System Requirements Specification

IWAC Conference Application

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Revision History

Date	Reason For Changes	Version
10/9/25	Initial creation of template document.	0.0.1
10/16/25	The group collectively revised the document during our group meeting.	0.0.2
10/19/25	The group collectively revised the document for the SRS draft submission.	0.0.3
10/20/25	Final version of the SRS draft.	1.0.0

1. Introduction

This capstone project focuses on building and developing an application for the IWAC (International Writing Across the Curriculum) conference. Held every two years by the Association for Writing Across the Curriculum, this four day conference has hundreds of attendees, many attending in person, and many attending remotely. To make the conference experience for all parties involved, the AWAC decided to start using scheduling applications. Although they have used other applications and subscriptions in the past, they have all had some form of issue. To solve this problem, we have been requested to build a new scheduling application for the 2027 IWAC conference. This application shall allow registered attendees to view and filter the conference schedule, as well as add certain presentations to their personal schedule, and show their interest for that specific panel. All panels on the application will include a link to a google doc containing all of the presentation materials, as well as a link to access the presentation livestream, in order to assist all remote attendees. Additional features may include direct messaging and notifications.

1.1 Purpose of This Document

The purpose of this System Requirements Specification document is to clearly define the functional and non-functional requirements for the IWAC Conference Application being developed by the PenUltimate team. The functional requirements describe the essential capabilities the system must support while the non-functional requirements define how the system will perform these functions. Together, the requirements establish a guide for the design and development process. The Systems Requirements Specification is intended for the PenUltimate development team and organizers of the IWAC conference to ensure a shared understanding of the product.

This document begins by introducing the objectives of the project, then defines the system's functional and non-functional requirements. It goes on to describe the intended user interface and expected deliverables. The document concludes by identifying any open issues that have been raised and outlining the details of the client agreement.

1.2. References

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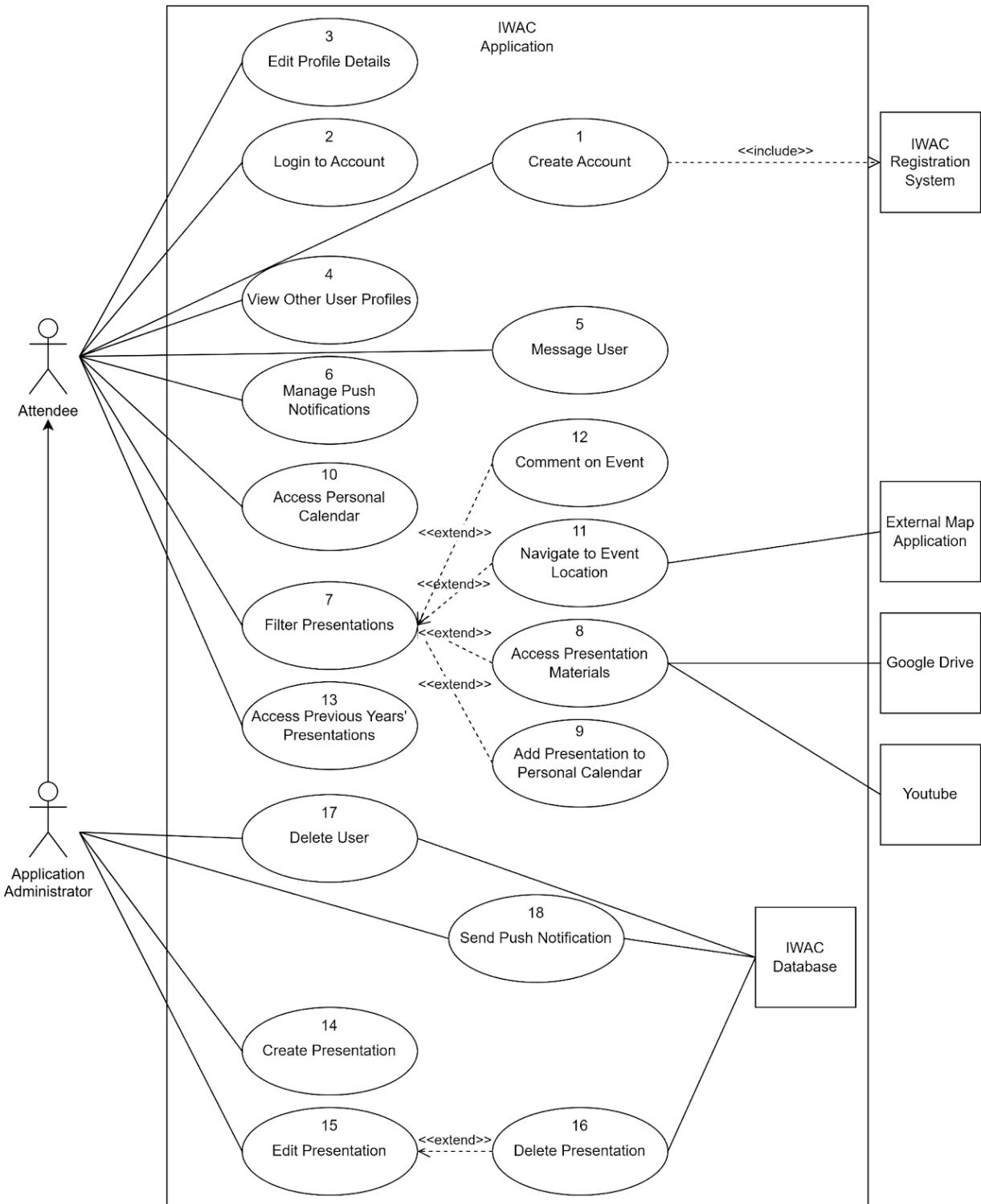
1.3. Purpose of the Product

This client is requesting an application for the Association for Writing Across the Curriculum, which holds a 4 day conference called the International Writing Across the Curriculum Conference (IWAC). In 2027, UMaine is hosting this conference. The client is interested in having a mobile conference application that could be repurposed for future conferences. The client noted having issues with the past application such as having to scroll through too many presentations, and not being able to filter through them. She also mentioned that it was not good on mobile, and that it would open up an HTML page. The problem that the client is trying to solve is finding an effective way to allow in-person attendees to navigate the session schedule and find the info they need, as well as creating a way for virtual attendees to have more of a conference experience.

1.4. Product Scope

The application is designed to allow attendees of the International Writing Across the Curriculum Conference a way in which they will be able to view and access information regarding events. Conference attendees both in person and virtual will be able to message and interact with other participants as well as the presenters of the events. Attendees will be able to create personal itineraries related to the events at the conference and will be able to access all materials used in the presentations. The links to the Google Drive folder containing these materials as well as the links to the Youtube videos will be stored within the IWAC application database. The users will be redirected to the appropriate website depending on what the user clicks. This is visually represented in Figure 1.4 shown below (Fowler, 1997).

