Student Registration System Redesign

Project Overview

Kevin Yeung
Student Information Systems

8/1/2016
Project Overview

- Goals of project
- Evaluating different technologies
- Design/ Prototyping/Proof of concept
- Putting in new development/Continuous integration environment
- Implementation
- Timeline
Project Completion % vs Project Time
Balancing the competing project constraints:

- Scope
- Quality
- Schedule
- Budget
- Resource
- Risks
Cost and Risk/Uncertainty over time
User interface changes have led to positive student behavioral outcomes including:

- 348% increase in students adding an emergency contact address!
- 15% to 20% decrease in the number of paper study list change petitions filed due to the new user interface preventing students from making mistakes during registration
- 38% increase in students updating address information; ensuring mailings are sent to the correct address
- 75% increase in students entering their expected graduation term
- 42% increase in students entering or updating a secondary e-mail address
Student Registration System Redesign

User Interface Design

Lisa Dong
Student Information Systems
User Interface Design Process

- Review current system
- Main purpose of site
- Consolidate and reorganize
- Investigate design approaches
- Discussion with other departments
- Focus Groups
- Feedback
- Redesign and Release
- Continuous Improvement
### Review Current System - Summary tab

#### Key information
- Curriculum
- Holds
- Units filed
- Deadlines
- Balance due
- Address
- Degree Information
- Email
- Privacy Settings

#### Secondary information
- Link to Financial Aid
- Residency Information
- Registration Information
- Registration to vote

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**Jane Smith**

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum</th>
<th>Holds</th>
<th>Study List</th>
<th>Balance Due</th>
<th>Cal Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter 14</td>
<td>Dent Postgrad*</td>
<td>1 Holds</td>
<td>8.0 Unit(s) Filed</td>
<td>N/A</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Changes by petition only after Jan 24</td>
<td></td>
<td></td>
<td>Payment Deadline: January 22, 2014</td>
<td>Late fee after January 16, 2014</td>
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<tr>
<td>Winter 14</td>
<td>Or CranFacSci</td>
<td>1 Holds</td>
<td>2 Courses(s) Filed</td>
<td>Yes</td>
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<td>Changes by petition only after Jan 24</td>
<td></td>
<td></td>
<td>Payment Deadline: January 22, 2014</td>
<td>Late fee after January 16, 2014</td>
</tr>
</tbody>
</table>

Enrolled in 'Articulated Dentistry Program' in Winter 14.

<table>
<thead>
<tr>
<th>Term</th>
<th>Curriculum</th>
<th>Holds</th>
<th>Study List</th>
<th>Balance Due</th>
<th>Cal Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 14</td>
<td>Dent Postgrad*</td>
<td>1 Holds</td>
<td>Not Completed</td>
<td>$0.00</td>
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<tr>
<td></td>
<td>Enroll in at least 4.0 units by 02/28/2014</td>
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<td>1 Holds</td>
<td>Not Completed</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Enroll in at least 1 course by 04/18/2014</td>
<td></td>
<td></td>
<td>Payment Deadline: April 8, 2014</td>
<td></td>
</tr>
</tbody>
</table>

Enrolled in 'Articulated Dentistry Program' in Spring 14.

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**Address & Phone:**

500 Parnassus  
San Francisco, CA 94143  
(415) 555-5555  

Please provide emergency contact information.

**Degree / Level Information:**

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Current Level</th>
<th>Degree Objective</th>
<th>Expected Graduation Term</th>
<th>Graduation Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentistry</td>
<td>Masters</td>
<td>cert</td>
<td>Spring 15</td>
<td>Spring 12</td>
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<tr>
<td>Dent Postgrad</td>
<td>Masters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Or CranFacSci</td>
<td>Certificate</td>
<td>MS</td>
<td>Spring 15</td>
<td></td>
</tr>
</tbody>
</table>

**E-mail Addresses:**

-Secondary E-mail: dudeavid2@yahoo.com

**UCID Number:**

What's this?

For additional security, we hide your UCID number from plain view. To view, highlight yellow "i" icon to the right.

