

# Software Requirements Specification

**Sing With Greatness**

Version 1.0

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# Revision History

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<b>Name</b>	<b>Date</b>	<b>Reason for Change</b>	<b>Version</b>
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# **1 Introduction**

This section gives both a scope description and overview of everything included in this SRS document, and a purpose for the document.

## **1.1 Purpose**

The purpose of this document is to give a detailed description of the requirements for the “Sing With Greatness” software. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions between the mobile and web version. This document is primarily intended to be proposed to a customer for its approval, and a reference for developing the first version of the system for the development team.

## **1.2 Scope**

This document describes the software requirements for “Sing With Greatness.” This document is intended for the use of the developers, testers, and users of the application.

## **1.3 Overview**

This document will discuss information regarding the application Sing With Greatness and its functional requirements and non-functional requirements.

# **2 Description**

## **2.1 Product Perspective**

Sing With Greatness is an application intended to enhance the user’s experience at a concert. It will allow him or her to record himself or herself singing along with the band and later create his or her own mix as the ultimate concert souvenir.

### **2.1.1 Mobile User Interface**

The user will do all of his or her recording from the mobile application. The main interface will consist of a screen informing the user that it is not yet time to record. When the band is about to perform the song that will be recorded at that event, the application will inform the user. The recording interface will display a message instructing the user to sing into his or her device, while also offering a button allowing the user to cancel recording at any time.

### **2.1.2 Web User Interface**

The web application will have two different interfaces depending on the type of user. If the user is a representative for the band, he or she will only see a page for uploading the band's recording from that concert. If the user is a member of the audience, the interface will provide more options. The main page for an audience member will display all songs that he or she has available to mix. Once selecting one, a new page will be loaded with a digital representation of a mixer, allowing him or her to adjust the levels of the recording to his or her liking. The user can also combine his or her mix with that of his or her friends using the mixer. From that page, the user will be able to share the recording via social media.

## **2.2 Product Functions**

“Sing With Greatness” will provide the following functions:

- Recording at a concert for songs chosen by the band
- Upload of recordings to a server to be accessed from the web interface
- Ability to mix audio components of the user's recording
- Ability to combine multiple users' recordings
- Ability to share mixes via social media

## **2.3 User Description**

There are two types of users for Sing With Greatness. The primary user is a member of the audience at a concert. This user will utilize the application to record himself or herself singing along with the band at a concert. The audience member can also alter the recording to his or her liking and share it with others. The other type of user is a representative of the band. This user will be responsible for uploading the band's recording of the song for audience members to make mixes with.

## 2.4 Assumptions and Dependencies

For this product the assumption is that the microphone and noise filtering technology will be sufficient enough to produce a quality sound mix. If these turn out to be an issue, we will continue assuming that all audio input is perfectly cleaned. In addition if the majority of mobile phone microphones are found to be acceptable we will assume that they are all acceptable as well.

## 2.5 Requirements Apportioning

The priority levels for the requirements are:

Priority Level	Description
1	This is the highest priority level; requirements of this level are essential for the application's functionality and must be fully satisfied and verified in order for the software to be released.
2	Requirements of this level are not required, but are highly desirable. Requirements of this level are expected to be satisfied, but not fully verified.

## 3 Specific Requirements

### 3.1 Functional Requirements

#### 3.1.1 Mobile Application

##### R1.1 Login Screen

R1.1.1 The application should display spaces for the user to input his or her username and password. **Priority 2**

R1.1.2 The application should authenticate the user's username and password against the server. **Priority 2**

- R1.1.3 If the user's username and password are correct, the application should proceed to the Main Screen. **Priority 2**
- R1.1.4 If the user's username and password are incorrect, the application should display a message asking him or her to try again. **Priority 2**

#### R1.2 Main Screen

- R1.2.1 The application should display to the user that it is not time to begin recording. **Priority 1**
- R1.2.2 The application should display a notification to the user when it is time to start recording. **Priority 1**
- R1.2.3 The application should display a button to the user for him or her to proceed to the Recording Screen. **Priority 2**

#### R1.3 Recording Screen

- R1.3.1 The application should display a message to the user indicating that it is recording. **Priority 1**
- R1.3.2 The application should display a "Stop" button, which will stop recording and return to the Main Screen. **Priority 1**
- R1.3.3 The application should display a "Recording Finished" when the song is over and return to the Main Screen. **Priority 1**

#### R1.4 Recording Functionality

- R1.4.1 While the Recording Screen is shown, the application should record the user singing along with the song that is playing. **Priority 1**
- R1.4.2 When the song is finished, the application should upload the user's recording to a server. **Priority 1**