Figure 1.4 – Top-Level Use Case and Context Diagram

2. Functional Requirements

This section defines the core functional requirements of the IWAC Conference application through UML use case diagrams made with *draw.io* and accompanying use case specifications based on the format from Alistar Cockburn. These functional requirements and use case specifications illustrate how users and the system interact to achieve key goals such as viewing event schedules, messaging other participants, and managing conference content. A corresponding set of system and acceptance tests follows the use cases to demonstrate how the functional requirements will be proven to be satisfied. Each test is paired with one or more use cases to ensure complete and traceable validation of system functionality.

2.1 Account Management Requirements

The section defines the use cases that enable users to create and access their accounts within the IWAC Conference App. Figure 2.1 provides a unified view of the "Create Account" and "Login" use cases, which are specified in Table 2.1.1 and Table 2.1.2, respectively.

2.1.1 Create Account

Table 2.1.1 – Create Account Use Case Specification

Number	1
Name	Create Account

Summary	A registered conference attendee creates an account for the IWAC Conference application using their registered email and self-chosen password.
Priority	5
Preconditions	- The user must have externally registered for the IWAC Conference using a valid email address. - The email used must not already be associated with an account on the IWAC App.
Postconditions	- A new user account is created and associated with the verified conference registration. - The attendee can log in using the email and password provided.
Primary Actor	Attendee
Secondary Actors	External IWAC Registration System, Internal IWAC Authentication System
Trigger	The attendee selects "Sign Up" on the application's welcome screen.

Main Scenario	Step	Action
	1	The attendee selects "Sign Up" from the welcome screen.
	2	The system prompts the attendee to enter the email used during conference registration and a self-selected password.
	3	The user enters their conference email and a password.
	4	The user taps "Create Account."
	5	The system verifies the email against the external IWAC registration system.
	6	The system stores the new account's email and hashed password in the internal IWAC Authentication System.
	7	The system displays a message confirming the account creation.

Extensions	Step	Branching Action
	5a	The email is not found in the external IWAC Registration System. **:** Display an error message and prompt the attendee to re-enter their email or confirm conference registration.
	6a	The email is already associated with an account. : Display a message informing the user that the email is already associated with an account, and encourage them to log in.
Open Issues	It is unknown if IWAC allows users to make multiple conference registrations under a single email address. It is undetermined if the client wants two-factor authentication to be implemented for account creation.	

2.1.2 Login to Account

Table 2.1.2 – Login to Account Use Case Specification

Number	2
Name	Login to Account
Summary	A registered conference attendee accesses their IWAC App account by entering their verified email and password credentials.
Priority	5
Preconditions	- The attendee must have an existing account created through the IWAC App welcome screen.
Postconditions	- The attendee gains access to their personal account, which includes their profile, event feed, calendar, and messages.
Primary Actor	Attendee
Secondary Actors	Internal IWAC Authentication System
Trigger	The attendee selects "Sign In" on the application's welcome screen.

Main Scenario	Step	Action

	1	The attendee selects "Sign In" on the welcome screen.
	2	The system prompts the attendee to enter their registered email and password.
	3	The user enters their email and password.
	4	The user taps "Login."
	5	The system verifies the credentials against the internal IWAC Authentication System.
	6	Upon successful verification, the system grants access to the attendee's account.
	7	The system displays the application's home screen with personalized conference features.
Extensions	**Step**	**Branching Action**
	5a	The email is not in the IWAC Authentication System. **:**

		Display an error message telling the attendee to create an IWAC App account before logging in.
	5b	The email is found but the password is incorrect. : Display an error message telling the user to re-enter their credentials.
Open Issues	It is undecided if password recovery will be handled internally or through the external IWAC registration system.	
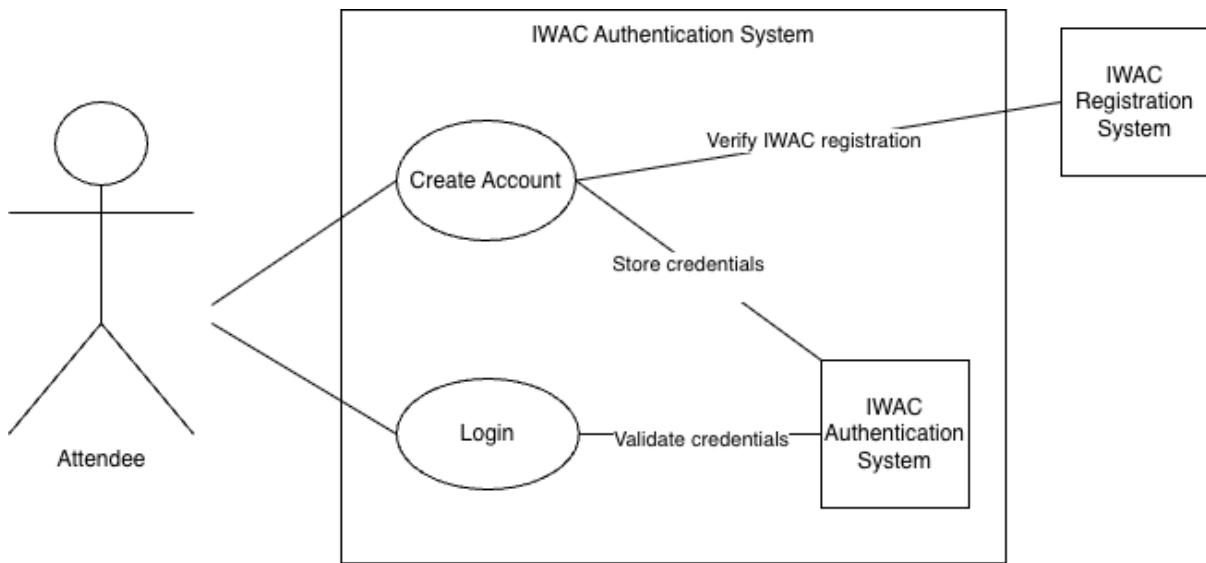
Figure 2.1 Use Case Diagram — Account Management

2.2 User Profile and Communication Requirements

The section defines the use cases that enable users to interact with others and manage personal settings within the IWAC Conference App. Figure 2.2 provides a unified view of the "Edit Profile Details", "View Other User Profiles", "Message User", and "Manage Push Notifications" which are specified in Tables 2.2.1-2.2.4, respectively.

2.2.1 Edit Profile Details

Table 2.2.1 – Edit Profile Details Use Case Specification

Number	3
Name	Edit Profile Details
Summary	Registered users can personalize their profile by adding a profile picture and short bio. If the user does not upload a picture or enter a bio, the profile will display only their username.
Priority	3
Preconditions	- The user must have logged into their IWAC account. - The system has access to device files.

