Student Polling App

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Project Objective:

The objective of my project is to create an interactive web application for students and instructors to allow for a more interactive and engaged classroom as well as providing data on how well the students are understanding the concept taught while also providing a resource for students to look back on to study.

Problem Specification:

The student polling app is made to keep students engaged and interactive in the classroom. The web application will allow students to sign into classes and answer questions posted by the instructor as class goes along.

The instructor can take a screenshot of their screen and upload it in order to display its contents to the students. Then the instructor can choose the type of question it is such as multiple choice and short answer and the students will receive the image on their end as well as the option to answer the question. Afterwards the answers will be displayed anonymously to the instructor and then they can choose which of the answers are correct and the question will be saved for reference. The answers are originally outputted anonymously so they instructor can share all of the answers with the class, but anyone with access to the database will also be able to see who exactly gave which response when looking for more details.

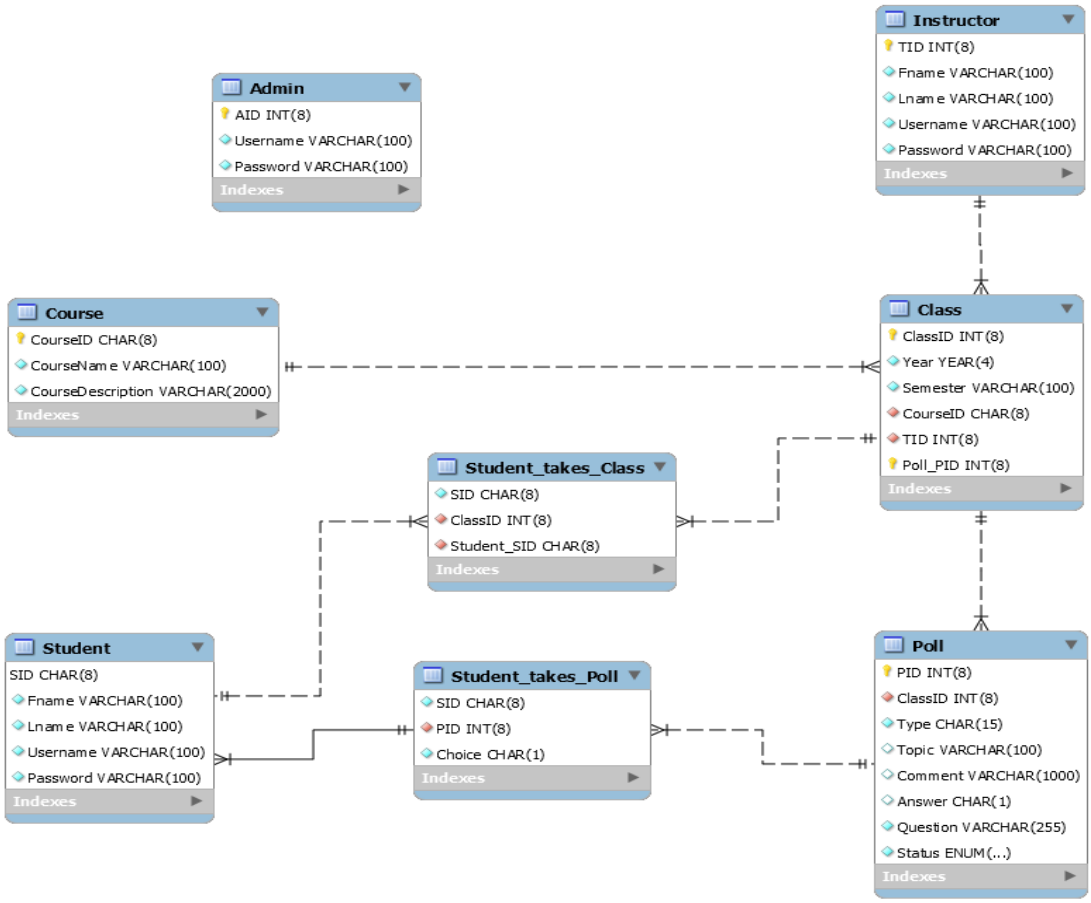
Since every question is automatically saved, both the instructors and students can use the web application at home in order to see how they responded to every question and what the correct answer is in order to study.