### 3.1.2 Web Application

#### R2.1 Login Screen

- R2.1.1 The application should display spaces for the user to input his or her username and password. **Priority 2**
- R2.1.2 The application should authenticate the user's username and password against the server. **Priority 2**
- R2.1.3 If the user's username and password are correct, the application should proceed to the Main Screen. **Priority 2**



R2.1.4 If the user's username and password are incorrect, the application should display a message asking him or her to try again. **Priority 2**

## R2.2 Main Screen

R2.2.1 If the user is a representative for the band, the application will display a button allowing him or her to upload an audio file from the concert. **Priority 1**

R2.2.2 If the user is an audience member, the application will display a list of links to recordings that are available for mixing. **Priority 1**

R2.2.3 If an audience member clicks on a link, it will take them to the Mixer Screen. **Priority 1**

## R2.3 Mixer Screen

R2.3.1 The application should perform noise reduction on the user's recording when it is loaded. **Priority 1**

R2.3.2 The application should display a digital representation of an audio mixer with interactive controls. **Priority 1**

R2.3.3 The mixer control should have default settings implemented to mix the user's recording with the band's recording. **Priority 1**

R2.3.4 The application should display a slider, allowing the user to select the percentage his or her recording is present in comparison with the band's recording, and if recording with friends, in comparison with his or her friends' recordings. **Priority 1**

R2.3.5 The application should display a playback button, which the user can click to listen to his or her recording. **Priority 1**

R2.3.6 The application should display a control allowing the user to share his or her mix to various social media platforms. **Priority 2**

R2.3.7 The application should display a "Save" button, which the user can click to save his or her mix to the server and return to the Main Screen. **Priority 1**

R2.3.8 The application should display a "Discard" button, which the user can click to return to the Main Screen without saving. **Priority 1**

## 3.2 Non-functional Requirements

### 3.2.1 Extensibility

R3.1 Sing With Greatness will be built in a way that it will allow for the program to be easily modified or expanded. Anticipated changes include providing a paid version of the application, which would allow additional functionality such as being able to download your own recording. **Priority 2**

### 3.2.2 Maintainability

R4.1 The mobile application and web application will be implemented separately in order to be maintained separately. **Priority 1**

R4.2 All audio functionality will be extracted from the user interface so that they can be modified individually to simplify maintenance. **Priority 2**

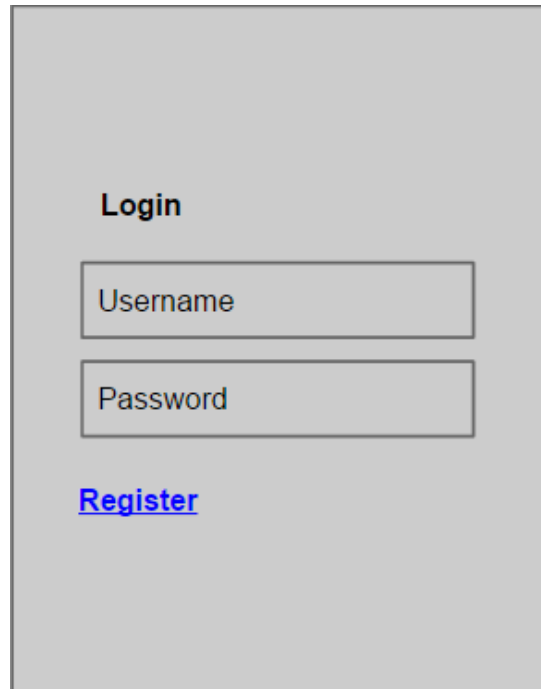
## 3.3 User Interface

### 3.3.1 Mobile Application Interface

Figure 1 is the login screen of the mobile application. It allows the user to enter his or her username and password or register for an account.

Figure 2 is the main screen for the mobile application. It indicates to the user that it is not time to begin recording yet. It also has a button allowing the user to exit the application.

Figure 3 is the recording screen for the mobile application. There is a button that allows the user to begin recording. There is also a button allowing the user to exit and return to the main screen.



A login screen with a light gray background. At the top, the word "Login" is displayed in bold black text. Below it are two rectangular input fields: the first is labeled "Username" and the second is labeled "Password". Below the password field is a blue, underlined link that says "Register".

Figure 1: Login Screen for Mobile Application



A main screen with a light gray background. In the center, the text "Please wait to record" is displayed in bold black text. At the bottom left, there is a rectangular button labeled "Exit".

