People

Clients

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Team Members

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Bixia Si
Ruoyun Xu
Akrapon Alex Yuktanon
Objective: Prototype of a Peer Reviewing System

“Design a dashboard for a Peer Reviewing System that allows an instructor to assign submitted homework to peer graders, and to receive various types of information and statistics on the assessments that these peer reviewers deliver.”

- Instructor’s Dashboard
- Student Dashboard
**Methodology**

**PHASE I**
- Need Finding
  - Wants & Needs Analysis (Focus Group)
  - Affinity Diagramming and Personas
  - Low fidelity mockup (Balsamiq)

**PHASE II**
- User Studies
  - Interviews
  - Develop High Fidelity Mockup

**PHASE III**
- Usability Evaluation
  - Heuristic Evaluation
  - Update High Fidelity Mockup & Develop the Prototype
  - Usability Testing

**Final Prototype**
Wants and Needs Analysis - Results

- Two dashboards
  - Instructor’s
  - Students’
- Login page
- Assignment Parameters
  - Title
  - 3 Dates (release date, submission deadline, peer grading deadline)
  - Number of maximum marks
  - Number of peer graders
  - Instructions
  - Guidelines
Wants and Needs Analysis - Results

● Instructor Dashboard
  Functionalities
  ○ Set up assignment
  ○ Edit created assignments
  ○ Export student-score data sheet

● Student Dashboard
  Functionalities
  ○ Upload assignment
  ○ View the assignment parameters
  ○ View uploaded assignments
  ○ Grade peers
  ○ Status of the assignment
  ○ Set email reminders
our team used affinity diagramming to try to extrapolate the key concerns and values of both user groups, students and instructors.

- through our inquiry, we began to realize there were many underlying issues to consider in our designs:
  1) how would we make this system usable for students with special needs?
  2) how would we make it usable for students with low internet connectivity?
  3) how would we streamline the system for students who had procrastinated and needed to turn in the assignment just a few minutes before the deadline?
Personas

- our team developed a total of 8 personas- 4 instructors and 4 students
- we gave each persona different value judgements, perspectives, and priorities
- our goal was to develop a diverse set of personas that could address the needs of an exponential set of users
- Examples:
  - Student personas:
    1) always off campus with limited internet access
    2) special needs student
  - Instructor personas:
    1) not good with technology- wants simple and easy to use system
    2) a GenXer who used social media and wants to keep track of student performance through this peer grading system
Paper Prototyping

- we consistently reiterated our design with parallel prototyping in shared Balsamic wireframes and paper prototypes before creating high fidelity mockups

- some questions we began to consider during this design phase, particularly during paper prototyping sessions after more inquiry results surfaced, were:
  1) should we add additional functionalities in this system for Teaching Assistants?
  2) should we make our design responsive so users could access it through their smartphones or tablets?
  3) did students want feedback/comments on their assignments?
  4) what would be an effective way to organize the layout for instructors looking at hundreds of students in this system?
Low Fidelity Mockup
Interviews

- Initial user study
  - Descriptive, detailed opinions
  - Easier to manage

- Semi-structured
- In-person

- 4 instructors, 4 students
Instructor Interviews - Questions

- Prior experience with peer review
- Evaluation methods for courses
  - Number and types of assignments/exams
  - Grading scheme
- Expectations from a peer review system
  - Specific functions - Results, Deadlines
  - General suggestions
- Experience with EEE
Instructor Interviews - Findings

- Diversity in opinions and evaluation style
- Large class sizes major motivation for peer grading
- Peer comments more valued by students
- First drafts can be peer reviewed
- Hard vs. Flexible deadlines
- EEE is slow and complicated
Student Interviews - Questions

- Prior experience with peer review
- Assignment submission habits and difficulties
- Expectations from a peer review system
  - Specific functions - Reminders, Comments
  - General suggestions
- Experience with EEE
Student Interviews - Findings

● Comments essential - willing to write comments in return
● Clear grading guidelines required
● Fairness should be ensured
● Anonymity - Single vs. Double blind
● Clarity with deadlines; need reminders
● Score vs. Ranking
To be continued…
Previously on group 3’s presentation

**PHASE I**
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- Usability Testing

Final Prototype
1. Benefits;
   a. Less imagination
   b. Fast to design
   c. Better interaction
   d. Impressive

2. Preparation for prototype written in Html/CSS/JavaScript;
1. **Heuristic Evaluation Technique**
   - Methodology
   - Heuristics
   - Severity Ranking

2. **Major Findings**
Heuristic Evaluation - Technique

- **Methodology**
  - 3 evaluators
  - Evaluate individually

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Part II: Tasks For Instructors
1. Create a new exam named Exam 3
2. View full guidelines and instructions
3. Find and Click on the edit button of Exam 3
4. Click on the date and clock selector
5. Click on Number of Peer Graders selector
Heuristic Evaluation - Technique

