

# Software Requirements Specification

Version 1.0

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## In-Class Polling Application

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# 1 Introduction

## 1.1 Project Scope

The project scope is to create a functional real-time polling application called 'Pollus'.

The web application is used by teachers, and lecturers to poll their students.

## 1.2 Intended Audience

The intended audience for Pollus is teachers, lecturers, and students. There are two classes of audience from this group. The 'Presenter' group encompasses teachers and lecturers. The 'Examinees' group encompasses students.

## 1.3 Intended Use

The intended use of Pollus is to help Presenters poll from their Examinees. Presenters have access to poll creation. Examinees answer the poll created by the Presenter.

## 1.4 General Description

Pollus is a hosted website that every student in CSC190/CSC289 class will be able to access in real-time. Presenters create a set of multiple choice questions that will be answered by all students in the class. The output report includes each student's name, their individual score on the poll, and a listing of the questions that were answered incorrectly. Each student is individually notified of their results.

## 2. System Requirements and Functional Requirements

### 2.1 Homepage

The Homepage includes a 'Sign In' button for Presenters and "Use as Examinee" button for examinees who answer poll questions. It also has the Logo of the Pollus web application.

#### 2.1.1. Homepage: 'Sign In as Presenter' Button

There is a 'Sign In' button on the homepage for Presenters. When the button is pressed, the user is brought to the sign in page.

#### 2.1.2 Homepage: 'Use as Examinee' Button

There is a button labeled "Use as Examinee". When the button is pressed, the user is prompted to enter a name that will be used to keep track of the Examinee's data on the Examinee Homepage.

#### 2.1.3 Homepage: Functional Requirements

- R1: Create "Sign In as Presenter" button to bring the user to the Sign In Page.
- R2: Create "Use as Examinee" button to bring the user to the Examinee Homepage.

## 2.2 Sign In Page

Allows for the presenter to access the controls and start the poll if they enter the correct username and password and submit them. If incorrect credentials are given, the user will be given an error message.

### 2.2.1 Sign In Page: Username Input Field

There is a text field labeled above as “Username”. The user types out their username into that text field. There should be less than 0.5 seconds between the user typing on the keyboard and it appearing on the screen.

### 2.2.2 Sign In Page: Password Input Field

There is a text field labeled above as “Password”. The user types out their password into that text field. There should be less than 0.5 seconds between the user typing on the keyboard and it appearing on the screen.

### 2.2.3 Sign In Page: Submit Button

There is a button labeled “Sign In”. When the button is pressed, the system checks if the credentials are correct. If they are correct, then the user is taken to the Presenter Homepage. If they are incorrect, then an error message pops up, saying “Your credentials are invalid. After pressing the button, the screen changes after no more than 3 seconds if the credentials are correct. After pressing the button, the screen changes after no more than 1.5 seconds if the credentials are incorrect.

## 2.2.4 Sign In Page: Functional Requirements

- R3: Create a “Username” text field for users to enter their username.
- R4: Create a “Password” text field for users to enter their password.
- R5: Create a submit button for credentials to be checked when the user is done entering them.

## 2.3 Presenter Homepage

The presenter homepage has a button to access the control panel, a button to start the poll, and a button to sign out.

### 2.3.1 Control Panel Button

The presenter would be brought to the control panel which allows them to make changes to certain settings. After pressing the button, the screen changes after no more than 1.5 seconds.

### 2.3.2 ‘Start Poll’ Button

The start poll button removes all old poll results from the database and gives students who are waiting for the poll to start access to the poll. After pressing the button, the screen changes after no more than 1.5 seconds.

### 2.3.3 ‘Sign Out’ Button

The sign out button brings the presenter back to the homepage. After pressing the button, the screen changes after no more than 1.5 seconds.



### 2.3.4 Presenter Homepage Functional Requirements

- R6: Create a “Control Panel” button to bring the user to the Control Panel.
- R7: Create a “Start Poll” button to bring the user to the Polling page (Presenter’s view).
- R8: Create a “Sign Out” button to bring the user to the Homepage.

## 2.4 Control Panel

The Control panel allows the presenters to access the polls and their functions.

### 2.4.1 ‘Back’ Button

The ‘Back’ button moves the Presenter back to the Presenter Home Page and saves any changes they have made to the control panel. Once the button is pressed, the screen changes after no more than 1.5 seconds.

### 2.4.2 ‘Change Poll’ Button

After pressing the button it allows the presenter to upload a .csv file that is in the correct format to alter the poll that will be given to the examinees. After uploading the file, the new poll will be ready after no more than 5 seconds.

### 2.4.3 ‘Time Per Question’ Text Field

A text box in which the presenter can enter a time between 1 minute and 5 minutes to use as a time limit for each question in the poll.