Figure 2: Main Screen for Mobile Application

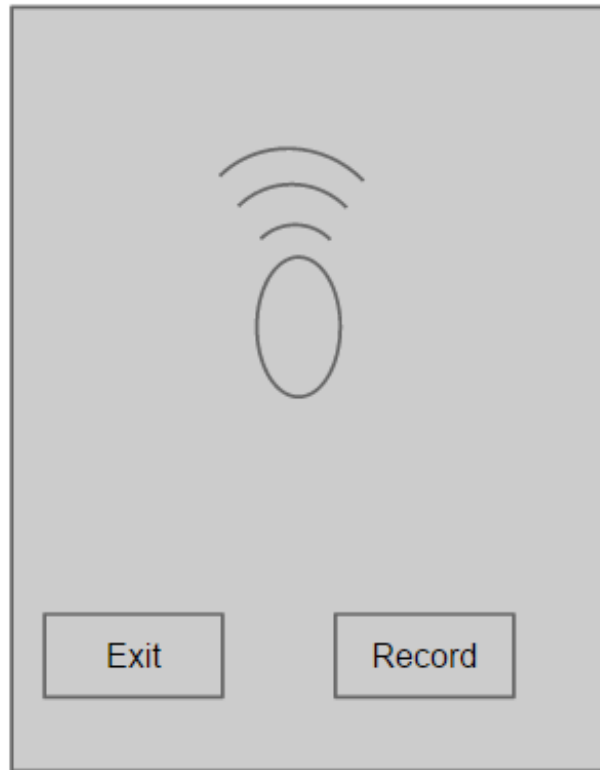


Figure 3: Recording Screen for Mobile Application

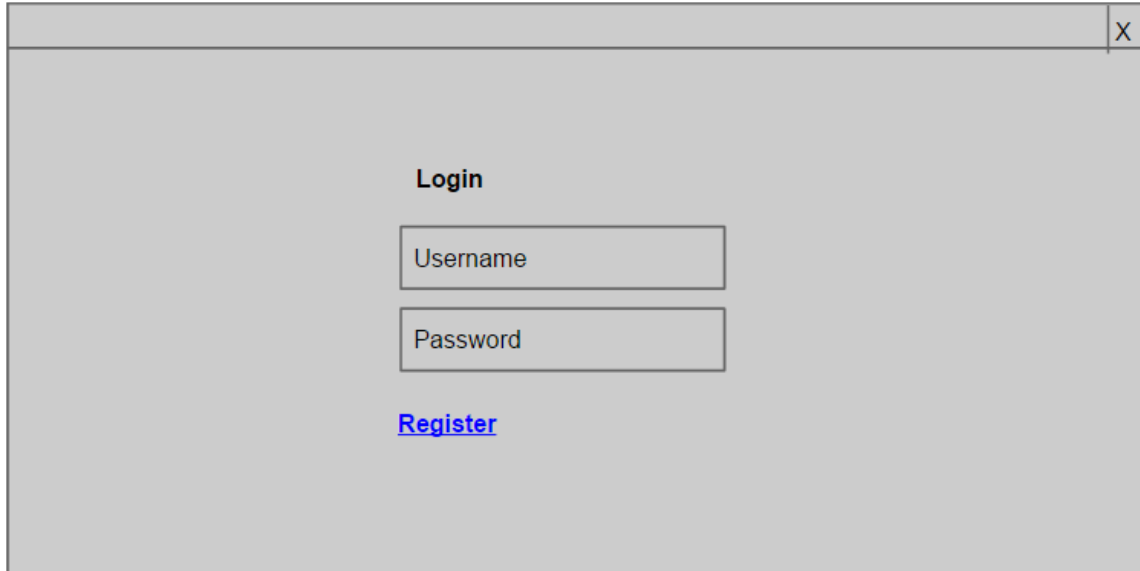
### 3.3.2 Web Application Interface

Figure 4 is the login screen for the web application. It allows the user to enter his or her username and password or register for an account.

Figure 5 is the main screen of the web application for a user who is a band representative. It has a browse button for the user to select the band's recording to upload, and an upload button for the user to upload the recording to the server.