The web application will use each students SSU login in order to keep track of them and sign into class in order to keep track of grades and attendance. Each course will be separated into classes that each have a unique code in order to differentiate the classes form each other.

The web application currently has two separate types of users with different permissions or privileges to use the app. The Student user will have the least amount of permissions only being allowed to view the classes they are in and their own answers. The Instructor user will be able to create and delete classes, view all the classes they teach, be able to upload and create questions.

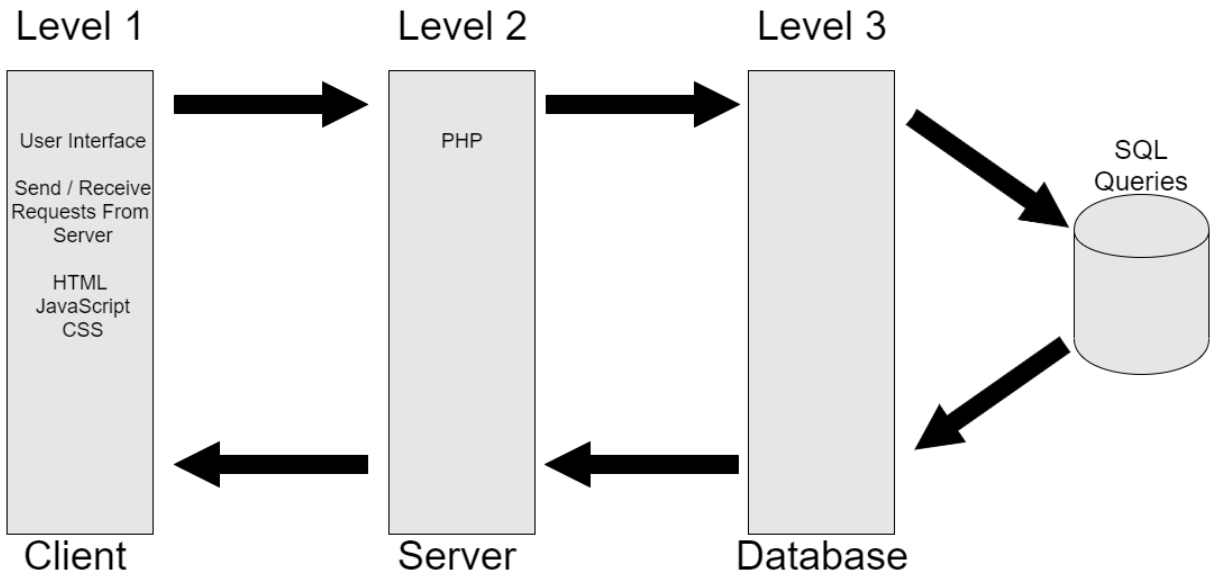
Solution Designs:

ERD:



The ERD shows the information of each of the tables in the database. Each of the rectangles are the tables and the lines that connect to them are the relationships in Crows Foot Notation. Each table with a yellow icon next to the top column contains a primary key while any table without a primary key is a linking table. The linking tables are used so they can connect the information between them while also showing how they correlate for each other. So, for instance the Instructor table connects to the Class table through Instructor_teaches_Class. These connect 1 to many since 1 instructor can teach many classes but each class is only taught by one instructor.

