MICHIGAN STATE UNIVERSITY

Project Plan Presentation

clUML: A Browser Based UML Editor

The Capstone Experience

Team Michigan State University CSE

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From Students…
…to Professionals

Project Sponsor Overview

- University founded in 1855
  as the Michigan Agricultural College by Land Grant
- Department of Computer Science started in 1969
- Dr. Charles Owen, ------->
  Professor of CSE 335

Project Functional Specifications

Goal:

- Give MSU CSE students an intuitive UML diagram editor in the browser
  - Replace Visual Paradigm with an embedded editor on the course website

What our Project will do:

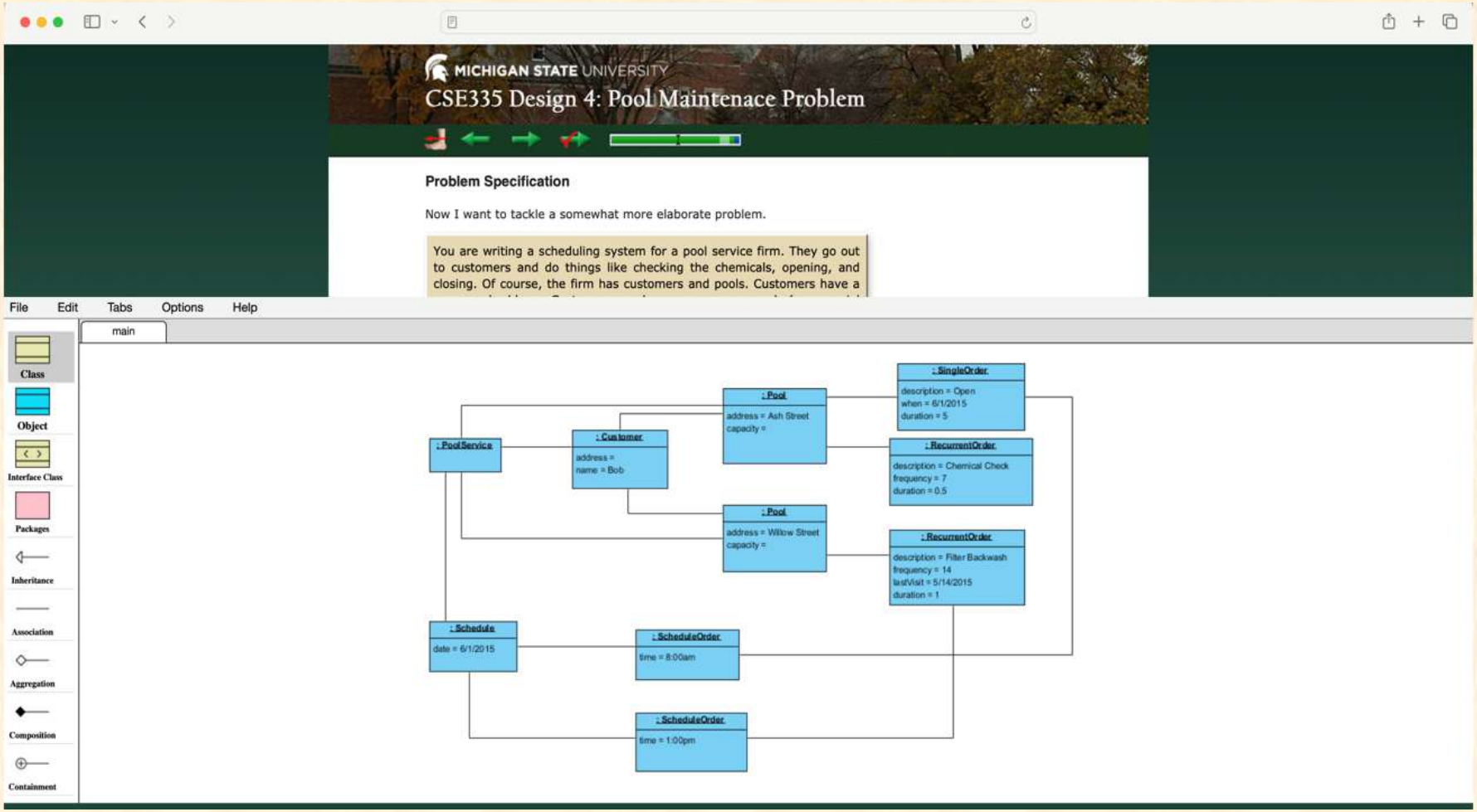
- Support designing class and object diagrams
- Allow instructors to load solutions
- Allow instructors to embed instances of editor in the course webpage (instead of an image)
- Work across all major browsers

