to actors
<table>
<thead>
<tr>
<th>Actor</th>
<th>Task-level goal</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider</td>
<td>Submit paper claim</td>
<td>1</td>
</tr>
<tr>
<td>Provider</td>
<td>Submit fax claim</td>
<td>2</td>
</tr>
<tr>
<td>Provider</td>
<td>Submit electronic claim</td>
<td>3</td>
</tr>
<tr>
<td>Adjudicator</td>
<td>Adjudicate problem</td>
<td>2</td>
</tr>
</tbody>
</table>
Use Case Brief

• 1-6 sentence description of behavior
• Mention only most significant behavior and failures
• Short enough to put many on a page
• Used to
  • Estimate complexity
  • Find components to reuse
## Example Use Case Briefs

<table>
<thead>
<tr>
<th>Actor</th>
<th>Goal</th>
<th>Brief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider</td>
<td>Submit paper claim</td>
<td>Submit claim on paper, which is converted into electronic form, and either paid or sent for adjudication</td>
</tr>
<tr>
<td>Provider</td>
<td>Submit fax claim</td>
<td>Submit claim by fax, which is processed by OCR and either paid or sent for adjudication</td>
</tr>
<tr>
<td>Adjudicator</td>
<td>Adjudicate failed claim</td>
<td>Decide whether a questionable claim should be paid by the mainframe payment system or rejected</td>
</tr>
</tbody>
</table>
Casual & Fully Dressed

• Used to tell developers what to build

• “Casual” consists of normal paragraphs
• “Fully dressed” has labeled sections

• Both should emphasize “main success scenario”
• Both should include ways of failing
• One per page
Casual (Short) Version of Submit Fax Claim

The provider submits a claim by fax. The claim processing system will log the image to optical disk, apply form dropout, deskew, despeckle, and then process it using OCR. Knowledge workers will repair any fields that seem to be in error. The claim will then either be paid (using existing mainframe processing system) or sent to adjudication.
Fully Dressed Use Case: Template

X Flow of Events for the <name> Use Case

Primary actor:

X.1 Preconditions

What needs to happen (in another use case) before this use case can start?

X.2 Main flow

Triggers: Things that cause the use case to start

A numbered list of actions leading to success

X.3 Subflows

Break “normal” flow into pieces, “called” by Main Flow or another subflow

X.4 Alternative flows

Things that happen outside of the “normal” flow, “called” by Main Flow or a subflow

More simplified than a fully addressed use case in (Cockburn, 2000)
Example Use Case: Submit Fax Claim

**Primary actor:** Provider

**1.1. Preconditions**
None

**1.2. Main flow**

**Triggers:** Provider submits claim by fax

1. Provider submits claim by fax [S1]
2. Claim system conducts form dropout, deskewing, and despeckling, and uses OCR to convert to electronic form [S2][E1]
3. Claim system checks claim to make sure it is valid [S3][E2]
4. Mainframe payment system pays claim [S4]

**1.3. Subflows**

[S1]. ... [S2]. ... [S3]. ... [S4]. ...

**1.4. Alternative flows**

[E1]. Some fields have low confidence and then knowledge worker corrects these fields
[E2]. Claim is not valid and the claim system sends it to adjudication
Goals and Use Cases

- Actor has a **goal** for the use case
- System forms **subgoals** to carry out its responsibility
- Goals can **fail**

- **Use case** describes a set of ways for carrying out the goal, and several ways of failing
References

The End