Postconditions	- The system displays the user's updated profile details.	
	- If not added, the profile shows only the username.	
Primary Actor	Conference Attendee	
Secondary Actors	IWAC Database, User Device File System	
Trigger	The user clicks on their username from the home page.	
Main Scenario	Step	Action
	1	The user selects "Edit Profile" from the profile page.
	2	The system displays the editable fields for the profile picture upload and bio.
	3	The user may upload or update their profile picture.
	4	The user may enter or update their profile bio.
	5	The user selects "Save" to save the changes.

	6	The system updates the user's profile.
	7	The updated profile details are displayed to the user.
Extensions	**Step**	**Branching Action**
	1a	If user cancels image upload**:** The default profile image remains.
Open Issues	Bio character limit?	

2.2.2 View Other User Profiles

Table 2.2.2 – View Other User Profiles Use Case Specification

Number	4
Name	View Other User Profiles

Summary	This use case allows attendees and presenters to view other users' profiles.	
Priority	2	
Preconditions	- The user must be logged in. - The application must be connected to the database.	
Postconditions	- The selected user's profile information is displayed.	
Primary Actor	Attendee	
Secondary Actors	Database	
Trigger	The user clicks on another user's profile.	
Main Scenario	**Step**	**Action**
	1	The user logs into the application.
	2	The user navigates to the list of attendees.
	3	The user selects an attendees name.

	4	The user is displayed the selected user's profile information.
Extensions	**Step**	**Branching Action**
	1	Database is not connected **:** application displays an error message "Profile cannot be retrieved."
Open Issues	N/A	

2.2.3 Message User

Table 2.2.3 –Message User Use Case Specification

Number	5
Name	Message User
Summary	This use case allows an attendee or presenter to send and receive messages within the app.

Priority	1	
Preconditions	- The user must be logged in. - The application must be connected to the database.	
Postconditions	- The message will be stored in the database. - The recipient gets a notification regarding the message. - The message is visible for both users.	
Primary Actor	Attendee	
Secondary Actors	Notifications system, Database	
Trigger	The user clicks on someone's profile and clicks "message."	
Main Scenario	**Step**	**Action**
	1	The user opens the application.
	2	The user opens the list of other attendees.
	3	The user clicks on a specific attendee.

	4	The user clicks the "message" button on their profile.
	5	The user types a message in the text box.
	6	The user clicks "send."
	7	The system makes sure the message is valid and that the recipient exists.
	8	The system stores the message in the database.
	9	The system sends a push notification to the recipient.
	10	The recipient logs in to view the message in their inbox.
Extensions	**Step**	**Branching Action**
	1	Text box is empty **:** application displays an error message "Message cannot be empty."
	2	Message cannot reach database :

		The application displays an error message "Unable to send message."
Open Issues		Should messages be moderated for inappropriate content?

2.2.4 Manage Push Notifications

Table 2.2.4 – Manage Push Notifications Use Case Specification

Number	6
Name	Manage Push Notifications
Summary	A registered conference attendee toggles push notifications for conference updates and session reminders in the IWAC App.
Priority	2
Preconditions	- The user must have logged into the IWAC App. - The device must have notifications enabled for the application at the system level.

Postconditions	- The user's notification preferences are updated and stored in the database. - The application sends or suppresses notifications based on the user's selected preferences.	
Primary Actor	Attendee	
Secondary Actors	Push Notification Service	
Trigger	The attendee selects the "Notifications" option from the settings menu.	
Main Scenario	**Step**	**Action**
	1	The attendee navigates to the Settings screen.
	2	The attendee selects Manage Notifications.
	3	The system displays toggle options for Conference Announcements and Session Reminders, along with a note indicating that emergency notifications cannot be silenced.

	4	The attendee adjusts the settings by toggling each category on or off.
	5	The attendee selects "Save" when finished.
	6	The system saves the updated preferences to the database and displays a message confirming the changes have been applied.
Extensions	**Step**	**Branching Action**
	2a	Device notifications are disabled at the system level. **:** The system displays a prompt directing the user to enable notifications in device settings.
Open Issues	The categories for notifications will be expanded if requested by the client.	

Figure 2.2 Use Case Diagram — Profile Management and Viewing Messaging

2.3 Presentation and Schedule Requirements

The section defines the use cases that enable users to filter and manage conference sessions within the IWAC Conference App. Figure 2.3 provides a unified view of the "Filter Presentations", "Access Presentation Materials", "Add Presentation to Personal Calendar", "Access Personal Calendar", "Navigate to Event Location", "Comment on Event", and "Access Previous Years' Presentations" which are specified in Tables 2.3.1-2.3.7, respectively.

2.3.1 Filter Presentations

Table 2.3.1 – Filter Presentations Use Case Specification

Number	7
Name	Filter Presentations
Summary	IWAC conference application users can filter the list of presentations by date and presenter
Priority	5
Preconditions	- The user must have finished creating their account on the application, and be logged in. - All presentations are inserted into the database correctly.
Postconditions	- A narrower search result is returned including only presentations that match the selected filters.
Primary Actor	Conference Attendee
Secondary Actors	IWAC database
Trigger	The user selects "search" after choosing their desired filters

Main Scenario	Step	Action

	1	The user selects their desired filters
	2	The user selects "search"
	3	A narrower search result is returned with the appropriate presentations
	4	The user can return to the home screen, navigate to another page, or make a new search
Extensions	**Step**	**Branching Action**
	1a	User changes pages after selecting filters **:** User goes to the new page, and the filters are remembered for future searches
Open Issues	We are unsure whether offline searches will be implemented.	

2.3.2 Access Presentation Materials

Table 2.3.2 – Access Presentation Materials Use Case Specification

Number	8

Name	Access Presentation Materials
Summary	Users that are logged into an account will be able to view the slideshow of any given presentation. Users will also be able to be redirected to a previously recorded Youtube video of the presentation or a Youtube livestream of the presentation.
Priority	5
Preconditions	- The user must be logged into an account. - The user must navigate to the list of events. - The user must select an event.
Postconditions	- The user will be redirected to a google drive folder that contains the slideshow of the presentation. - The user will be redirected to a previously recorded Youtube video of the presentation or a Youtube livestream of the presentation.
Primary Actor	Conference Attendee
Secondary Actors	IWAC Database
Trigger	The user selects a listed event.

Main Scenario	Step	Action
	1	The user selects "Events List" from the home screen.
	2	The user will then tap on one of the listed events.
	3	The user will then tap on the link to access presentation materials or the link of the Youtube video or livestream.
Extensions	**Step**	**Branching Action**
	1a	The user will be redirected to the google drive folder containing presentation slideshows using their web browser.
	1b	The user will be redirected to a prerecorded Youtube video of the presentation or a Youtube livestream of the presentation using their web browser.