Project Design Specifications

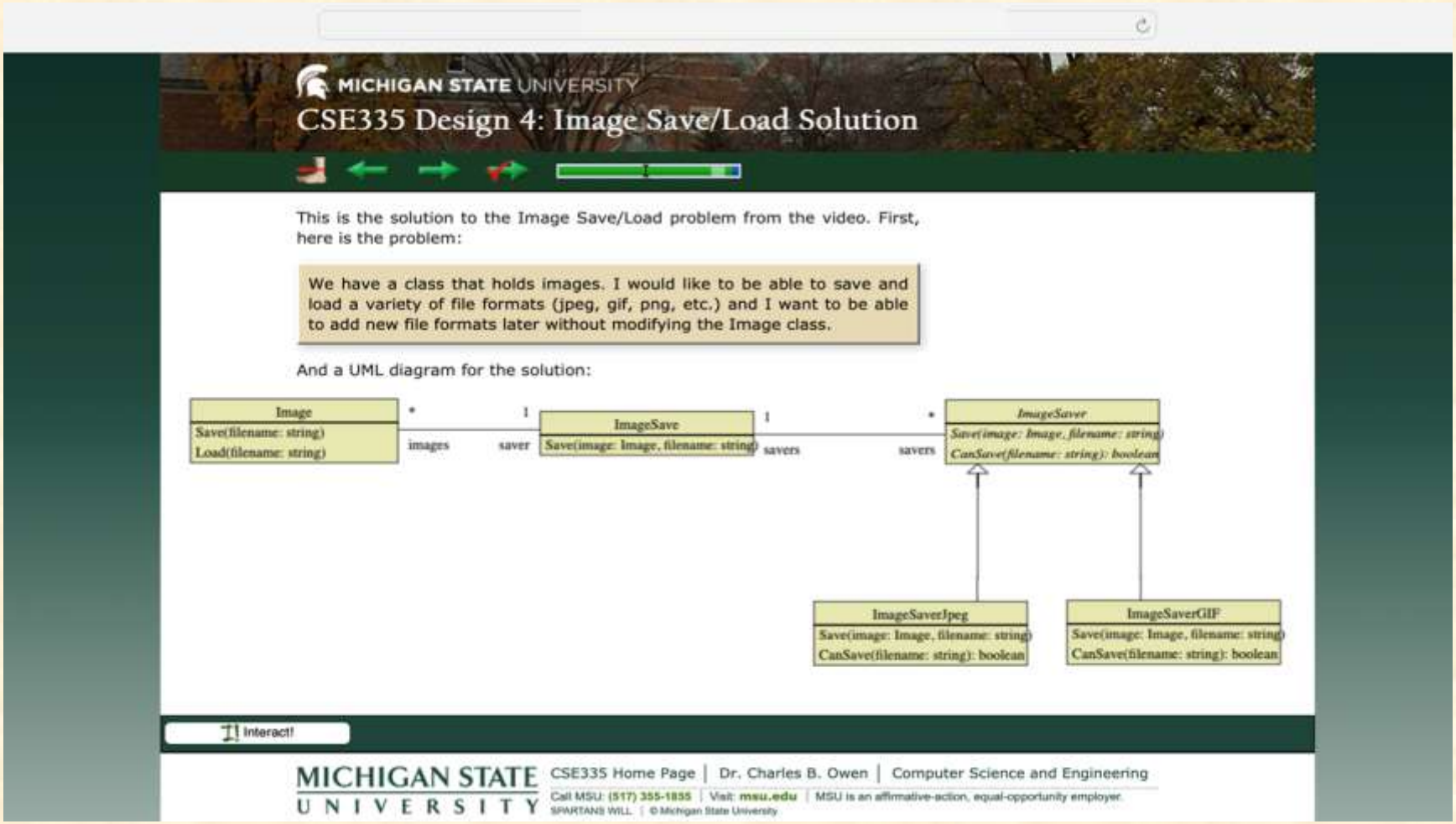
Feature Overview:

- Object Diagram Support
  - Option to choose between class and object diagrams
  - Ability to construct and edit object diagrams
- Embed In Web Page
  - Allow for static instances of clUML to embed in course page
  - Unable to be edited
- Redundancy Check
  - Testing feature for students to aid in design
  - Displays redundancy errors to students through dlg box
- Load Solution
  - Ability to load diagram solution for course staff
  - Not visible to students