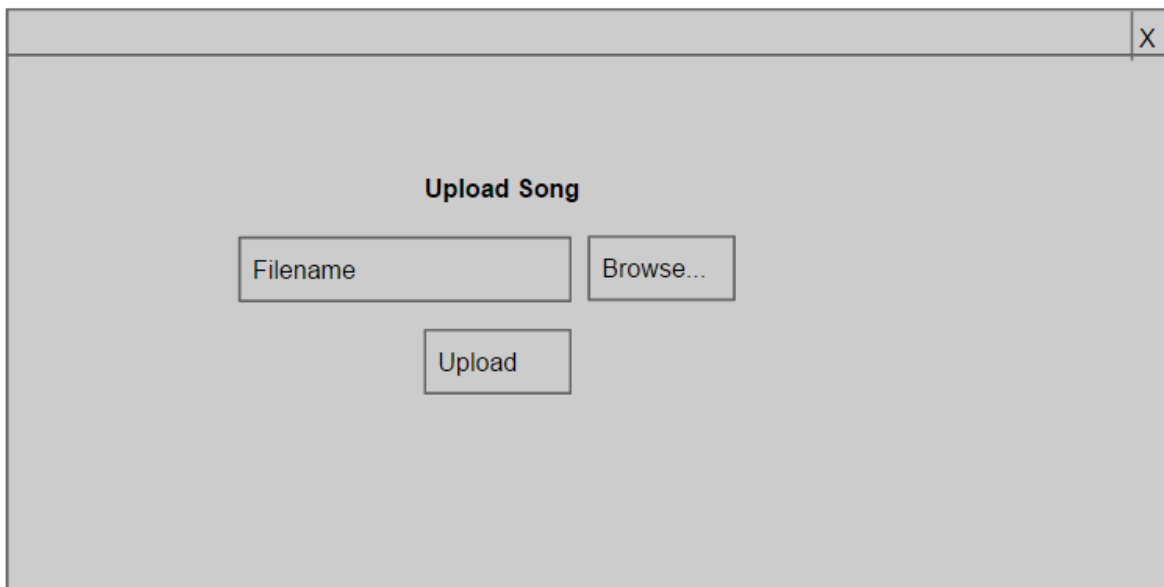
Figure 6 is the main screen of the web application for a user who is an audience member. There are links displayed for each recording that the user has. The user can click on these links to be redirected to the mixer screen.

Figure 7 is the mixer screen of the web application for a user who is an audience member. There are sliders available to adjust settings of the recording. The user can test his or her mix by using the play and stop buttons. The user can click the Add Track button to add his or her friend's recording using the track ID that is provided to each user on the right side of the mixer screen. The user can share his or her recording to social media using the buttons at the bottom. There is a Save button to save the recording and return to the main screen. There is also an Exit button to return to the Main Screen without saving the recording.



A screenshot of a web application login screen. The window has a title bar with a close button (X) in the top right corner. The main content area is light gray. In the center, the word "Login" is displayed in bold black text. Below it are two text input fields: the first is labeled "Username" and the second is labeled "Password". Below the password field is a blue, underlined link that says "Register".

Figure 4: The Login Screen for the Web Application



A screenshot of the main screen for a Band Representative user. The window has a title bar with a close button (X) in the top right corner. The main content area is light gray. In the center, the text "Upload Song" is displayed in bold black. Below this text are three buttons: a "Filename" text input field, a "Browse..." button, and an "Upload" button. The "Filename" field and "Browse..." button are positioned side-by-side, while the "Upload" button is centered below them.

Figure 5: The Main Screen of the Web Application for a Band Representative user



Figure 6: The Main Screen of the Web Application for an Audience Member user

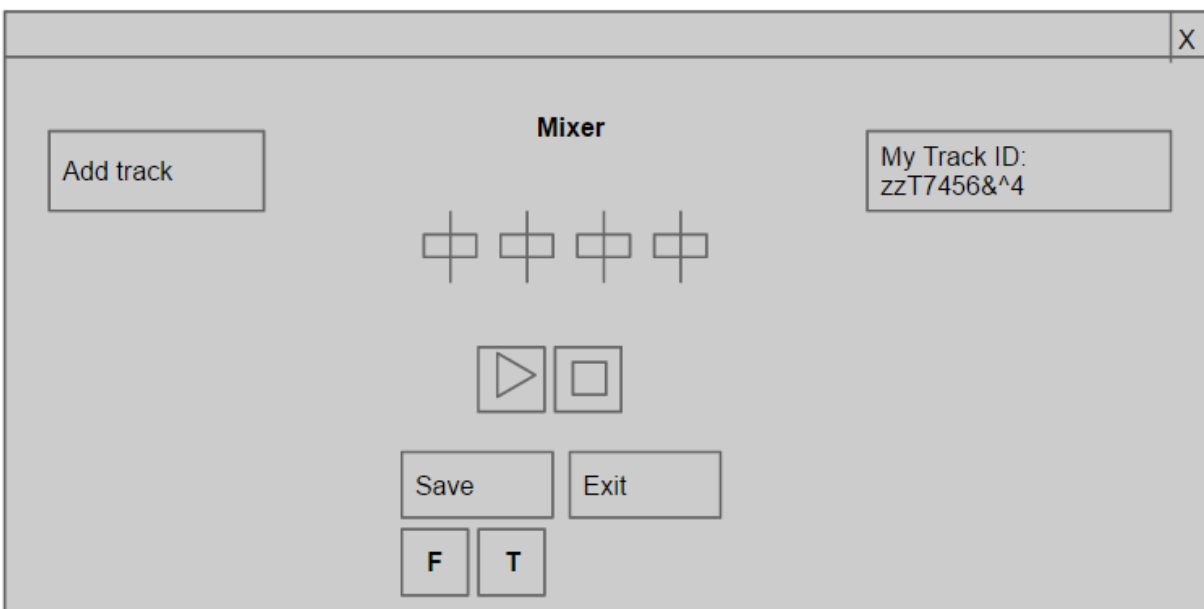


Figure 7: The Mixer Screen of the Web Application for an Audience Member user

## 4 Use Cases

### 4.1 Use Case Flow

#### 4.1.1 Wait To Record

##### **Preconditions**

- The audience member has opened the mobile application.
- The band has not yet begun playing the song that will be recorded.

