# Software Engineering Fall 2023-2024

# Valuni Design Specification

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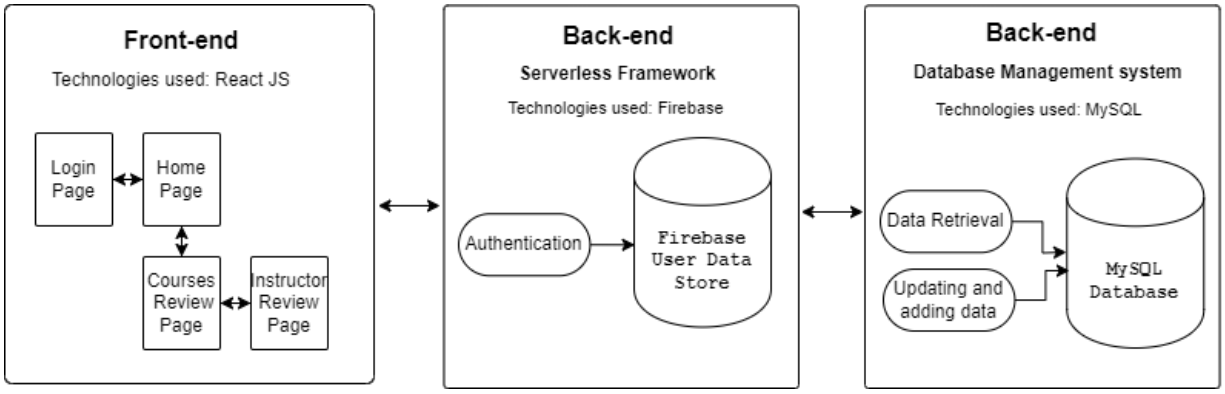
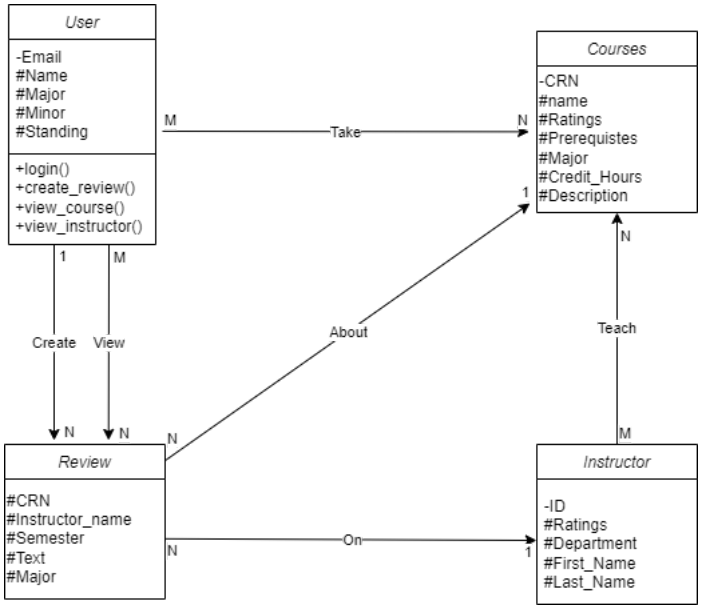
November 11, 2023