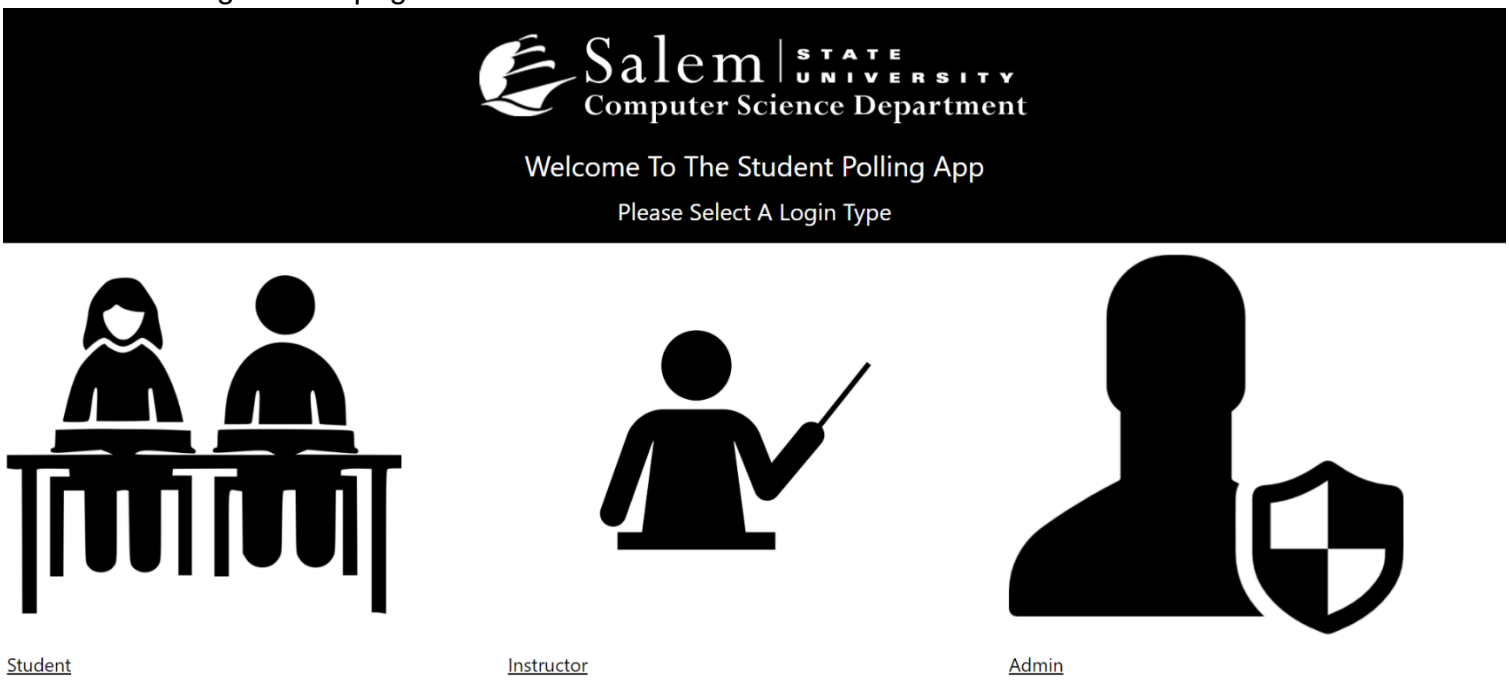
System Architecture:



The system architecture shows how my three-layer architecture is being used. The first level is the client level. This level is what the user sees and does, it has the information that the browser needs in order to display the site to the user and sends and receives requests from the user to the server. The second level is the server that it is stored on, this is where the PHP code is handled. Lastly, level 3 is the database where all of the information is stored, the database can send SQL queries to get information and send it back to where it is needed. All of these levels can send and receive information with each other and are needed in order for the web application to be functional.

Features

- Login Homepage:



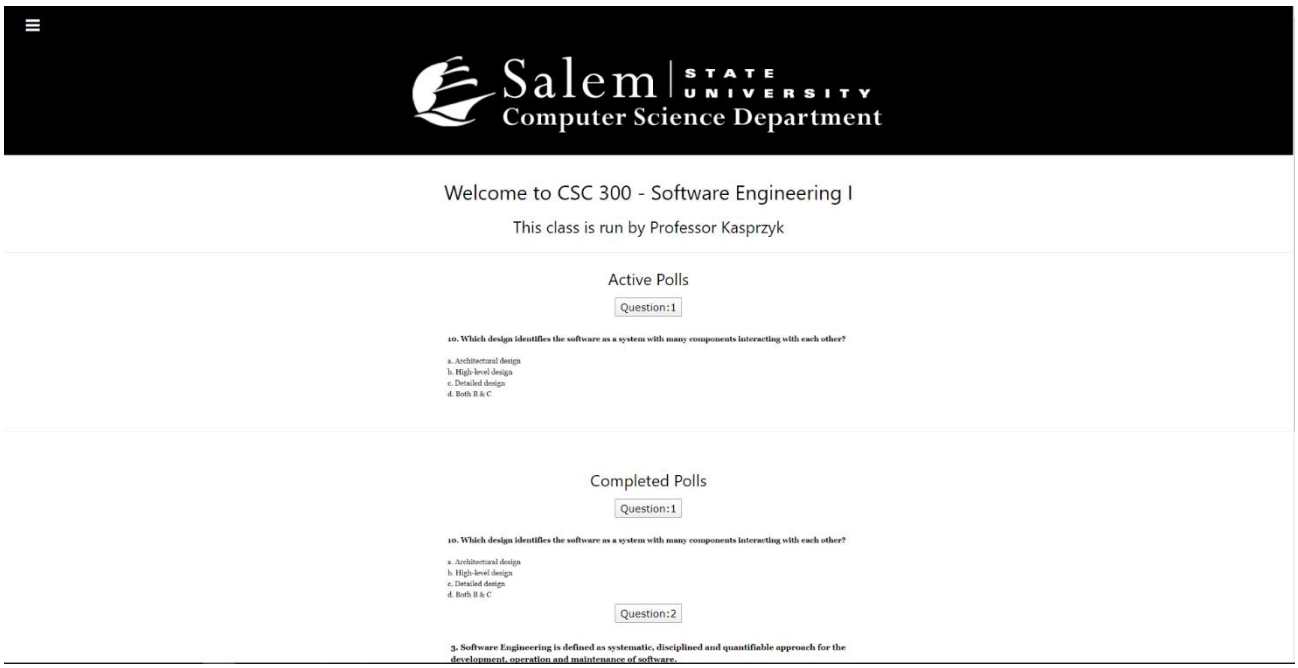
- Instructor Homepage:

- Instructors Class:

- Instructors Poll

- Students Home

- Students Class



- Students Poll

- Archived Poll

10. Which design identifies the software as a system with many components interacting with each other?

a. Architectural design
b. High-level design
c. Detailed design
d. Both B & C

Your Answer: A

Correct Answer: A

Post-Mortem

I was able to gain a greater understanding of what I have learned over the past 4 years of being a student at Salem State including scripting techniques, database design and GUI design that is easy for the everyday user to understand.

I have also officially developed my first web-application from scratch from backend to the front-end. I have also gained experience in completing a project from start to finish and was able to experience the software development lifecycle.

An important thing that I have also learned is how important time management is in the software development world. It is very important to make sure you keep on track and don’t let yourself get lost in the amount of time you are spending on it because otherwise you will cause a lot of work for yourself to pile up and a project that could once be considered to be easy to do in the time that you originally give yourself, can become very hard to accomplish to its fullest extent and be very stressful.

Tool List

- Server – weblab.salemstate.edu
  - LAMP STACK
    - APACHE
    - MySQL
    - PHP
  - PHPMYADMIN
- Languages
  - CSS
  - HTML
  - PHP
  - Javascript
- IDE
  - PHPStorm
- Version Control
  - GitHub

Amendments and Future Work

- Sadly, there were a few things that I was not able to finish in time for the presentation. My original plan was to be able to link the web application to Navigator and Canvas in order to automatically add students to classes and track their grades from the polls. After careful consideration this seemed to be out of scope for my projects with the time that I was given.
- The admin functionality was also not implemented. The admin was originally going to be able to manually create and add students to classes as need in the web application, but this was not implemented so this will need to be done through the PHPMyAdmin database until this functionality is added.
- The final thing that I was not able to add was the ability for the instructor to comment on the poll. The functionality for it to work is there and a simple INSERT SQL statement will work but I was originally planning on adding it as a part of the gradebook so it was never implemented into the final version of the application.