The Problem

Background

STEM Academy is a self-funded Program, so they rely on grants, as well as business or personal donations to continue to offer quality programming and to provide scholarship opportunities for those who otherwise could not afford to participate.

To secure these grants and to improve camps they collect information from the students through the use of surveys.
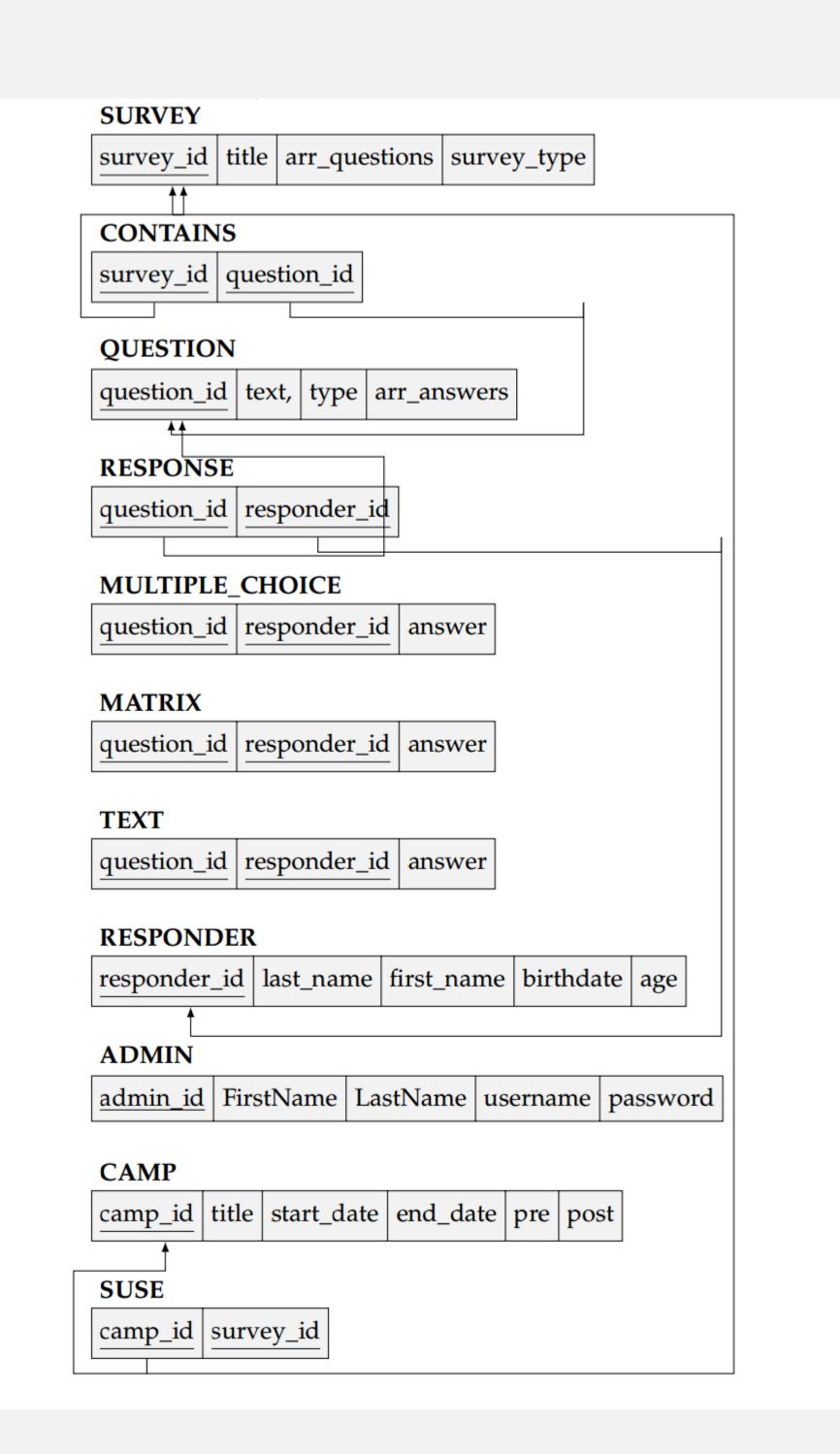
These surveys were done by hand and were not tabulated because there was too much to go through by hand.

