Requirement Analysis and Specification – Storyboard, Sketches, and Lo-Fi Prototypes

Hui Chen [a]

[a]CUNY Brooklyn College, Brooklyn, NY, USA

March 7, 2023

Outline

Outline

Topics in Last Class

1. Overview of requirement engineering
2. Agile vs. traditional (plan & document)
3. An agile approach of requirement analysis
   - ▶ Behavior-Driven Development (BDD)
   - ▶ User stories (for requirement analysis, in ConnExtra format)
   - ▶ User stories map into testable scenarios – can use as acceptance test (in Gherkin format)

Today's Topics

Continue the discussion on requirement engineering for

▶ user-interface (UI) part of the requirements

What's our approach? – "Lo-Fi" sketches and storyboards

Outline

Building UI

- ▶ Android apps often require user-interactions
  - ▶ User stories need User Interface (UI)
  - ▶ How to get customer to participate in UI design so is happy when complete?
- ▶ Avoid the what-I-said-is-not-what-I-want UIs?
- ▶ Small index cards for UIs? (like user stories)
- ▶ How can we show interactivity without building a prototype?

UI Sketches

That is, sketch UIs in small index cards – "Lo-Fi" UI
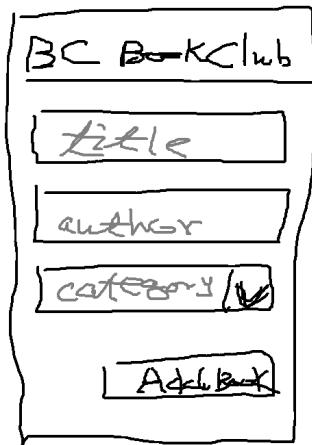
UI Sketches and Wireframes

That is, sketch UIs in small index cards – "Lo-Fi" UI

Wireframe: A visual representation screens of an interactive application that shows layout, types of informantion that are displayed, and elements of pointer-based navigation.

A wireframe is a sketch, although in general

```
Fidelity(sketch) < Fidelity(wireframe)
```

Outline

Storyboard

A storyboard is a communication tool used by application designers to map out and organize their project ideas before actually developing their application/program.

Storyboarding is the process of creating a sequence of screens, i.e., storyboards to provide an overview of the project, such as

▶ demonstrate the arrangement and functionality of the program elements, and

▶ delineate the program's navigation scheme.

Caveat: Storyboard is an overloaded term.

From UI Sketches to Storyboards and Lo-Fi Prototype

- ▶ Need to show how UI changes based on user actions
- ▶ Use "storyboards" to connect UI sketches and user interactions and app behavior
- ▶ Like scenes in a movie, but not linear (why?)
- ▶ Can lead to the creation of a Lo-Fi prototype (is there a difference?)
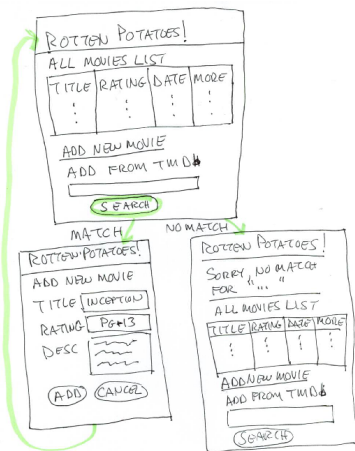
Example Storyboards and UI Sketches

Figure: from "Engineering Software as a Service" by Armando Fox and David Patterson (2nd Eds)

Why "Lo-Fi" Storyboards and UI Sketches and Prototypes?

Although tedious to create UI sketches and storyboards, they are easier than producing Android App UIs.

- ▶ Less intimidating to nontechnical stakeholders, as a result, developers and stakeholders
    - ▶ are more likely to suggest changes to UI if there is no code behind it, and
    - ▶ are more likely to focus on interaction rather than colors, fonts, ...

Delay some UI details like making it look nice later – do that when putting together the actual app and polish it

Outline

Tools

Tool examples: Figma (https://www.figma.com)

A range of tools ...

- ▶ Microsoft Paint
- ▶ Microsoft Word
- ▶ Microsoft PowerPoint
- ▶ Draw.io (https://draw.io)
- ▶ ...

Outline

1. Review for Last Class

2. Requirements: User-interface Design

3. Storyboards and Lo-Fi Prototypes

4. Tools

5. Online Tutorial

6. References

Tutorial Videos

Watch 1st 20 minutes together

https://youtu.be/3F4mWr1cY-8

You are welcome to watch the entire series in your own time.

https://youtu.be/WyXTT30YFjI

Questions

- ▶ Introduce a low fidelity method to elicit requirements about UI.
- ▶ UI sketches
- ▶ Storyboards and Lo-Fi Prototypes

Outline

"Engineering Software as a Service" by Armando Fox and David Patterson (2nd Edition)

"Essentials of Software Engineering" by Frank Tsui, Orlando Karam, and Barbara Bernal(4th Edition) (Section 7.3.5)