**Heuristics** (Jakob Nielsen)
- Visibility of system status
- Use easily understandable features
- User control and freedom
- Be consistent and have standards
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Simple but aesthetic design
- Help users recognize, diagnose, and recover from errors
### Severity Ranking

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td><strong>Violate a heuristic</strong> but does not seem to be a usability problem.</td>
</tr>
<tr>
<td>1</td>
<td><strong>Cosmetic problem</strong> or <strong>Superficial usability problem</strong>: may be easily overcome by user or occurs extremely infrequently.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Minor usability problem</strong>: may occur more frequently or be more difficult to overcome.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Major usability problem</strong>: occurs frequently and persistently or users may be unable or unaware of how to fix the problem.</td>
</tr>
<tr>
<td>4</td>
<td><strong>Usability catastrophe</strong>: serious impairs use of product and cannot be overcome by users.</td>
</tr>
</tbody>
</table>
Heuristic Evaluation - Major Findings

- Instructor side
  
  Issue 1: Naming conventions inconsistent (exam vs assignment)  
  severity: 3

  Issue 2: Edit button confusing, should add text to icons  
  severity: 3
Heuristic Evaluation - Major Findings

● Student side

Issue 1: Delete icon should disappear/greyed when assignment submission deadline is over

severity: 4
Heuristic Evaluation - Major Findings

- **Student side**

  **Issue 2:** Reminder settings are hard to find

  severity: 4
Heuristic Evaluation - Major Findings

● Student side

Issue 3: “Review online” link name confusing
severity: 3
Prototype/Bootstrap Version

1. **Benefits:**
   a. a real product as the interface of the system;
   b. great interaction;

2. **Languages:**
   HTML/CSS/JavaScript

3. **Difficulties:**
   a. knowledge about front-end coding;
   b. Some features need self implementation or reuse of free components;
Prototype/Bootstrap Version

Examples:
1. Instructor Homepage
2. Student Homepage
3. Online Review Page for students
Prototype/Bootstrap Version

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Examples:
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Prototype/Bootstrap Version

Our ideas are still coming…

Vertical Timeline View
Prototype/Bootstrap Version

Our ideas are still coming...

Vertical Timeline View
Instructor User Testing - Setup

- **Goal**: Create a task list for the test plan and observe users to find qualitative problems with the design
- **Participants**: 3 Instructors and 1 more upcoming
  - 2 Professors at ICS
  - 1 TA at EECS
- **Specific Scenarios given**
- **Screen Recording**
- **Time to completion and Comments logged**
- **2 different designs used for testing**
Instructor User Testing - Tasks

- 10 Tasks given
  - Logging in to the dashboard
  - Creating a new assignment for students.
  - Editing an existing assignment (i.e., dates, instructions, etc)
  - Deleting an existing assignment.
  - Downloading all of assignments in zip format.
  - Exporting the submission data in csv.
  - Finding and viewing a specific assignment.
  - Looking up for an upcoming review deadline.
    - 2 Views: Original design and Vertical Timeline Design
  - Changing the course
  - Logging out from the dashboard
Instructor User Testing - Findings

● Easy to complete Tasks
  ○ Signing in and out
  ○ Looking for an upcoming deadline
  ○ Changing courses

● Difficult to complete Tasks
  ○ Setting up the time using time picker
  ○ Deleting assignments
Instructor User Testing - Findings

● Improvements/Suggestions
  ○ Release Immediately button
  ○ Better distinction/visualization of Export and Download buttons
  ○ Better way to set up the time for deadlines
Student User Testing

● Goal: To improve student screen design and compare the List view with Timeline view. Why two views?

● Participants:
  ○ 5 Students from INF 261 class.
  ○ Our participants did not have much experience.

● Specific Scenarios given

● Screen Recording

● Time to completion and Comments logged
Student User Testing - Tasks

9 Tasks given

- Logging in to the dashboard
- Submit an assignment.
- Download/view an assignment.
- Set Reminders
- Find an assignment that was submitted 2 weeks ago.
- Change the class to view assignments of a different class
- Find the status of an assignment.
- Peer grade and
- Logout
Student User Testing - Brief Analysis

- Reminder option was not in context.
- Problems with glyphicons
- “Too much thrown on one screen”
- “This drop-down doesn’t look like a drop-down”
- Divided on which view is better. (2:2) and one user said they were not sure.
- “I kinda like the first view better because that is what i used first”
- Unintentional Bias.
Student Dashboard

INF 231 - User Interface Design and Evaluation

Midterm Exam

Release: February 23, 2015 06:00 AM

Submission: February 28, 2015 11:59 PM

Peer Grading: March 10, 2015 11:59 PM

Status: Submit Assignment

Upload Assignment: Choose File No file chosen

Submitted Assignment: None

Submit

Homework 2 - Fitts's law
Alternative Version

Student Dashboard - Winter 2015

Homework 1- HCI Principal
Submission deadline
Assignment submitted on 23rd January 11:50 p.m
- View Scores
- View Assignment
Museum ipsum sedulis, vida utro aborta.setData adipiscing elit. Pra is ,
depoilis porta, paradis. Falsis, filhis, espirit sia santis.

