Lecture 5: Generating Designs

February 15
Recap

• Five usability attributes:
Learnability
Efficiency
Memory
Few errors
Satisfaction
Recap

Two goals of user and task analysis:

1. Understand **users**, their **tasks**, and the **context** of those tasks

2. Produce a set of **requirements**
Homework: Design 1

Due next Monday (Feb. 22) beginning of the class

1. Choose a user population
2. Analyze users
3. Analyze tasks
4. Make design sketches
Micro homework:

- Door (due last Monday)
- Stove
- Shower control
- Remote control
Homework: Implementation 2

Due: Monday two weeks from now (Mar. 1) beginning of the class
Project: Proposal

Due next Monday (Feb. 22) beginning of the class
Lecture 5: Generating Designs

February 15
This lecture

• Tasks
• Storyboard
• Sketches
• Widgets
• Design patterns
Tasks
Tasks

• Eat in the food court
• Get cash from the ATM
• Buy books from UBC
• Buy coffee from the Starbucks
• Study in the Green Room
• Send mails in the post office
• Socialize with friends in the Terp Zone
• Watch a movie in the Huff
Tasks

- Eat in the food court
- Get cash from the ATM
- Buy books from UBC
- Buy coffee from the Starbucks
- Study in the Green Room
- Send mails in the post office
- Socialize with friends in the Terp Zone
- Watch a movie in the Huff
Problem

• Too far
• Too many people
  – Long lines
  – Hard to find seats
Exploring the solution space

- Website?
- Mobile app?
- Software?
- Call center?
- Interactive kiosk?
- Digital sign?
- Snail mail?
Let’s build a website

• Main tasks
  – Order food for pickup
  – Order food for delivery
  – Reserve a seat

• Supporting tasks
  – Sign up for an account
  – Leave feedback
Describe tasks in more details

- Goal
- Preconditions
- Subtasks
Task: Order food for pickup

• Goal:
  – Pickup food (too superficial)

• Preconditions:
  – Must have registered an account

• Subtasks
  1. Browse the restaurants
  2. Select a restaurant
  3. Browse the menu
  4. Select an item
  5. Place an order
  6. Pay
Task: Order food for pickup

• Goal:
  – Get food without having to wait in line too long

• Preconditions:
  – Must have registered an account

• Subtasks
  1. Browse the restaurants
  2. Select a restaurant
  3. Browse the menu
  4. Select an item
  5. Place an order
  6. Pay
Task: Order food for delivery

- **Goal:**
  - Get food without having to walk to the STAMP

- **Preconditions:**
  - Must have registered an account

- **Subtasks**
  1. Browse the restaurants
  2. Select a restaurant
  3. Browse the menu
  4. Select an item
  5. Place an order
  6. Specify the deliver location
  7. Pay
Task: Reserve a seat

• Goal:
  – Get a place to sit without looking around in vain

• Preconditions:
  – Must have ordered food for pickup

• Subtasks
  1. Select a time slot
  2. Browse the seating chart
  3. Find an available seat
  4. Make a reservation
Storyboard
Why story board?

- Get feedback from users and colleagues
- Do sanity check: is this realistic?
- Help us think about the design
How to draw?

• Draw by hand instead of a drawing program
• Draw on papers or a whiteboard
• Draw in black and white
• Design your own symbols if you can’t draw something
Create scenarios

• Persona
  – Name? Gender? Age? Job? Eating habit?

• Context

• Tasks
  – How? Steps? Errors?
Steps

1. Browse the restaurants
2. Select a restaurant
3. Browse the menu
4. Select an item
5. Place an order
6. Pay
Examples
Examples

Tom goes to virtual Stamp Food Court.

Tom browses the list of restaurants & selects Sbarro.
Examples

System shows several pizza options. Tom chooses single slice.