##### **Main Flow**

1. The audience member observes the mobile application displaying a message indicating it is not yet time to record.

##### **Post-conditions**

- The audience member waits for the screen to change to the Recording Screen.

#### 4.1.2 Record Singing

##### **Preconditions**

- The audience member has opened the mobile application.
- The Recording Screen has been launched.

##### **Main Flow**

1. The audience member sings into the microphone attached to his or her mobile device.

##### **Post-conditions**

- The recording completes and displays a message indicating this.
- The audience member's recording is uploaded to the server.
- The application returns to the Main Screen.

#### 4.1.3 Cancel Recording

##### **Preconditions**

- The audience member has opened the mobile application.
- The Recording Screen has been launched.

##### **Main Flow**

1. The audience member clicks the “Cancel” button on the Recording Screen.

##### **Post-conditions**

- The recording is discarded.
- The application returns to the Main Screen.

#### 4.1.4 Band Representative Uploads Recording

##### **Preconditions**

- The band representative has launched the web application.
- The band representative has a recording from the concert.

##### **Main Flow**

1. The band representative uploads the recording.

##### **Post-conditions**

- The recording is uploaded to the server.

#### 4.1.5 Audience Member Selects Recording

##### **Preconditions**

- The audience member has launched the web application.
- There is at least one recording available for the audience member to mix.

##### **Main Flow**

1. The audience member selects a recording from the Main Screen.



**Post-conditions**

- The application redirects to the Mixer Screen.

**4.1.6 Audience Member Creates Mix Alone****Preconditions**

- The audience member has launched the web application.
- The audience member has selected a recording from the Main Screen.

**Main Flow**

1. The audience member adjusts the mixer sliders to his or her liking.
2. The audience member adjusts the slider for the percentage his or her recording is heard in comparison to the band's recording.
3. The audience member clicks the "Playback" button to listen to his or her mix.

**Post-conditions**

- The audience member has a new mix that has not yet been saved.

**4.1.7 Audience Member Creates Mix With Friends****Preconditions**

- The audience member has launched the web application.
- The audience member has selected a recording from the Main Screen.

**Main Flow**

1. The audience member adjusts the mixer sliders to his or her liking.
2. The audience member adjusts the slider for the percentage his or her recording is heard in comparison to the band's recording and his or her friends' recordings.
3. The audience member clicks the "Playback" button to listen to his or her mix.

**Post-conditions**

- The audience member has a new mix that has not yet been saved.
- The audience member's mix features the recordings of his or her friend(s).

**4.1.8 Audience Member Shares Mix****Preconditions**

- The audience member has launched the web application.
- The audience member has created a mix.

**Main Flow**

1. The audience member clicks the "Share" widget for his or her social media platform of choice.

**Post-conditions**

- The audience member's recording is shared via social media.

**4.1.9 Audience Member Saves Mix****Preconditions**

- The audience member has launched the web application.
- The audience member has created a mix.

**Main Flow**

1. The audience member clicks the "Save" button on the Mixer Screen.

**Post-conditions**

- The audience member's recording is saved to the server.
- The application redirects to the Main Screen.

**4.1.10 Audience Member Discards Mix****Preconditions**

- The audience member has launched the web application.
- The audience member has created a mix.

### Main Flow

1. The audience member clicks the “Discard” button on the Mixer Screen.

### Post-conditions

- The recording is not saved.
- The application redirects to the Main Screen.