#### 2.4.4 'Export Poll Results' Button

After pressing the 'Export Poll Results' button the results from the previous poll will be formatted into a .txt file that can be downloaded by the presenter. The .txt file will be ready to download after no more than 3 seconds.

#### 2.4.5 Control Panel Functional Requirements

- R9: Create a "Back" button to bring the user to the Presenter homepage from the Control Panel.
- R10: Create a "Change Poll" button to allow users to upload a new poll.
- R11: Create a "Time Per Question" text field for the user to enter a new time limit.
- R12: Create an "Export Poll Results" button to allow the user to download a file of the previous poll results.

### 2.5 Use as Examinee Page

After pressing the "Use as Examinee" button, the Examinee is prompted to input their name and press the "Submit" button when they are done.

#### 2.5.1 'Use as Examinee' Page: Name Text Field

The Examinee types any name they choose into the 'Use as Examinee' text field, except ones that are already taken by other Examinees. The text field is labeled above as "Name".

### 2.5.2 Use as Examinee Page: 'Submit' Button

The Examinee presses the 'Submit' button when they are done entering their name. If the name is already chosen, then the Examinee receives the notification that they cannot use this name.

### 2.5.3 Use as Examinee Page: Functional Requirements

R13: Create a text field labeled 'Name' above it for users to enter their name.

R14: Create a button labeled 'Submit' that allows the user to submit their name when they are ready.

## 2.6 Waiting Room Page

This page is a waiting room for Examinees until the Presenter presses the 'Start Poll' button. If the room is entered successfully, the Examinee will be notified by a text box on the screen with their name.

### 2.6.1 Waiting Page Requirements

- R15: Create a screen that displays the Examinee's Username and that they have successfully joined the lobby.

## 2.7 Polling Page (Examinee's view)

This page presents the examinee with the poll. From here, they are allowed to start answering questions for the poll.

### 2.7.1 'Answers' Buttons

When Examinees are given the question from the poll, they will have four multiple-choice answers to choose from. Only one answer per question is correct.

### 2.7.2 Polling Page (Examinee's view): Functional Requirements

- R16: Create four buttons that allow the Examinee to select one of the four poll answer options.

## 2.8 Polling Page (Presenter's view)

This page is where the question is shown and the text for each poll option. A "Skip Question" button is provided on a separate part of the screen from the poll options that allows the Presenter to skip the current question.

### 2.8.1 Skip Question Button

This button is used if an Examinee is having difficulty answering a question and would like to proceed to the next question. The Presenter skips the question, which shows the correct answer and brings the student to the next question. The question should be skipped for everyone after no more than 1 second.

### 2.8.2 The Question Text

This text displays the question of the current poll question. It cannot be edited while the poll is live.

### 2.8.3 'Answers' Text

Displays four poll options, each on a separate line and container. These poll options cannot be edited while the poll is live.

### 2.8.4 Polling Page (Presenter's View) Functional Requirements

- R17: Create a "Skip Question" button that skips the question if the Presenter decides to skip the question for any reason.
- R18: Display text containing the question.
- R19: Display text in four separate lines and containers.

## 3. Non-Functional Requirements

### 3.1 Performance Requirements

3.1.1 The system must handle at least 100 concurrent users.

3.1.2 The system must process and display results in real time with a response time of under 1 second.

### 3.2 Security Requirements

3.2.1 Passwords must be stored securely using encryption.

3.2.2 User sessions must be authenticated to prevent unauthorized access.

3.2.3 Student responses must be protected against tampering.

### 3.3 Usability Requirements

3.3.1 The system must have a user-friendly interface accessible with minimal training.

3.3.2 The system must be responsive and compatible with both mobile and desktop browsers.

### 3.4 Reliability Requirements

3.4.1 The system must be available 99.9% of the time during scheduled class hours.

3.4.2 A backup mechanism must be in place to prevent data loss.

### 3.5 Portability

3.5.1 The system must be accessible on modern browsers (Chrome, Firefox, Safari, Edge) without requiring additional software.

3.5.2 The system must be compatible with both mobile devices and desktop computers.

## 3.6 Data Structures

### 3.6.1 Progression Saving

The system uses arrays cached system side to store the progress of each Examinee during the poll. Each array represents one Examinee and each element represents a question.

### 3.6.2 Master Question Array

The system stores an array that contains the answers to all the poll questions that are inaccessible to the user. Each Examinee's questions are checked against the master after each question and at the end to determine the individual score.

### 3.6.3 Firebase

Firebase is used to host and hold all the data for our web application.

## 4. Work Split

### 4.1 Work Split

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