Open Issues	We do not know which web browsers will support this feature.

2.3.3 Add Presentation to Personal Calendar

Table 2.3.3 – Add presentation to Personal Calendar Use Case Specification

Number	9
Name	Add Presentation to Personal Calendar
Summary	Users that are logged into an account will be able to "favorite" events listed which will add them to their own personal itinerary.
Priority	5
Preconditions	- The user must be logged into an account. - The user must navigate to the list of events.
Postconditions	- The event will then be added to their personal calendar.
Primary Actor	Conference Attendee
Secondary Actors	IWAC Database

Trigger	The user selects "Events list" from the application's home screen.	
Main Scenario	**Step**	**Action**
	1	The user selects "Events List" from the home screen.
	2	The user will then tap on one of the listed events.
	3	The user will then "favorite" that event.
Open Issues	We have not fully decided on what the users personal calendar or itinerary will look like.	

2.3.4 Access Personal Calendar

Table 2.3.4 –Access Personal Calendar Use Case Specification

Number	10
Name	Access Personal Calendar

Summary	Registered conference members can review their personal calendar including upcoming sessions and saved events. The user can filter their calendar by day or topic. If no events have been added, the calendar will appear blank and prompt the user to add events through the homepage.
Priority	5
Preconditions	- The user must have logged into their IWAC account. - The personal calendar will initially be blank if the user has not saved any events.
Postconditions	- The system displays the users personal calendar. - Filters are applied to the calendar if selected.
Primary Actor	Conference Attendee
Secondary Actors	IWAC Database
Trigger	The user selects "My Calendar" from the application's home screen.

Main Scenario	**Step**	**Action**

	1	The user selects "My Calendar" from the home screen.
	2	The system displays the user's personal calendar.
	3	The user may apply filters to view their events by a specific day or topic.
	4	The system updates the calendar view based on the applied filters.
	5	If events have been saved, the user can tap on an event to view details.
	6	The user can clear filters, return to the home screen or navigate to another page.
Extensions	**Step**	**Branching Action**
	1a	If no events have been saved to personal calendar**:** The system displays "No events saved yet".

	2a	If no events match selected filters: The system displays "No events match selection".
Open Issues	Should users be able to view their calendar offline?	

2.3.5 Navigate to Event Location

Table 2.3.5 – Navigate to Event Location Use Case Specification

Number	11
Name	Navigate to Event Location
Summary	An attendee geographically locates a selected conference event by clicking a map icon, which redirects them to the location in an external navigation app.
Priority	3
Preconditions	- The user must be logged in to the IWAC App.

	-	The event must have an associated address in the database.
Postconditions	-	The user is redirected to an external mapping application displaying the selected event's geographic location.
Primary Actor	Attendee	
Secondary Actors	External Map Service (e.g., Google Maps or Apple Maps)	
Trigger	The attendee selects a conference event from the Events or Calendar tabs, then clicks the map icon associated with it.	
Main Scenario	**Step**	**Action**
	1	The attendee selects a given event from the Event or Calendar tab to expand its details.
	2	The system shows the full details of the selected event, including the event's address and a map icon.
	3	The attendee clicks the map icon under the event.

	4	The system prompts the attendee to choose from a list of navigation applications on their device.
	5	The user selects their preferred navigation application from the provided options.
	6	The system redirects the user to the chosen navigation app, which displays the event's location as the destination.
Extensions	**Step**	**Branching Action**
	2a	No location data is available for the event. **:** The system displays "No Location Provided" in the address field and does not show a map icon. The use case ends.
	4a	An external map service is unavailable : The system displays an error message suggesting that the user manually search for the event using the provided address.

Open Issues	There are no open issues with this use case.

2.3.6 Comment on Event

Table 2.3.6 –Comment on Event Use Case Specification

Number	12
Name	Comment on Event
Summary	This use case allows attendees to post comments or questions under a specific conference event, creating a thread visible to all logged-in participants.
Priority	4
Preconditions	- The user must be logged in. - Application must be connected to the database.
Postconditions	- The comment is stored in the database and displayed under the event.

	- Other users can view and respond to the comment.	
Primary Actor	Attendee	
Secondary Actors	Notifications system, Database	
Trigger	The attendee selects an event and clicks "Add Comment."	
Main Scenario	**Step**	**Action**
	1	The user opens the application and finds a specific attendee.
	2	The attendee scrolls to the comment section.
	3	The user types a message in the text box.
	4	The user clicks "post."
	5	The system makes sure the message is valid and that the recipient exists.
	6	The system stores the message in the database.

	7	The system uploads the message to the public thread.
Extensions	**Step**	**Branching Action**
	1	Text box is empty **:** The application displays an error message "Message cannot be empty."
	2	Message cannot reach database : The application displays an error message "Unable to upload message."
Open Issues	Should messages be moderated for inappropriate content?	

2.3.7 Access Previous Years' Presentations

Table 2.3.7 – Access Previous Years' Presentations Use Case Specification

Number	13

Name	Access Previous Years' Presentations	
Summary	This use case allows users to access presentation slides, recordings, or other materials from previous IWAC conferences.	
Priority	3	
Preconditions	- The user must be logged in. - The application must be connected to the database. - The database must contain previous years' presentation materials.	
Postconditions	- The user obtains access to the previous years' presentation materials.	
Primary Actor	Attendee	
Secondary Actors	Database	
Trigger	The attendee navigates to the "previous conferences" page and selects a conference year.	
Main Scenario	Step	Action

	1	The user logs into the application.
	2	The user navigates to the "previous conferences" page.
	3	The system retrieves available archived presentations.
	4	The user selects a conference year.
	5	The system displays a list of presentations with links to presentation materials in a google drive.
Extensions	**Step**	**Branching Action**
	1	No materials are available **:** The application displays an error message "No materials found."
	2	External link unavailable : The application displays an error message "Link unavailable."

