The JanDY Survey System

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The JanDY Survey System
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Introduction
The JanDY Survey System is Hope College’s proprietary survey creation, editing, and completion software. It is currently used primarily in the administration of Hope’s Student Assessment of Learning & Teaching (SALT) surveys. JanDY was created to allow potentially sensitive data regarding the college community to be stored on a Hope-owned database instead of being controlled by an outside company.

Summer 2016 Additions
• New question types and new interface
• User interface for creating and editing surveys
• Improved test suite

Tools
AngularJS is a JavaScript framework that allows the Model-View-Controller design pattern to be used with HTML and JavaScript. This means that the program is divided into three parts: data, user interface, and data manipulation logic to be independent from one another.

To apply consistent styling throughout JanDY, we used a language called Sass. Sass is compiled to CSS. It has many advantages over CSS, such as allowing for class inheritance, calculations in the style rules, and variables to track values.

JanDY uses Bower and Maven to manage the project’s files. Bower is used for frontend JavaScript dependencies, such as jQuery, LoDash, TinyMCE, and Bootstrap. Bower automatically downloads and organizes the files that JanDY needs to function.

Maven is a project manager that ensures that Java projects on the backend are properly linked to one another.

JanDY runs on a Tomcat server. The server-side code is written in Java and consists of numerous HTTP servlets. As users navigate JanDY, the browser sends requests to the server based on what the user is doing. Specific calls to the server are mapped to different HTTP servlets, which interact with the database in the necessary way and return the necessary information to the client.

We coordinated our work on PivotTracker, which is a website that allows development teams to keep track of tasks that need to be completed and who is working on what. We used SourceTree to manage our code base, which allowed us to work on separate computers and push changes that we made to a central repository for the rest of the team to access.

Testing
While developing JanDY, we practiced test-driven development, meaning whenever possible, we wrote unit tests first and then the code that would be tested. This created a comprehensive suite of unit tests which allowed us to make changes to our code with confidence.

Front-end Testing
We used Karma to run tests written using the Jasmine testing framework to test our JavaScript. Jasmine’s system for mocking HTTP calls and spying on functions allowed us to test our system even though it runs asynchronously.

Back-end Testing
We wrote JUnit tests to test our server-side Java code, taking advantage of the Mockito testing framework to mock database interactions. This allowed us to test our backend code without relying on the execution of database calls.

Continuous Integration
We implemented continuous integration on this project using Codeship, allowing for all of our tests to be run each time we pushed new changes to the repository. This made sure we were always aware of any broken code and prevented it from being pushed to the live version. It also helped us catch any test failures not occurring on local versions of the project.

Question Types
JanDY allows for many different types of questions to be used for its surveys. There are five types of questions, each of which allows for numerous configurations to suit the survey creator’s needs.

Multiple Choice:
A standard question type, where the user selects a choice from a list. The list can be displayed as either a set of choices or as a dropdown menu. Multiple choice questions can also allow more than one answer to be selected.

Grid:
A question similar to multiple choice, but where many questions have the same choices.

Slider:
A new question type that allows the user to indicate their response along a scale. The slider can be configured to snap to labels or allow continuous movement along the scale. There is also a numerical version, which includes an input box to enter a specific number.

Ranking:
A question that allows users to drag and drop choices into an order they choose based on importance. The first type has a single list, where all the choices given are part of the answer. The other style allows limiting the amount of choices included in the ranked answer. This could be used for a ‘pick your top 3’ question type, for example.

Free Response:
A question that allows the user to enter text. The text can be limited in length, and there is the option to allow for a rich text editor, where the user can style their response.

Survey Creation Wizard
In past iterations of JanDY, there was no interface for creating a new survey. This summer, we created a wizard to walk users through the survey creation process.

Steps of the wizard include:
• Choosing a template survey to base the new survey on
• Setting basic information about the survey, such as its name, description, start and end dates, and whether or not users’ responses are anonymous
• Setting messages that are displayed to the user, such as the login prompt and the message displayed upon completion of the survey
• Specifying who can take the survey and how they should log in

Future Work
• Finishing survey creation and editing
• Making the system more accessible with screen reader compatibility
• User testing to ensure ease of use
• Improving the experience of mobile survey completion

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