## 4.2 Use Case Diagram

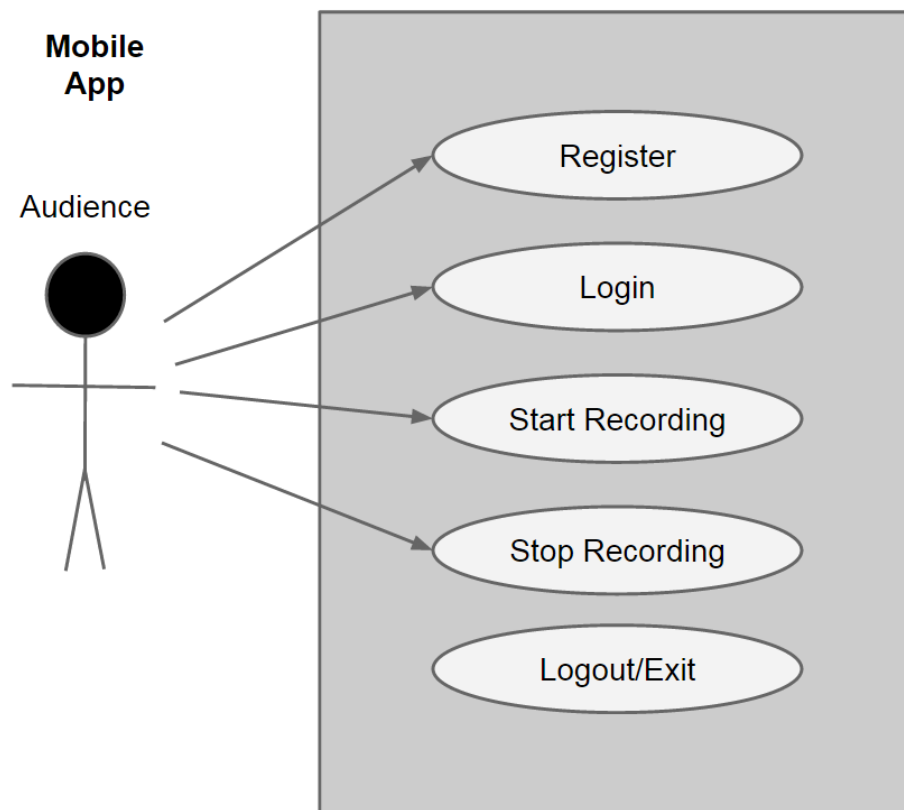


Figure 8: The Use Case Diagram for the mobile application when the user is an audience member

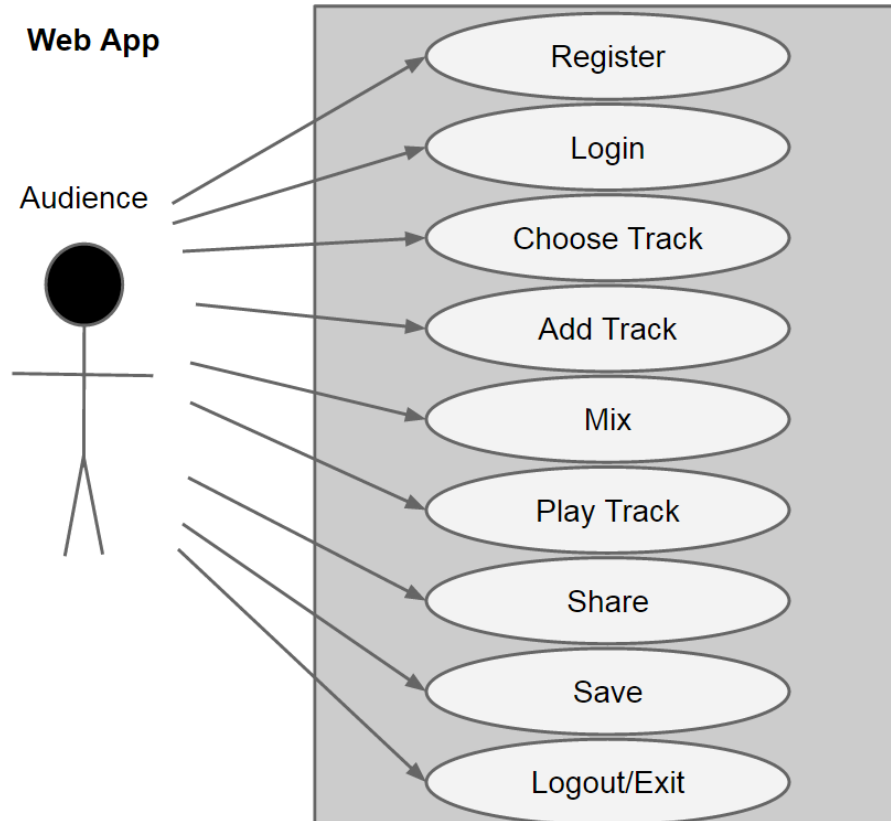


Figure 9: The Use Case Diagram for the web application when the user is an audience member.