| **Open Issues**	Should the materials be restricted to logged-in users?
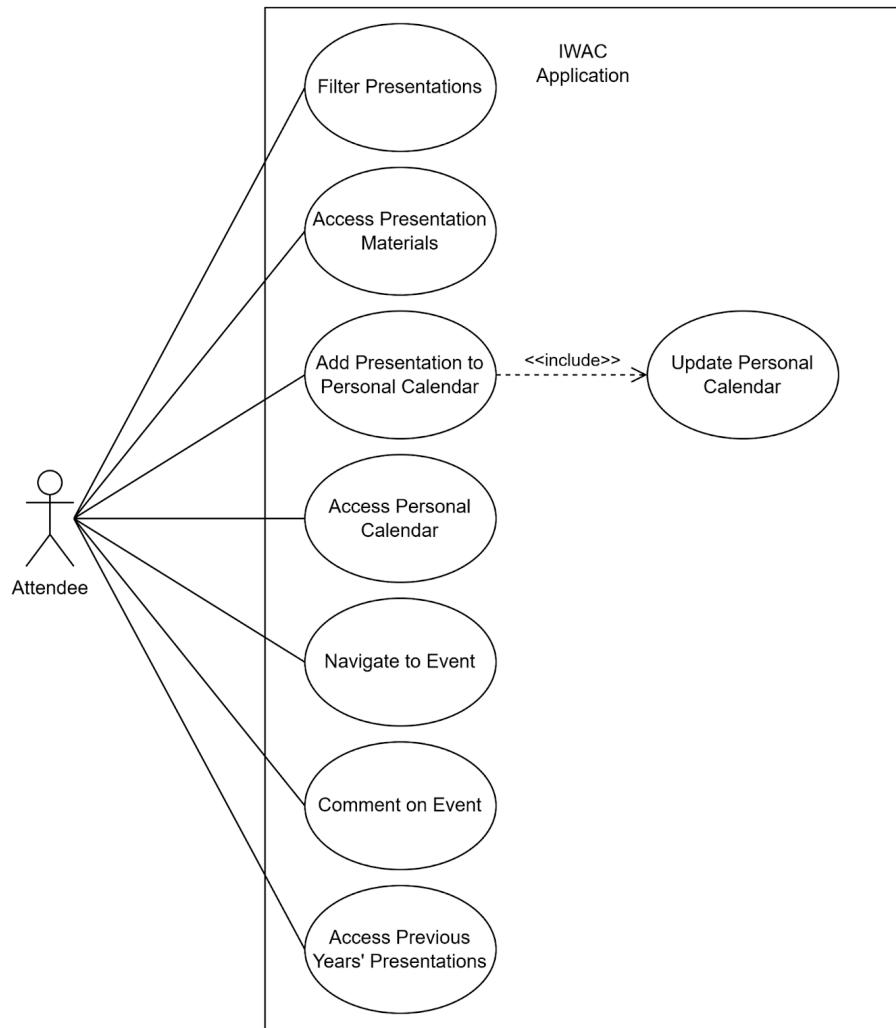
Figure 2.3 Use Case Diagram — User Presentation and Personal Calendar

2.4 Administrator Requirements

The section defines the use cases that enable the administrator capabilities within the IWAC

Conference App. Figure 2.4 provides a unified view of the "Create Presentation", "Edit

Presentation", "Delete Presentation", "Delete User", and "Send Push Notifications" which are

specified in Tables 2.4.1-2.4.5, respectively.

2.4.1 Create Presentation

Table 2.4.1 – Create Presentation Use Case Specification

Number	14
Name	Create Presentation
Summary	This use case allows administrators to create new presentations and set all necessary information for them.
Priority	5
Preconditions	- The administrator must be logged in. - The application must be connected to the database. - The presentation details are filled out correctly

Postconditions	- The administrator successfully creates a new presentation	
Primary Actor	Admin	
Secondary Actors	Database	
Trigger	The administrator selects "Create new presentation" from the menu	
Main Scenario	**Step**	
	1	The administrator logs in to the application.
	2	The administrator selects "Create new presentation".
	3	The administrator inputs the necessary information.
	4	The administrator clicks "submit".
	5	The database and application both update to include the new presentation.

Extensions	Step	
	1	If an administrator creates a presentation with no information put in, it is immediately discarded.
	2	If the user trying to make the presentation is not an admin, they will be unable to do so
Open Issues	We are unsure whether there should be a built-in way to ensure that no presenter gets scheduled for multiple presentations at the same time.	

2.4.2 Edit Presentation

Table 2.4.2 – Edit Presentation Use Case Specification

Number	15
Name	Edit Presentation

Summary	This use case allows administrators to edit their presentations and change the contents and details in it.	
Priority	4	
Preconditions	- The administrator must be logged in. - The application must be connected to the database. - The database must contain all presentations.	
Postconditions	- The administrator successfully makes changes to the presentation.	
Primary Actor	Admin	
Secondary Actors	Database	
Trigger	The administrator selects an event and clicks "Edit Presentation"	
Main Scenario	Step	
	1	The administrator logs in to the application.

	2	The administrator selects the presentation they wish to change.
	3	The administrator makes the changes they would like.
	4	The administrator clicks "submit changes".
	5	The database and application both update the presentation with the new information.
Extensions	**Step**	
	1	If an administrator removes all information from a presentation before updating it, the update will remove the presentation from the schedule.
	2	If the user trying to make the changes is not an admin, they will be unable to do so
Open Issues	We are unsure whether previous versions of presentations should be stored in the database as well, in order for administrators to	

	undo changes made to a presentation, and whether users should have access to older iterations of the presentations.

2.4.3 Delete Presentation

Table 2.4.3 – Delete Presentation Use Case Specification

Number	16
Name	Delete Presentation
Summary	This use case allows administrators to delete presentations,such as if a presentation gets canceled.
Priority	5
Preconditions	- The administrator must be logged in. - The application must be connected to the database. - The database is functioning properly.
Postconditions	- The administrator successfully deletes a presentation

Primary Actor	Admin	
Secondary Actors	Database	
Trigger	The administrator selects "Delete Presentation" from the menu	
Main Scenario	Step	
	1	The administrator logs in to the application.
	2	The administrator selects the presentation they wish to delete.
	3	The administrator clicks "delete presentation"
	4	- The presentation is removed from the calendar and set to hidden, but not removed from the database.
Open Issues	We do not have a built-in method to prevent presentations from being deleted by accident.	

2.4.4 Delete User

Table 2.4.4 – Delete User Use Case Specification

Number	17
Name	Delete User
Summary	Administrator users can permanently remove a registered user's account from the conference system. After the administrator user deletes the user profile, it is no longer accessible through the application.
Priority	4
Preconditions	- Administrator user must be logged into administrator account. - Target user accounts exists in the database.
Postconditions	- The selected user account is permanently removed from the database. - Deleted user can no longer login.
Primary Actor	Administrator

Secondary Actors	IWAC Database	
Trigger	Administrator selects user account and clicks "Delete User" from user management page.	
Main Scenario	Step	Action
	1	Administrator logs in with an administrator account.
	2	The administrator navigates to user management page.
	3	System displays a list of all registered users.
	4	Administrator selects user to delete.
	5	System displays pop up to confirm deletion.
	6	Administrator confirms deletion of account.
	7	System removes user from the database.