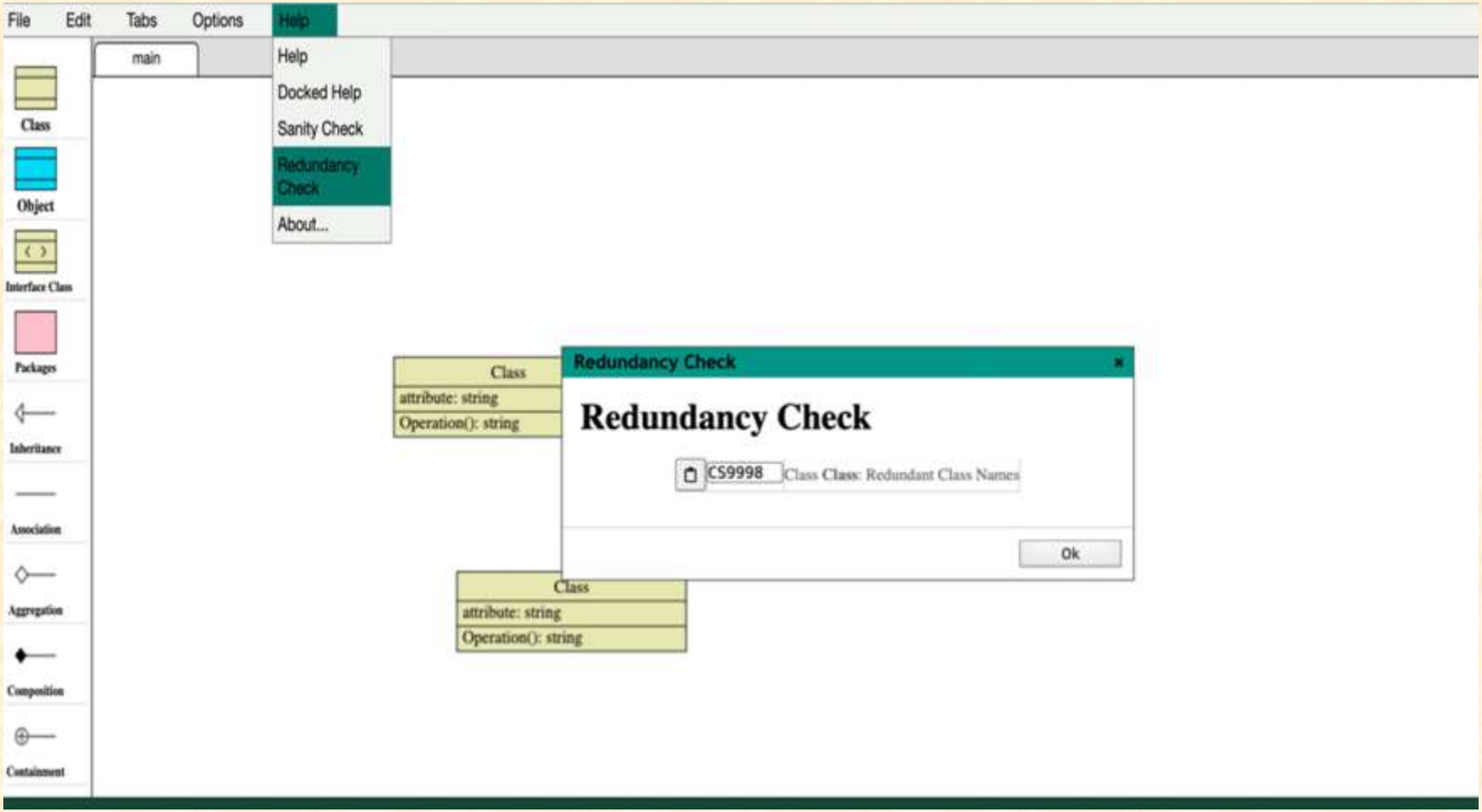
Screen Mockup: Object Diagram



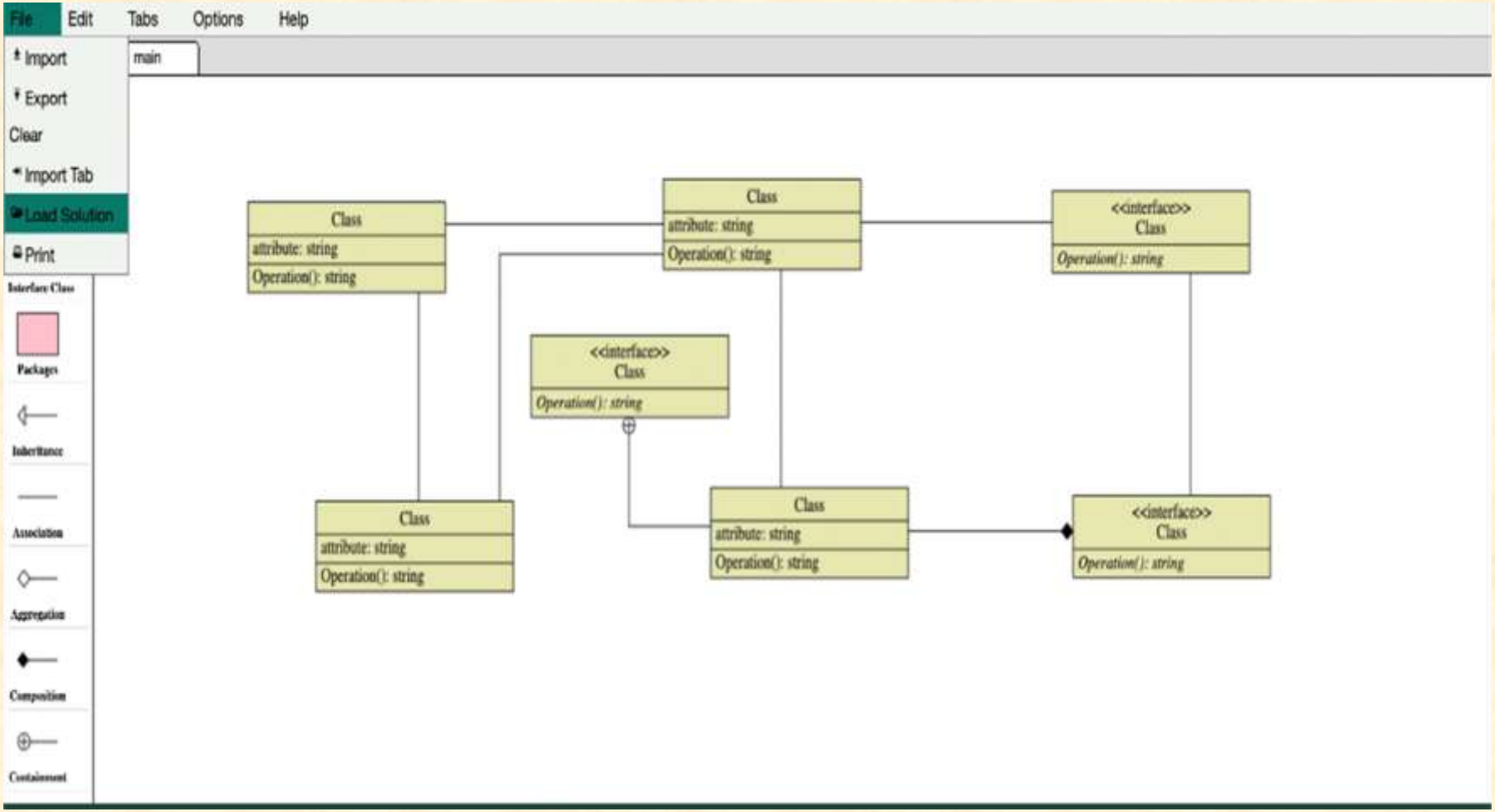
Screen Mockup: Embed In Web Page



Screen Mockup: Redundancy Check



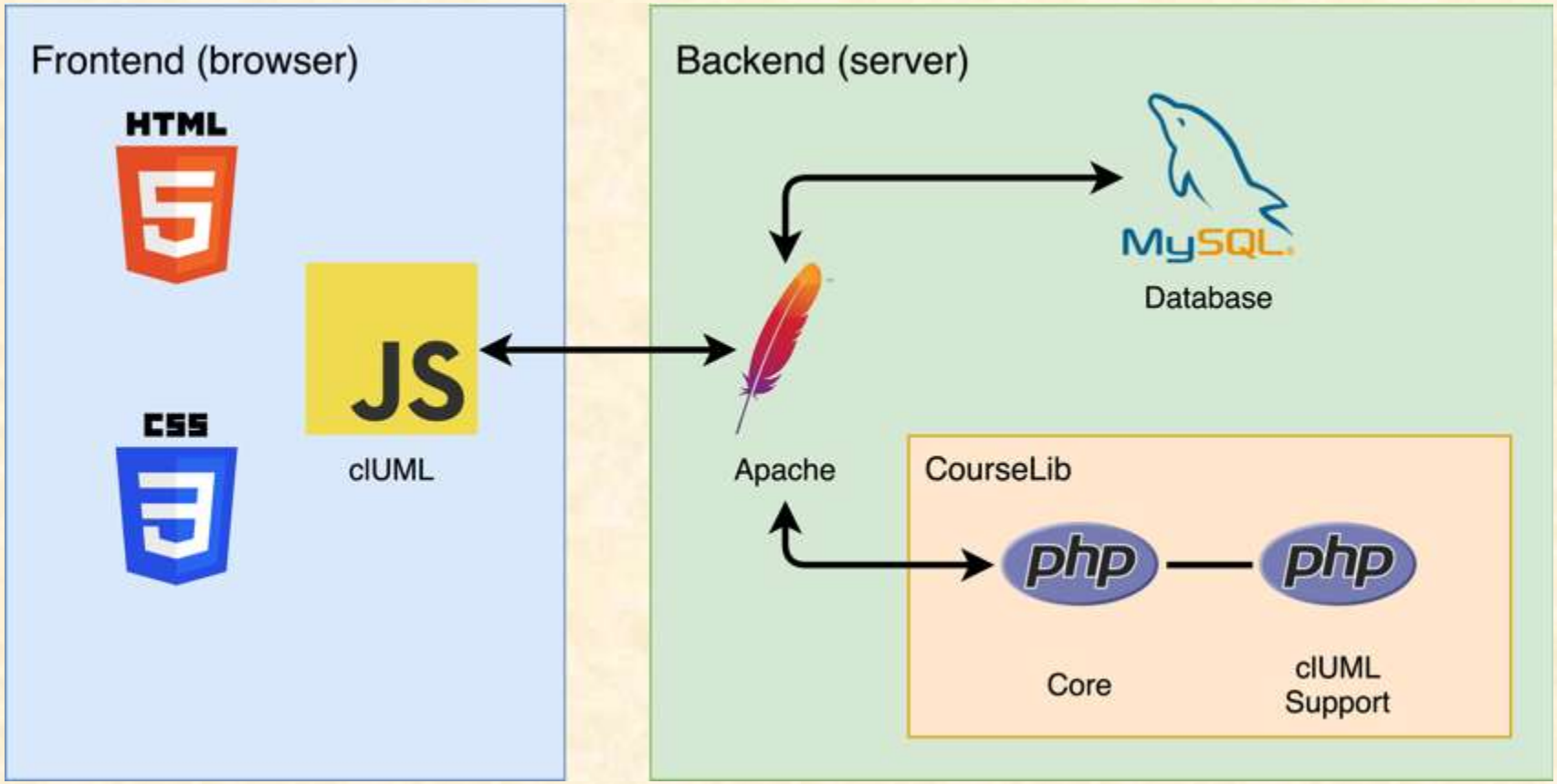
Screen Mockup: Load Solution



Project Technical Specifications

- Frontend
  - Display object and class diagrams
  - Interactive menus and redundancy checker
  - Tab support for diagrams
- Backend
  - Connection between the frontend and backend
  - Load solution of class and object diagrams
- Testing
  - Test on multiple web browsers, such as Firefox, Chrome, and Safari

Project System Architecture



Project System Components

- Software Platforms / Technologies
  - Frontend
    - HTML, SASS (CSS), JavaScript
  - Backend
    - PHP (CourseLib), MySQL, Apache
  - JavaScript Testing
    - Jasmine and Karma
  - Project Management
    - Yarn, Composer, Webpack

Project Risks

- Possibility of Grades Leaking
  - Program interacts with quiz function of class websites. Need to ensure grades cannot be accessed or leaked
  - Proposed support is for system to set a flag based on the results of built-in tests. The tests will be made of assertions instead of JavaScript code
- Effectiveness With Future Students
  - Hard to predict if the software will be an effective tool for students.
  - Field test with students if possible and use it ourselves to complete an assignment from CSE 335.
- Ease of Use
  - Main reason for creating software is dissatisfaction with Visual Paradigm and some of its bad design elements that make it a hassle to use
  - Gather issues our sponsor has and ones we have from experience and make sure our design doesn't have similar issues.
- Keep Modularity
  - The system design is meant to be modular so that it is a package that can be added to the CourseLib website without much refactoring or dependency. An error in clUML should not take down the course site due to dependency
  - Ensure the features we create do not interface/depend on the website as much as possible and need little dependency on the site.

Questions?