# 1. High-Level Architecture



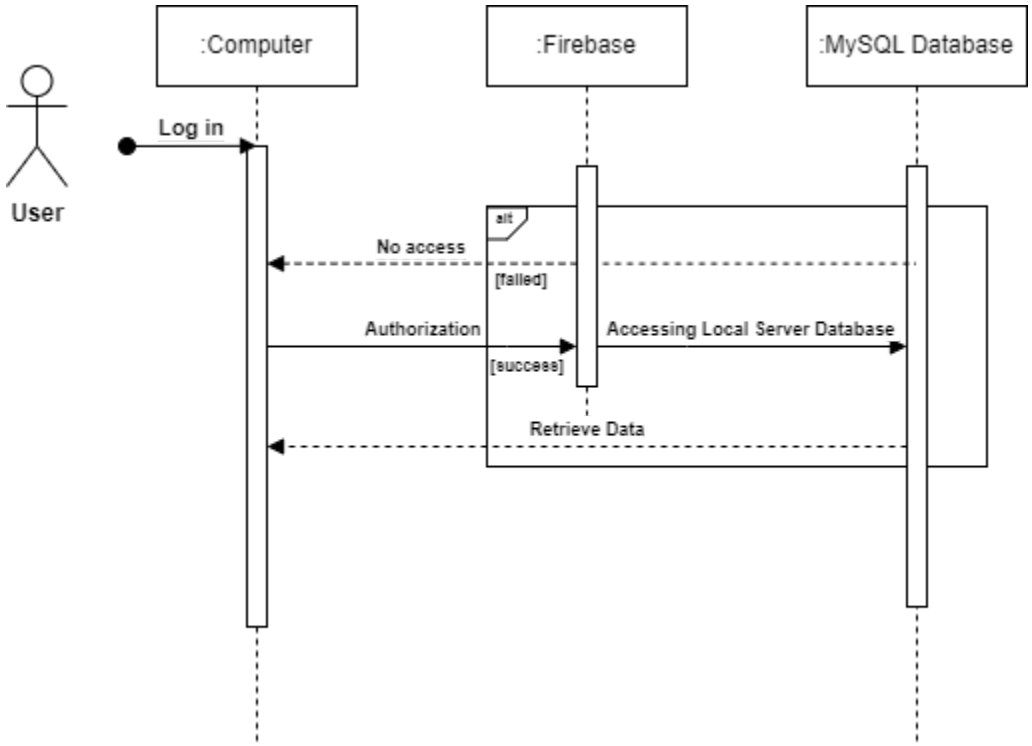

Front-end is implemented using React Javascript where it is used to implement the login, home, results, and review pages. The authentication of users is done through firebase, a serverless framework, where it contains a database including the email addresses and passwords of the university students. The user's data which is previewed on the web app is accessed through a database on a local host which is managed and manipulated by MySQL workbench. The SQL database includes all necessary information that is needed for Valuni and it is updated whenever a user adds a new review. Lastly, the frontend and backend are connected together using node js.

# 2. Class Diagram



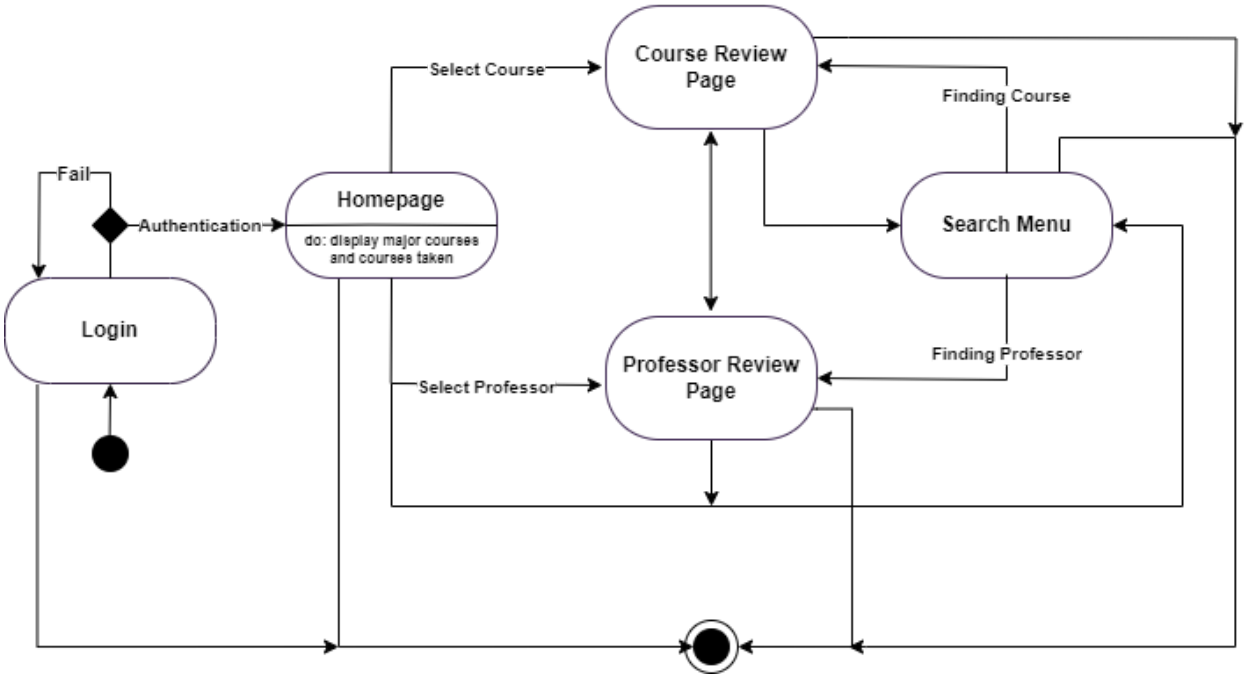
As a starting point, it was decided to implement four main classes: users, courses, review, and instructors. Each of these classes represent one of the tables from the database and are interconnected with each other. Since the user is the only one who can access the web app along with changing the database, its class is the only one containing methods. The rest of the classes contain the attributes which describe them as they do not affect the functionalities of the software.