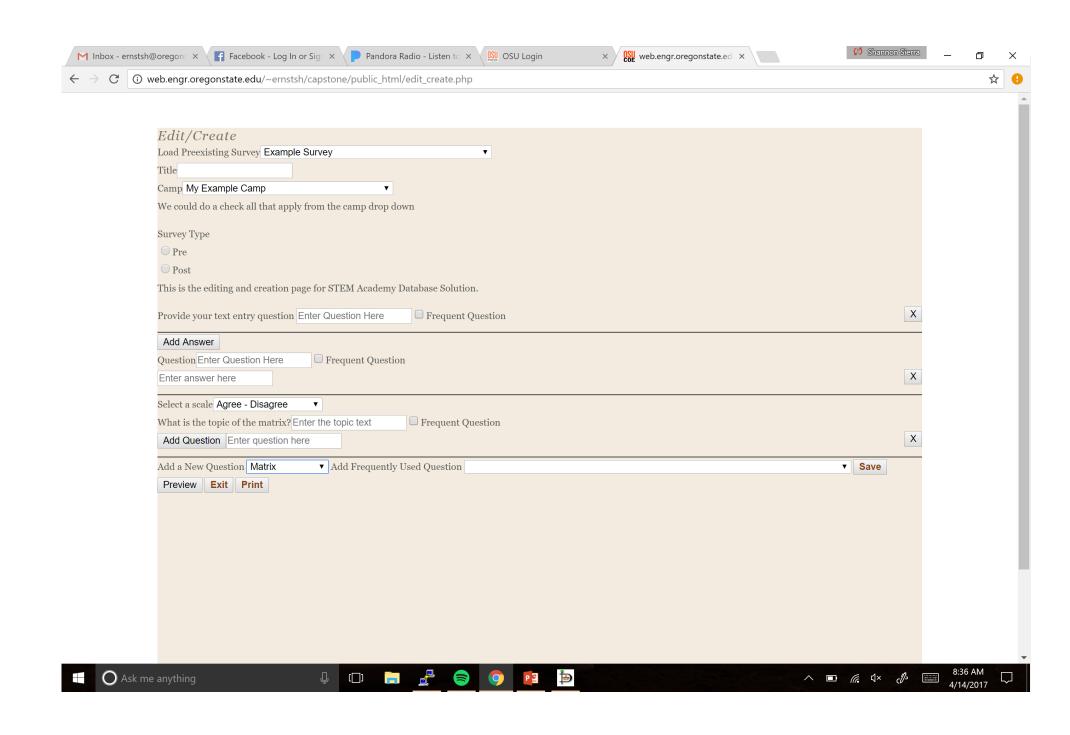They contacted CS Capstone to get a database solution.

Requirements

The system need to:
• Generate surveys
• Collect survey responses
• Allow for quick data analysis
• Allow for report generation
• Allow for reuse of surveys
• Allow for printing of surveys and reports

STEM Academy Data Solution

The Solution

Survey Generation

Parts:
• Edit and Create Surveys by:
  • Adding new custom questions of three types
    • Multiple Choice
    • Matrix
    • Text Entry
  • Load previously used questions
  • Delete and Reorder questions
• Preview Survey
  • By pulling information from the create survey screen to create a json object we can generate HTML
  • We utilize the power of DOM manipulation to actively change the HTML to reflect changes
• Take a Survey
  • Students select their camp and name from a drop down menu
  • They are provided with a survey based on the camp and date
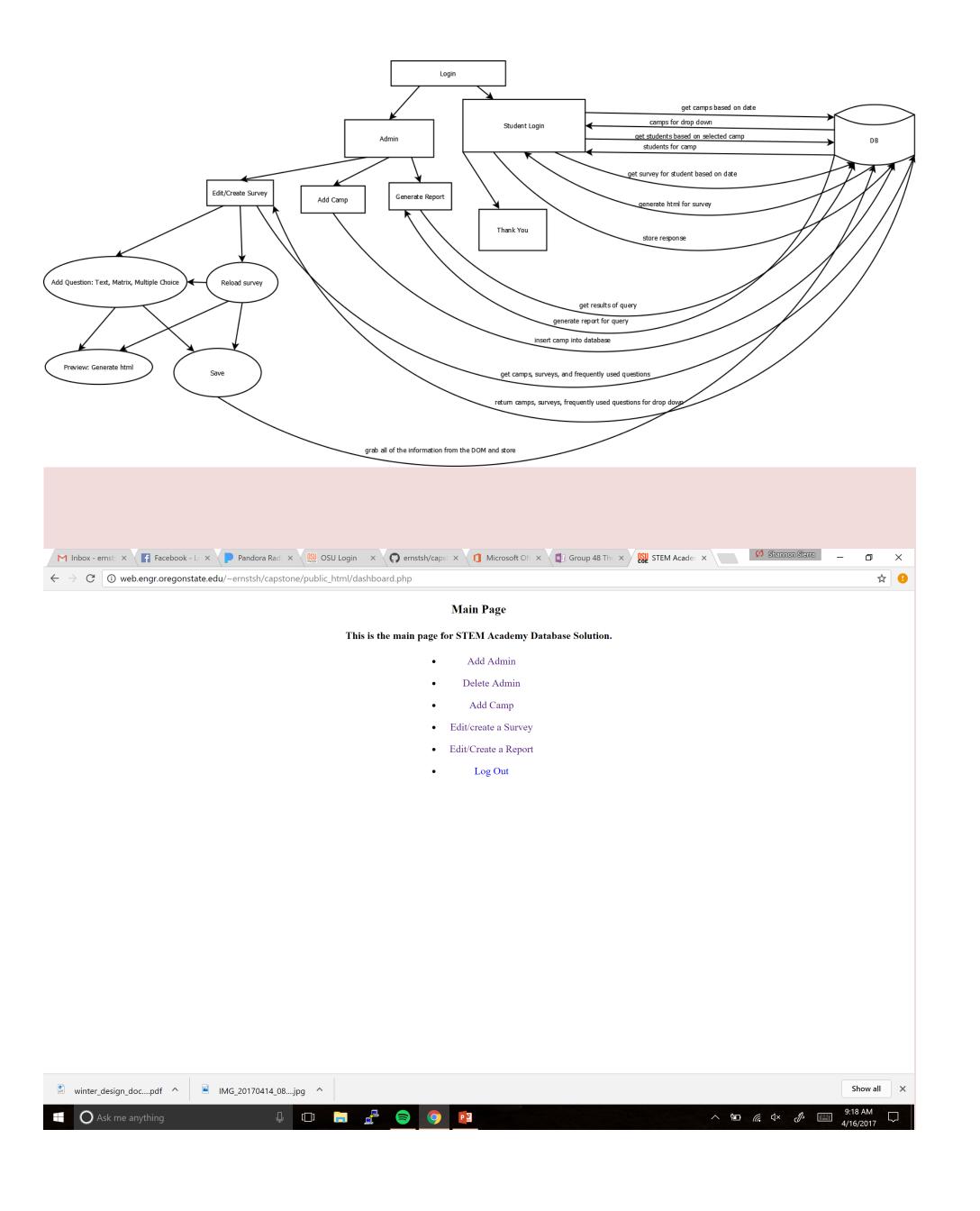
Database