System says the pizza will cost $10. Tom pays using his Visa.
Examples

15 minutes later

EatHere  Sbarro pickup
Design Sketch
A story board is a series of interactions

User → Computer

Tom searches the list of restaurants, selects Sbarro

User → Computer

System shows several pizza options, Tom chooses single slice

User → Computer

System asks for pizza, Tom says yes, Tom pays using his Visa
Example: Browse restaurants

1. **Browse the restaurants**
2. Select a restaurant
3. Browse the menu
4. Select an item
5. Place an order
6. Pay
Story board → design sketches
Each interaction involves an exchange of three messages

User

Prompt

Input

Feedback

Computer

UI
The content of each message

- **Prompt**: Computer $\rightarrow$ User
  - Instruction
  - Data

- **Input**: User $\rightarrow$ Computer
  - Instruction
  - Data

- **Feedback**
Example: Browse restaurants

1. Browse the restaurants
2. Select a restaurant
3. Browse the menu
4. Select an item
5. Place an order
6. Pay
What, how, when, and where?

1. Prompt (Computer $\rightarrow$ User)
   - Instruction
     • What? *You can browse all available restaurants*
     • How? *caption*
     • When? *always*
     • Where? *on top*
   - Data
     • What? *names of restaurants*
     • How? *list*
     • When? *always*
     • Where? *center*
What, how, when, and where?

2. Input (User → Computer)
   – Instruction
     • What? *filter the list*
     • How? *button*
     • When? *After the filtering criteria are entered*
     • Where? *Top of the page, next to the dropdown box for selecting filtering criteria*

   – Data
     • What? *Filtering criteria*
     • How? *dropdown box*
     • When? *always*
     • Where? *top*
What, how, when, and where?

3. Feedback (Computer → User)
   • What? *show the list is filtered*
   • How? “*shrink*” visual effect on items filtered out
   • When? *after the filter button is clicked*
   • Where? *center*
You can browse all available restaurants.

Type: Pizza

- McDonald
- Sbarro
- Panda Express
- Saladworks

Click then the list becomes

- McDonald
- Sbarro
- Panda Express
- Saladworks

Shrinks and disappears
Example: Browse restaurants

1. Browse the restaurants
2. Select a restaurant
3. Browse the menu
4. Select an item
5. Place an order
6. Pay
What, how, when, and where?

1. Prompt (Computer \(\rightarrow\) User)
   – Instruction
     • What?
     • How?
     • When?
     • Where?
   – Data
     • What?
     • How?
     • When?
     • Where?
What, how, when, and where?

2. Input (User → Computer)
   – Instruction
     • What?
     • How?
     • When?
     • Where?
   – Data
     • What?
     • How?
     • When?
     • Where?
What, how, when, and where?

3. Feedback (Computer → User)
   - What?
   - How?
   - When?
   - Where?
Widgets
Advantages

• Easy to learn

• Easy to program (not a usability reason)
Examples

- **Output (Computer → User)**
  - Instruction
    - Caption
    - Tooltip
    - Popup
    - Sound
  - **Data**
    - List
    - Tree
    - Table
    - Grid
Examples

• Input (User → Computer)
  – Instruction
    • Button
    • Keyboard
    • Mouse
  – Data
    • Text field
    • Text area
    • Radio button
    • Check box
    • Dropdown
Things to consider when choosing a widget

Output:
  – How many data items?
  – How much details?

• Input
  – Selection or open-ended?
  – Optional or required?
  – Single or multiple selection?
  – How many choices?
Event Details:

**What**: [Blank]

**When**: 2/6/2010 12:00pm to 1:00pm 2/6/2010

**Where**: [Blank]

**Calendar**: Tom Yeh

**Description**: [Blank]

**Reminders**:
- **Show me as**: Busy
- **Privacy**: Default

**Learn more about private vs public events**
Many UI widget libraries

• Flex widgets:

• Yahoo UI library:
Design Patterns
There are many well-established design patterns.

• Examples
  – Wizard
  – Center stage
  – Pagination
  – Tabbed pages
  – More …
Wizard

• Good for long, novel, or infrequent tasks

• But users sometimes just follow and may never learn

• So use Wizard for tasks not worth learning

Welcome to the DirectX10 for Windows XP - Win2000, 2003,... Setup Wizard

This will install DirectX10 RC2 Pre Rev. 3 on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.
Center stage
Pagination

Google

1 2 3 4 5 6 7 8 9 10  Next
Tabbed panels
Closable panels
Activity: STAMP outsourcing

- **Requester:** Get a chores done (send letters, buy books, withdrawal money)
  - Create a chore (type, destination, compensation … etc)
  - Schedule a pickup/delivery (location, time …etc)
- **Provider:** Do a chore for others
  - Browse all chores
  - View and accept a chore