	8	System updates the registered user list.
Extensions	**Step**	**Branching Action**
	1a	If administrator cancels deletion from confirmation prompt**:** The user account is not deleted.
Open Issues	How will user data be affected if their account is deleted?	

2.4.5 Send Push Notifications

Table 2.4.5 – Send Push Notifications Use Case Specification

Number	18
Name	Send Push Notifications
Summary	Administrator can create and send push notifications to all registered users that have push notifications enabled. Notifications for IWAC may include schedule changes or important conference updates.

Priority	4	
Preconditions	- Administrative user must be logged into administrator account. - Users have opted in to receive push notifications.	
Postconditions	- Notification sent to all targeted users. - Users that enabled push notifications receive the notification from the application.	
Primary Actor	Administrator	
Secondary Actors	IWAC Database/Notification Center	
Trigger	Administrator selects "Send Announcement" from administrator page.	
Main Scenario	**Step**	**Action**
	1	Administrator logs in with an administrator account.
	2	Administrator navigates to "Announcements" section of the administrator page.

	3	Administrator selects "New".
	4	The system prompts administrative user with a field for new message.
	5	Administrator enters the title of the notification along with the announcement message.
	6	Administrator selects "Send".
	7	System sends notification to the push notification center.
	8	System sends announcement to all registered users.
	9	Users with notifications enabled receive the announcement through the application.
Extensions	**Step**	**Branching Action**
	1a	If notification fails to send**:**

|		The system displays "Failed to send" message.
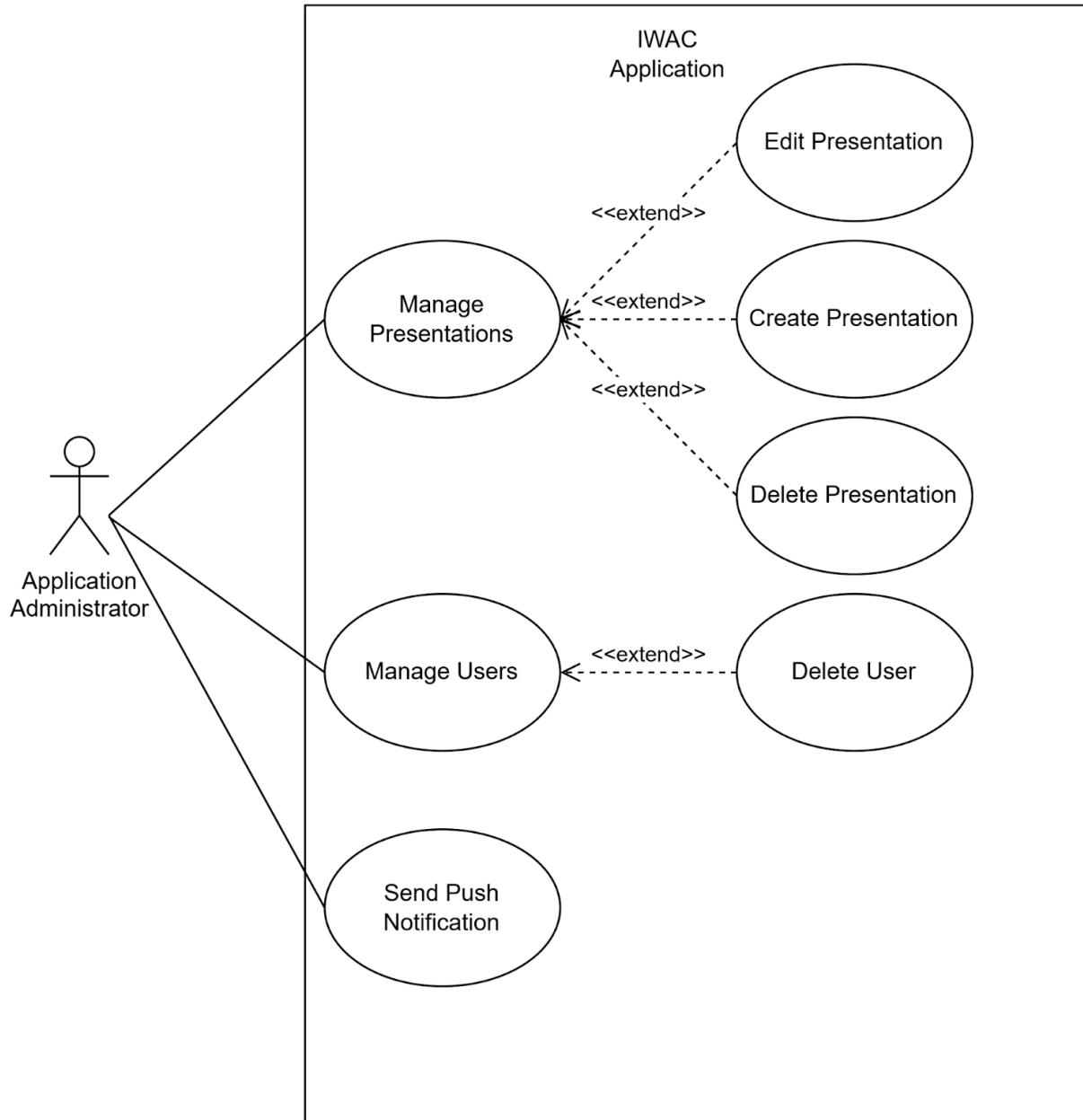
Figure 2.4 Use Case Diagram — Administrator Event and User Management

2.5 Functional Requirement Tests

Lastly, write the tests that will be used during system and acceptance testing to verify that each requirement has been met. Note that a single requirement may require multiple tests, so be thorough. It is also possible that a single test verifies more than one requirement. The goal is to come up with the minimum number of test cases that thoroughly test the system. Make sure that the test numbers correspond to the use case numbers.

All test cases verifying the functional requirements described in Sections 2.1 through 2.4 are presented in Table 2.5. Each test case is identified by a unique identifier, the FRs and specifies the corresponding functional requirements, preconditions, test description, and expected result. These tests will be executed using automated testing software to ensure consistency and efficiency.