The STEM Academy Data Solution uses a database to store the information necessary for its other two components of survey generation and report generation. The database is organized into tables containing information on Surveys, frequently used Questions, the Camps STEM Academy puts on, students taking the surveys as Responders, the Responses given for different questions on surveys, and other miscellaneous tables.

The database is generated in MySQL.

Report Generation

Editing and Creating a Report:
• Two drop downs are used for selecting the name of the camp and the survey
• Radio buttons are used for selecting the survey type which include pre, post, and both
• Querying:
  • There are two query template options for querying information:
    • A regular template that consist of two drop downs for selecting a survey question and a response
    • A change in response template for finding the students that changed their response from a pre to a post survey
  • Result types for a query result include:
    • Count
    • Percentage
  • Student and demographic information available for refining a query result.
• Report Form:
  • Title option
  • Query results allow for captioning
• DOM manipulation is used for changing the HTML for displaying query results and also reflecting the user's decisions for querying a survey for a camp
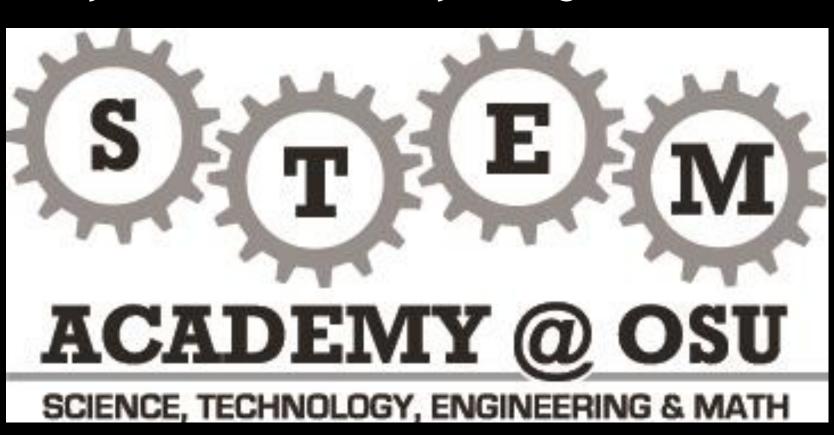• Report JSON object is used for generating the HTML for editing and saving report

Meet the Team

Team
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Client
· Cathy Law
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About the STEM Academy
• Engages K-12 youth in programs designed to increase college attendance and participation in the STEM fields.
• Broaden participation of underrepresented groups (women, underrepresented minorities, low-income, rural, first-generation, homeless, and disabled) in STEM fields.
• Maintain year-round programs for K-12 students aimed at increasing college enrollment, retention, graduation rates, and life-long learning.
• Establish and maintain STEM partnerships within the state and across the nation to offer high quality STEM programs based on researched best practices.
• Provide various mentoring programs for youth in the early stages of their STEM exploration.
• Emphasize STEM endeavors that promote social equity.

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