## 3. Sequence Diagram



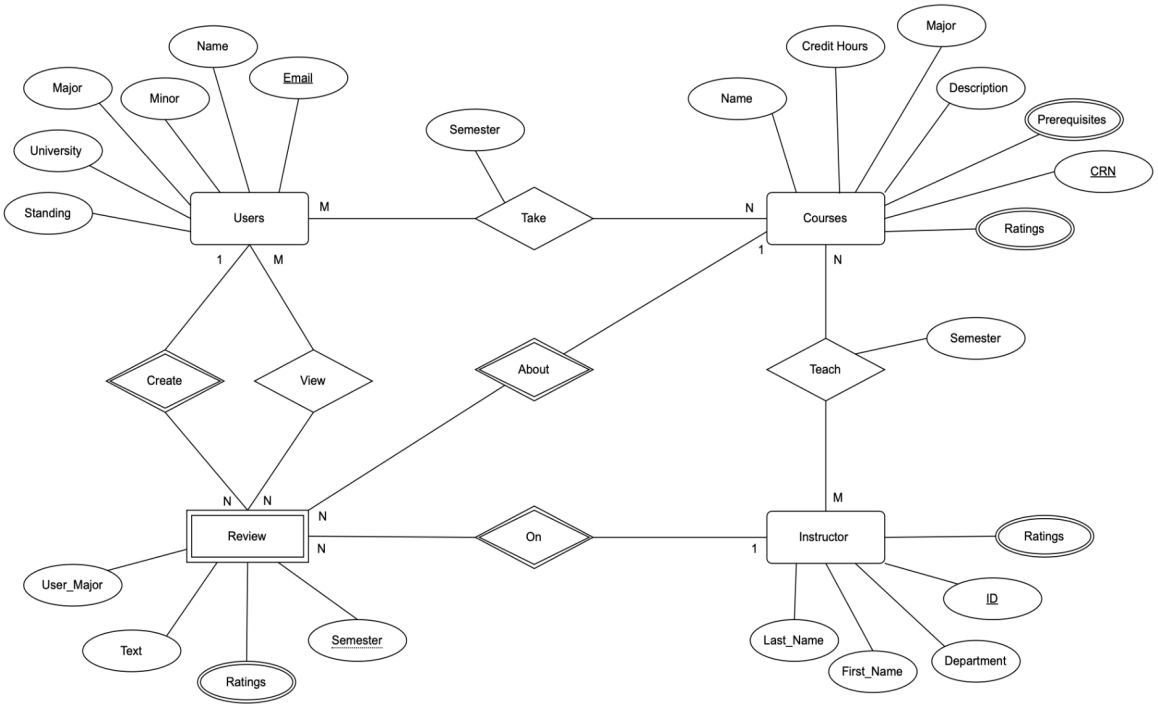

This sequence diagram portrays the connection between the system interfaces used by Valuni. The user starts by logging in and the authentication is done via firebase which is a serverless framework. If the user exits, the needed data will be retrieved from the database which is managed by MySQL workbench and reflected on the GUI of Valuni. On the other hand, if the authentication fails there will be no access to the database containing the user's information.

## 4. State Diagram For Web Pages




Valuni has four web pages, login, home, course review, and professor review page. This diagram is a representation of the dynamic behind the transition between different web pages, where each arrow describes how to transform from one page to another. Since the web application could be closed from any page, all pages are connected to the end point.

## 5. Entity Relationship Diagram




The ERD graphically represents and depicts the structural organization of entities, their attributes, and relationships within a database system. Strong entities in our database are users, courses, and instructors, which possess distinct attributes and play vital roles in the Valuni database schema. On the other hand, review is a weak entity as it lacks an independent key for unique identification, depending on the existence of other entities. This is because a review can not exist without users creating them about either courses or instructors.