Table 2.5 – Functional Requirement Tests

Test ID#	Covered Functional Requirement(s)	Preconditions	Test	Expected Result
1	FR-1 (Create Account)	- The email is registered for the conference. - No account in the application exists with the email.	Verify a successful account creation with valid credentials. 1) Open the welcome screen. 2) Select "Sign Up." 3) Enter valid email and create a password. 4) Tap "Create Account."	The user is redirected to the home screen in their personal account.
2	FR-1 (Create Account)	- The email is not registered for the conference.	Verify a failed account creation with an unregistered email. 1) Open the welcome screen. 2) Select "Sign Up." 3) Enter valid email and	An error message informs the user that no conference registration matches the

			create a password. 4) Tap "Create Account."	email.
3	FR-1 (Create Account)	- An account in the application exists with the email.	Verify a failed account creation with an unregistered email. 1) Open the welcome screen. 2) Select "Sign Up." 3) Enter an existing email and create a password. 4) Tap "Create Account."	An error message informs the user that the email is already associated with an account.
4	FR-2 (Login to Account)	- An account with the credentials exists in the database.	Verify a successful login with correct credentials. 1) Open the welcome screen. 2) Select "Sign In." 3) Enter a valid email and password. 4) Tap "Login."	The user is redirected to the home screen with their personalized content.
5	FR-2 (Login to Account)	- An account with the credentials does not exist in the database.	Verify a failed login attempt with an incorrect email or password. 1) Open the welcome screen. 2) Select "Sign In." 3) Enter an invalid email or password. 4) Tap "Login."	An error message indicates that the email or password is incorrect, and the login fails.
6	FR-3 (Edit Profile Details)	- The user is logged in.	Verify user can update and save changes to profile. 1) Open profile page. 2) Select "Edit Profile. 3) Modify bio or upload profile picture. 4) Click "Save" button.	The system successfully saves changes and they are reflected on the profile.
7	FR-4 (View Other User Profiles)	- User is logged in. - Other user has an account.	Verify users can view other users' profiles. 1) User selects another attendee's profile.	System displays other user's profile.
8	FR-5 (Message User)	- Database is connected. - User is logged in. - Recipient user has an account.	Verify messages can be sent and received. 1) User selects another attendee's profile. 2) User sends a message.	The message is sent and the recipient user can view the message.

9	FR-6 (Manage Push Notifications)	-The user is logged in. - Device notifications are enabled.	Verify user availability to toggle notification preferences 1) Open the Settings screen. 2) Select "Manage Notifications." 3) Toggle each category of notifications. 4) Tap "Save Changes." 5) Query the database for the user's notification preferences. 6) Confirm that the stored preferences match the user's selections.	The system updates the user's notification preferences and confirms with a message.
10	FR-7 (Filter Presentations)	- The user must be logged into their account. - All presentations are properly updated in the database.	1) Select different filters. 2) Click on "search". 3) Check that all the results returned match the filters selected. 4) Repeat for different filters and make sure they work as well.	The filtered list matching the selected filter tags is shown to the user.
11	FR-8 (Access Presentation Materials)	- The user must be logged into an account. - The user must navigate to the list of events. - The user must select an event.	Verify that the user is able to select the links associated with a presentation. 1) Select a presentation located on the events list tab. 2) Click on the link containing the presentation materials. 3) Verify the user is redirected to the Google Drive folder webpage.	The user will be redirected to the appropriate link using their web browser.
12	FR-9 (Add Presentation to Personal Calendar)	- The user must be logged into an account. - The user must navigate to the list of events.	Verify that the "favorited" presentation is added to the user's personal calendar. 1) Select a presentation on the events list tab. 2) "Favorite" the selected presentation. 3) Verify that the presentation is added to	The selected presentation that is "favorited" will be added to the user's personal calendar.

			the user's personal calendar.	
13	FR-10 (Access Personal Calendar)	- The user is logged in.	Verify user can access their calendar and view event details. 1) Open the welcome screen. 2) Select "My Calendar". 3) Click on any saved event.	The system successfully displays the details of the saved event.
14	FR-11 (Navigate to Event Location)	- The user is logged in. - Events are stored with associated addresses in the database.	Verify geographic navigation to an event location. 1) Open the Events or Calendar screen. 2) Select an event. 3) Tap the map icon. 4) Choose a navigation application when prompted.	The external map application opens with the event location as the destination.
15	FR-12 (Comment on Event)	- User is logged in. - Database is connected. - Event exists in the database.	Verify that the comment is visible to other users. 1) The user selects an event. 2) The user types a comment and clicks "Post." 3) Another user logs in to view the comment.	The system displays the comment to other users.
16	FR-13 (Access Previous Years' Presentations)	- User is logged in. - Past presentations are linked.	1) User selects "previous conferences." 2) User selects the conference year.	The system links to the google drive of the chosen year.
17	FR-14 (Create Presentation)	- Administrator is logged in - Application is connected to the database - Presentation details are filled out correctly	1) The administrator selects "create new presentation". 2) The administrator fills out the necessary details. 3) The administrator clicks "save".	The presentation is properly added to the database and the conference schedule.
18	FR-15 (Edit Presentation)	- Administrator is logged in - Application is connected to the database	1) The administrator selects a presentation. 2) The administrator clicks "edit". 3) The administrator changes	The presentation is properly updated in the database and the conference

				schedule
			the details they wish to change. 4) The administrator clicks "save".	
19	FR-16 (Delete Presentation)	- Administrator is logged in - Application is connected to the database	1) The administrator clicks a presentation. 2) The administrator clicks "delete".	The presentation is properly removed from the conference schedule, but still exists within the database to be found later, as necessary.
20	FR-17 (Delete User)	- The user is logged into an administrator account.	Verify administrator can delete user account. 1) Open the administrator screen. 2) Select user from list. 3) Click "Delete User". 4) Click "Confirm".	The system successfully removes user from the database.
21	FR-18 (Send Push Notifications)	- The user is logged into an administrator account.	Verify administrator can write notification. 1) Open the administrator screen. 2) Click on the "Announcements" section. 3) Click "New".	The system successfully displays blank field for administrator to write message.
22	FR-18 (Send Push Notifications)	- Administrator has clicked "New" in announcements section of administrator screen	Verify administrator can send notification to users. 1) Enters notification title and message. 2) Click "Send".	The system successfully sends notification to all users that have notifications enabled.

3. Non-Functional Requirements

This section defines the non-functional requirements (NFRs) of the IWAC Conference App. In contrast to the functional requirements detailed in Section 2, this section outlines the quality attributes and operational standards that govern the app's reliability, usability, and security. Table 3 uniquely identifies and prioritizes the NFRs to indicate each one's relative importance to stakeholders. Clear descriptions and corresponding system and acceptance tests are provided to ensure each requirement can be verified and traced through development. Altogether, these NFRs establish the performance expectations and quality benchmarks necessary for a stable, secure, and user-friendly conference application.

Table 3 – Nonfunctional Requirements (NFRs)

NFR ID#	Priority (1 = lowest, 5 = highest)	Description	Test
NFR-1	5	The system shall display the additional session information within 2 seconds of a user's selection, 95% of the time.	Measure the response time for 50 random session selections and verify 95% load within 2 seconds.
NFR-2	4	The system shall store user feed filters and persist them across sessions without data loss.	Verify through testing that filtering settings remain consistent after logout and application restart for 50 sessions.
NFR-3	5	User passwords shall be hashed and salted on the backend server using a secure algorithm.	Generate 500 sample passwords and verify that each is stored only as a salted hash in the database.