**Privacy Settings:**

<table>
<thead>
<tr>
<th>Privacy Setting</th>
<th>Do Not Release</th>
<th>Do Not Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Address</td>
<td>Do Not Release</td>
<td>Do Not Release</td>
</tr>
<tr>
<td>Local Phone</td>
<td>Do Not Release</td>
<td>Do Not Release</td>
</tr>
<tr>
<td>Permanent Address</td>
<td>Do Not Release</td>
<td>Do Not Release</td>
</tr>
<tr>
<td>Permanent Phone</td>
<td>Do Not Release</td>
<td>Do Not Release</td>
</tr>
<tr>
<td>Primary E-mail Address</td>
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<td>Do Not Release</td>
</tr>
<tr>
<td>Secondary E-mail Address</td>
<td>Do Not Release</td>
<td>Do Not Release</td>
</tr>
</tbody>
</table>

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[Student Registration System Redesign](#)
Main Purpose of Site

- Asked what do students primarily come to our site for?
  - Enrolling in classes
  - Paying fees
Consolidate and Reorganize – 3 tabs into 1

Summary tab
- Address
- Email
- Privacy Settings

Address tab
- Mailing Address
- Permanent Address
- Past address
- Emergency contact

Privacy Settings
- Privacy information
Investigate Design Approaches

- Searched other websites
  - Asked how to other sites handle functions and displays?
    - Looked for common practices
- Mobile first approach
  - Simplify and minimize
  - Intuitive design
- Consult with SAA Communications
  - UCSF Branding
Discussion with Others Departments

- Asked what are their pain points?
  - Getting updated information: address, emails, …
  - Clearing holds
  - Knowing when students were graduating
  - Getting information to students
- Asked what might future look like?
- Lead us to think…
  - This system could be viewed as a portal or gateway for all information related to students
    - A one stop shop despite operating independently
Initial Design – Landing Page

Registration

Financial Aid

Student Health

Required Task
- Holds: 2
- Immunization Requirements
- Financial Aid Form 1
- Pay Deposit
- Uc Ship Wavier Application

Other Task
- Upload WelID
- Item 1 (Register to Vote)?
- Item 2
Focus Groups

- Built enough to be interactive
  - Landing page, Summary, Study List, Profile
  - Provide actual copy of data to investigate
- Team observe and discuss with users
  - Able to see how students were looking at system
  - Able to see bugs encountered, missed by our QA
  - Able to see issues with various browsers and devices
- Request for further feedback
  - Willing to participate
  - Individual willing to devote extra time
Feedback

- Students …
  - Liked landing on old registration summary page
  - Could not find their personal information
  - Used system to view UCID number
  - Links to other sites commonly needed for life at UCSF
    - Course catalog, Moodle, Illios…
Release – Redesigned Registration System
Continuous Improvement

▪ Review and Streamline workflows
  • Separate unrelated process
  • Remove irrelevant steps and reordering the workflow to make sense

Example: Transcript ordering

http://saa-10.ucsf.edu/sautter/
Student Registration System Redesign

Back-end Technology

Alex Siu
Student Information Systems

8/1/2016
Issues with Legacy Code

- JSP
  - Business logic was mixed with presentation
  - Unable to reuse the code
  - Duplicate code
  - Difficult to maintain
  - Unable to test

- Data
  - Model relationships were unclear
  - Redundant queries for CRUD operations for different tables
New Design

- JSON service based backend
- Single page application
- Clear relationships between objects
- ORM
- Separation between front-end and back-end
- Replaced Ant with Maven
- Generated code
JSON model file → Code generator → Java beans
Pros and Cons of Code Generation

- **Pros**
  - Eases maintenance burden of data model
  - Database mappings and annotations are standardized
  - Centralized location for technology changes

- **Cons**
  - Regenerate code when there are changes to the model
Continuous Integration

- Atlassian Bamboo
  - Deploys generated code to repository for developer’s to use
  - Runs over 500 unit and integration tests
  - Handles QA and production deployments to Tomcat
Student Registration System Redesign

Front-end Technology

Garland Woo
Student Information Systems

8/1/2016
Front-end Technology

- JavaScript
- Bootstrap
- jQuery
- HTML
- CSS
Pros and Cons of JavaScript

Why JavaScript?

- **Pros**
  - Use client side processing
  - JSON Transformation
  - AJAX
  - Event handling

- **Cons**
  - Code transparency
  - JavaScript compatibility between browsers
Pros and Cons of Bootstrap

Why Bootstrap?

- **Pros**
  - Widely used and supported
  - Responsive grid layout
  - Already defined templates/design
  - Consistent across browsers

- **Cons**
  - Looks similar to other websites
  - Customizing workarounds
Pros and Cons of jQuery

Why jQuery?

- **Pros**
  - Well documented / Good documentation
  - Cross browser compatibility
  - Easy manipulation of elements
  - Simplified Code
    - Ajax, Events
- **Cons**
  - Not as fast as native code
  - Spaghetti code / lack of structure
Challenges

- Browser compatibility
  - JavaScript functionality and conformance may differ between browsers
  - Customizing CSS
- Third party libraries
  - New version, deprecation and updates
Student Registration System Redesign

Questions?

sis@ucsf.edu