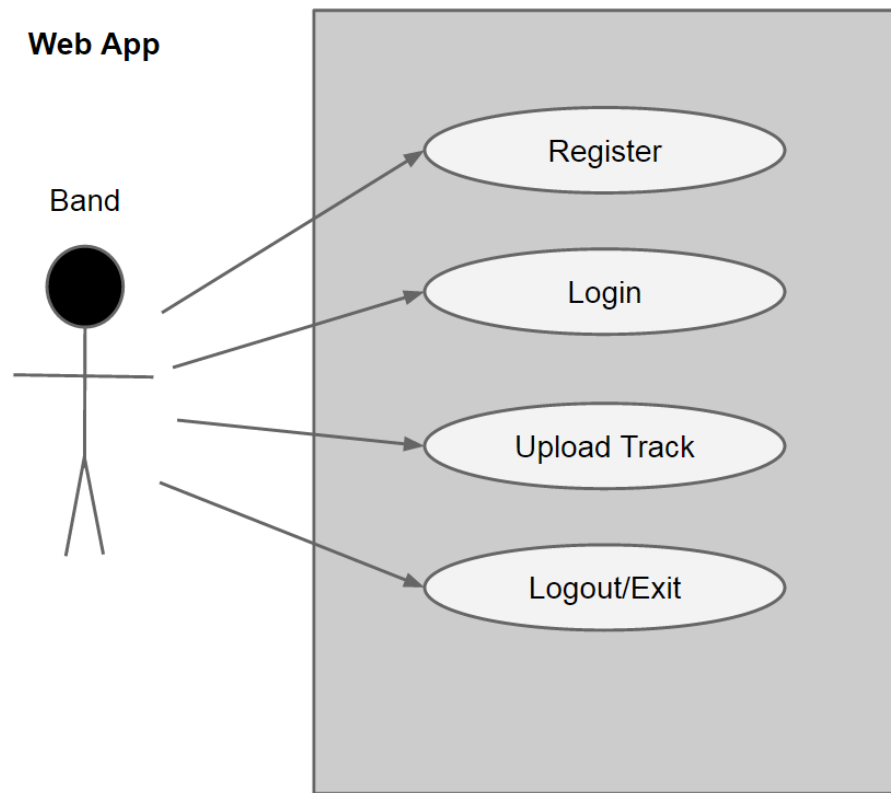


Figure 10: The Use Case Diagram for the web application when the user is a band representative.

### 4.3 Activity Diagrams

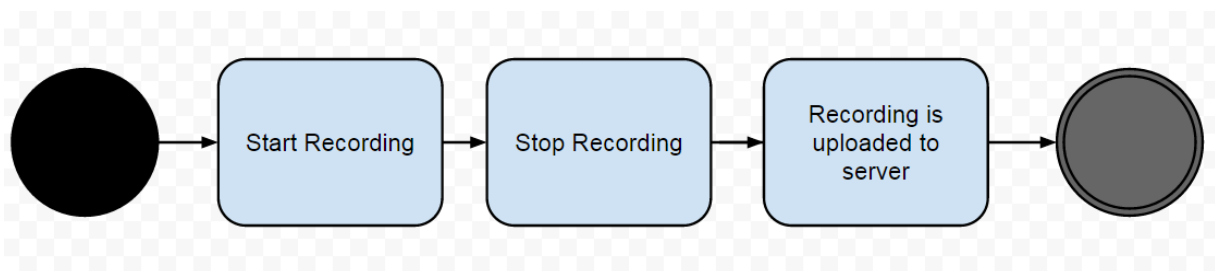


Figure 11: Activity Diagram for Recording a Track (Audience)