NFR-4	4	Administrative tasks including uploading, editing, and deleting conference data shall be completable without training by a new administrator within 15 minutes.	Conduct usability testing with Heather Falconer to measure tasks completion times and error rates on her first use of the system.
NFR-5	5	Changes to events shall be correctly synchronized between the application and the database.	Verify through testing that changes to either the application or database automatically update each other.
NFR-6	5	The application shall maintain 98% uptime throughout the conference.	Conduct stress testing, as well as uptime monitoring.
NFR-7	3	The system shall display the filtered list of panels within 2 seconds of setting the filters, 95% of the time.	Test the response time for 10 different accounts, 5 different times, and test to see if 95% of them show results within 2 seconds (and whether sequential searches affect it).
NFR-8	4	The user shall be capable of using the application to its completion without extensive tutorials, within 20 minutes of downloading it.	Conduct user testing and gather information on user confidence in using the application after 20 minutes of usage.
NFR-9	5	The application shall run on both Apple and Android cellphone operating systems.	The application will be tested on both of these operating systems to ensure all features function correctly.
NFR-10	5	Only users that have paid and registered for the IWAC will be able to create accounts.	We will create an account for a user that is registered for the IWAC and an account for a user that is not registered.

4. User Interface

See the User Interface Design Document for the IWAC Conference App.

5. Deliverables

All deliverable items to be produced over the course of the project are outlined in Table 5. Each row details the format, method of delivery, and expected delivery date of every deliverable. All electronic files will be uploaded and maintained through PenUltimate's GitHub repository.

Table 5 – Project Deliverables

Deliverable Item	Format	Method of Delivery	Expected Delivery Date
System Requirements Specification (SRS)	Hard Copy & Electronic File	Hard copy delivered in person, electronic file uploaded to GitHub Repository	October 29, 2025
User Interface Design Document (UIDD)	Hard Copy & Electronic File	Hard copy delivered in person, electronic file uploaded to GitHub Repository	December 3, 2025
User Manual (UM)	Hard Copy & Electronic File	Hard copy delivered in person, electronic file uploaded to GitHub Repository	Spring 2026
Administrator Manual (AM)	Hard Copy & Electronic File	Hard copy delivered in person, electronic file uploaded to GitHub Repository	Spring 2026
Biweekly Status Reports	Hard Copy & Electronic File	Hard copy delivered in person, electronic file uploaded to GitHub Repository	Biweekly Through Project
Source Code	Electronic File	Uploaded to GitHub Repository	Spring 2026
Executable Program	Electronic File	Uploaded to GitHub Repository	Spring 2026

6. Open Issues

The following issues have been identified during the requirements and design phases but remain unresolved. These issues will require further risk analysis and decision-making later in the development process to ensure successful system implementation.

6.1.1 Scalability

It is not yet determined what level of user capacity the system is required to support as the IWAC Conference continues to expand. The specific performance and responsiveness requirements for peak usage periods remain undefined.

The projected resolution date for this issue is <u>October 30, 2025</u>.

6.1.2 Administrator Data Management

The requirements for how administrators will manage conference data have not been finalized. It is unclear what level of functionality must be provided for uploading, editing, and deleting conference data, or how ease of use will be defined.

The projected resolution date for this issue is <u>October 30, 2025</u>.

6.1.3 Data Privacy

Requirements for protecting user data have not yet been explicitly defined. Further research will illustrate what level of data protection, access control, and user consent mechanisms are required to comply with institutional and legal standards.

The projected resolution date for this issue is <u>October 30, 2025</u>.

Appendix A – Agreement Between Customer and Contractor

Our team PenUltimate will be responsible for developing and integrating the features outlined in this document for the IWAC Conference Application, primarily focusing on features of importance that have a priority rating of 4 or 5, implementing others should time allow. The development can be done using open source software to base our work off of, and future managers will have access to our code and the database to be able to update it in the future as needed, as our involvement with developing this application will end after May 2026.

Should either party wish to make changes to this document, both parties must meet ahead of time and mutually agree on said change. If Heather Falconer is the party requesting these changes, they should reach out to our client liaison, Monica Agneta, with their requests. Similarly, should we request any changes to this document, Monica will reach out to Heather with our requests.

Signature: _____ Date: ___/___/_____

Signature: _____ Date: ___/___/_____

Signature: _____ Date: ___/___/_____

Signature: _____ Date: ___/___/_____

Signature: _____ Date: ___/___/_____

Signature: _____ Date: ___/___/_____

Appendix B – Team Review Sign-off

All team members have signed to acknowledge they have reviewed this document and agreed on both its content and format. If team members have minor disagreements, they may state them in the comments area.

Rebecca Sonnemann
Signature: _____ Date: ___/___/_____
Comments: _____
_____

Brett Palmer
Signature: _____ Date: ___/___/_____
Comments: _____
_____

Monica Agneta
Signature: _____ Date: ___/___/_____
Comments: _____
_____

Ben Caras
Signature: _____ Date: ___/___/_____
Comments: _____
_____

George Pitt
Signature: _____ Date: ___/___/_____
Comments: _____
_____

Appendix C – Document Contributions

C.1 Brett

Brett wrote the introductions for sections 2 and 3 and wrote section 6. He wrote FR-1, FR-2, FR-6, FR-11, NFR-3, and NFR-4, including the corresponding tests. Also, he made Figure 2.1. Lastly, Brett revised the document to maintain a logical structure and consistent format for headers, tables, diagrams, and labels.

Brett estimates that he did 20% of the work for this document.

C.2 Monica

Monica wrote section 1.1 and completed section 5. She wrote FR-3, FR-10, FR-17, FR-18, NFR-1 and NFR-2, including the corresponding tests.

Monica estimates that she did 20% of the work for this document.

C.3 George

George wrote the introduction for section 1 and completed Appendix C. He wrote FR-7, FR-14, FR-15, FR-16, NFR-7 and NFR-8.

George estimates that he did 20% of the work

C.4 Rebecca

Rebecca wrote the introductions for sections 1.2 and 1.3 and wrote Appendix B. She wrote FR-4, FR-5, FR-12, FR-13, NFR-5, and NFR-6. She made the profile management and messaging use case diagram.

Rebby estimates that she did 20% of the work for this document.

C.5 Ben

Ben wrote the entirety of section 1.4 as well as created the following figures: 1.4, 2.3, and 2.4. He also wrote FR-8, FR-9, NFR-9, and NFR-10 as well as wrote the tests associated with the functional requirements he wrote. He also created the revision history section of the document. Ben created all requirements or use cases initially and the entire team revised them and decided on which ones were necessary.

Ben estimates that he did 20% of the work for this document.