25th

Homework 1- HCI Principal
Peer grading deadline
Peer grades submitted on 24th January 8:00 p.m
- View Peer Assignments
Museum ipsum sedulis, vida utro aborta. setData adipiscing elit. Pra is ,
depoilis porta, paradis. Falsis, filhis, espirit sia santis.
# Final Timeline and Assignments

<table>
<thead>
<tr>
<th>Week</th>
<th>Tasks</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 6</td>
<td>User Research: Interviews</td>
<td>Kartik, Bixia, Charu, Alex, Anirudh, Mira</td>
</tr>
<tr>
<td>4 - 6</td>
<td>Design / Prototype</td>
<td>Yuwei, Ruoyun, Dahlia, Irena</td>
</tr>
<tr>
<td>7 - 8</td>
<td>Usability Evaluation: Heuristic Evaluation</td>
<td>Bixia, Charu, Kartik, Irena, Yuwei, Ruoyun</td>
</tr>
<tr>
<td>7 - 8</td>
<td>Update Design / Prototype</td>
<td>Anirudh, Mira, Alex, Dahlia</td>
</tr>
<tr>
<td>9</td>
<td>Usability Evaluation: Usability Testing</td>
<td>Anirudh, Mira, Alex, Kartik</td>
</tr>
<tr>
<td>9</td>
<td>Finalize Design / Prototype</td>
<td>Kartik, Bixia, Alex, Anirudh, Mira</td>
</tr>
<tr>
<td>9</td>
<td>Pre-Final Presentation</td>
<td>All</td>
</tr>
<tr>
<td>10</td>
<td>Report</td>
<td>All</td>
</tr>
</tbody>
</table>
# Upcoming Tasks for Final Report

<table>
<thead>
<tr>
<th>Sections for Report</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Overview</td>
<td>Irena</td>
</tr>
<tr>
<td>Wants and Needs Analysis</td>
<td>Charu</td>
</tr>
<tr>
<td>Affinity Diagram and Personas</td>
<td>Dahlia</td>
</tr>
<tr>
<td>Low Fidelity Mockups</td>
<td>Bixia</td>
</tr>
<tr>
<td>User Studies: Interviews</td>
<td>Kartik</td>
</tr>
<tr>
<td>High Fidelity Mockups</td>
<td>Yuwei</td>
</tr>
<tr>
<td>Usability Evaluation: Heuristic Evaluation</td>
<td>Ruoyun</td>
</tr>
<tr>
<td>Prototype (Bootstrap version)</td>
<td>Yuwei</td>
</tr>
<tr>
<td>Usability Evaluation: Usability Testing (Instructors)</td>
<td>Mira</td>
</tr>
<tr>
<td>Usability Evaluation: Usability Testing (Students)</td>
<td>Anirudh</td>
</tr>
<tr>
<td>Final Prototype</td>
<td>Alex</td>
</tr>
<tr>
<td>Timeline</td>
<td>Mira</td>
</tr>
<tr>
<td>Future Works</td>
<td>Alex</td>
</tr>
</tbody>
</table>
# Project Checklist

<table>
<thead>
<tr>
<th>List</th>
<th>Status</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design a dashboard for a peer reviewing systems that allows instructors:</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>➢ To assign submitted homeworks to peer graders</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>➢ To receive various types of information on the assessments that these peer reviewers deliver.</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>➢ To receive statistics on the assessments that these peer reviewers deliver.</td>
<td>-</td>
<td>Our clients will calculate statistics on their secret algorithm.</td>
</tr>
<tr>
<td>Mock up the system and solicit feedback from the customers and other instructors.</td>
<td>95%</td>
<td>One more user testing with an instructor.</td>
</tr>
<tr>
<td>Implement a revised prototype that can ideally be further developed into a working system.</td>
<td>85%</td>
<td>Have to improve the prototype based on all results from user testing.</td>
</tr>
</tbody>
</table>
Future Work

- Back-end of the system.

- Full scale user testing on fully working prototype.

- Test run with an actual class (both real instructor and real students that have used other kind of peer review for this class) on the final working system.

- Combine our client’s secret algorithm allowing our system to calculate scores without exporting first.

- Become a number one leading software in peer review business, which is our clients’ dream.