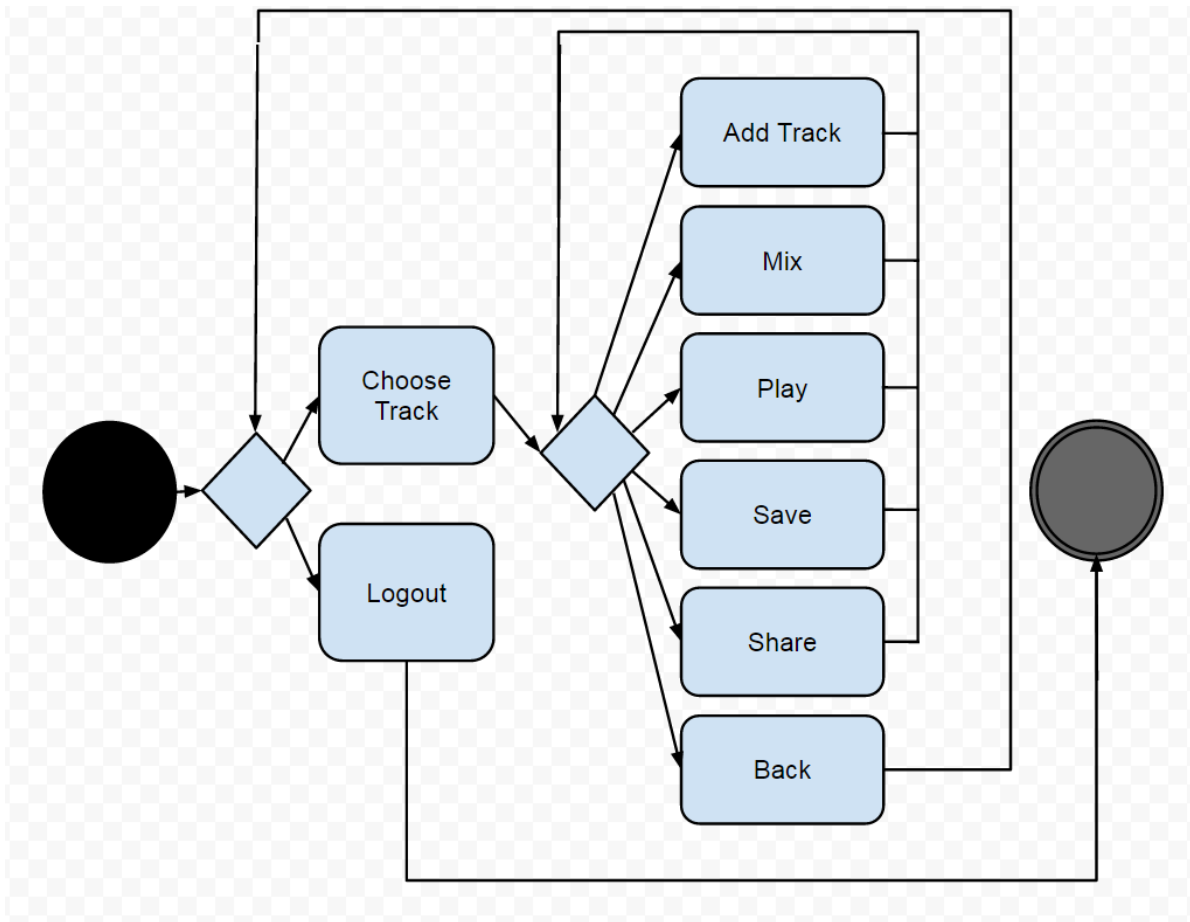


Figure 12: Activity Diagram for Mixing Tracks in Web Application (Audience)

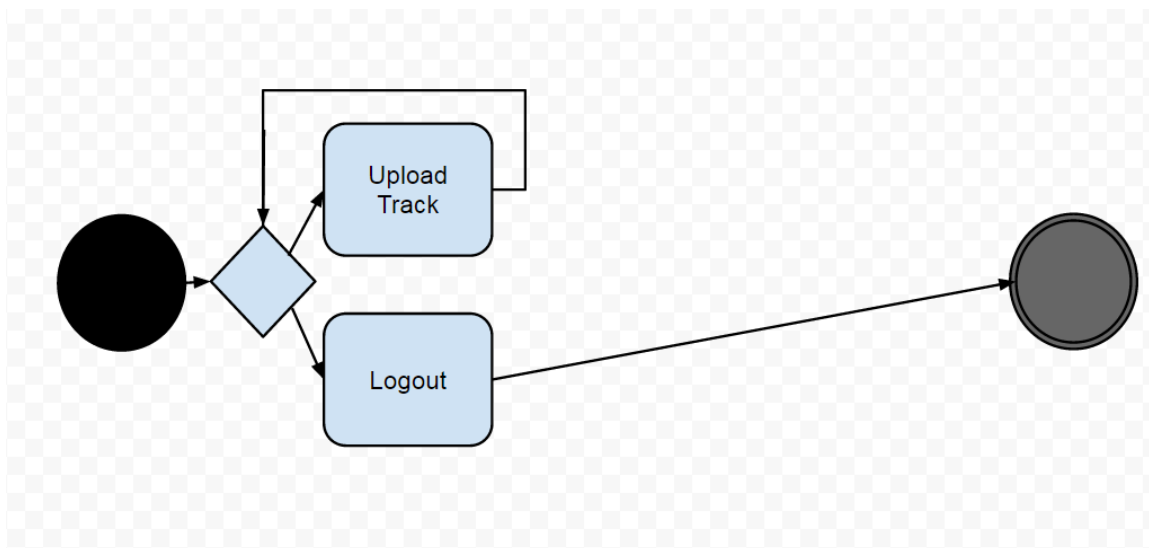


Figure 13: Activity Diagram for Uploading a Track (Band)

## 5 System Evolution

At this time, Sing With Greatness is being implemented as a basic extension to an audience's concert experience by allowing them to create a personalized mix and share it with friends. In the future, a paid version of the application may be created, offering more features and functionality to the user, such as being able to download his or her mix. The expansion of this application will be based on user demand and requests.

## 6 Appendix

### 6.1 Glossary

**Band** - The entity performing the music and managing the recording of their music.

**Audience Member** - The user who will be singing along with the performance and primary consumer.

**Mix** - Refers to the finished product of the bands performance overlaid with the audience member's recording.

**Mixer** - The tools given to the user to adjust volume levels and other sound options between them and the main recording.