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# SOFTWARE REQUIREMENTS SPECIFICATION

for

Foreign Note iOS App

Version 1.0

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# 1 Executive Summary

Learning a new language is fun, but can also be very challenging. Usually, note-taking is involved in the process of learning new vocabulary or common phrases. Taking notes with a notebook or on an electronic device is one of many good ways to get started. However, as the collection of vocabularies or phrases grow larger, it can be harder to try to track down which vocabularies are related to which because they are either on different pages or there is no more space to insert another definition.

For that reason, we have come up with an idea to create a mobile app called *Foreign Note (FNote)*. The ultimate goal of the app is to improve the experience of learning a new language; that is, to make it more convenient and easier than before. The core functionality allows users to write down phrases or words along with their corresponding definitions and save them into one place, called Collection where user can create as many as they needed. The user then can place a tag on a word to define whether a word is related to or an alternative of another word within their entire list of collections. With *FNote*, users can continue adding more vocabulary to their collections, and quickly search and filter through them as they please. Users will no longer need to fumble through unorganized notes or worry about running out of paper in the middle of their note-taking process.

We will begin by explaining some of the expected resources we might need and further plans for this project. Then, we will discuss our goals for *FNote* in terms of business, usage, and system design.

## 2 System Vision

This diagram shows the overview and current plan for the system along with users and their primary concerns for the app.

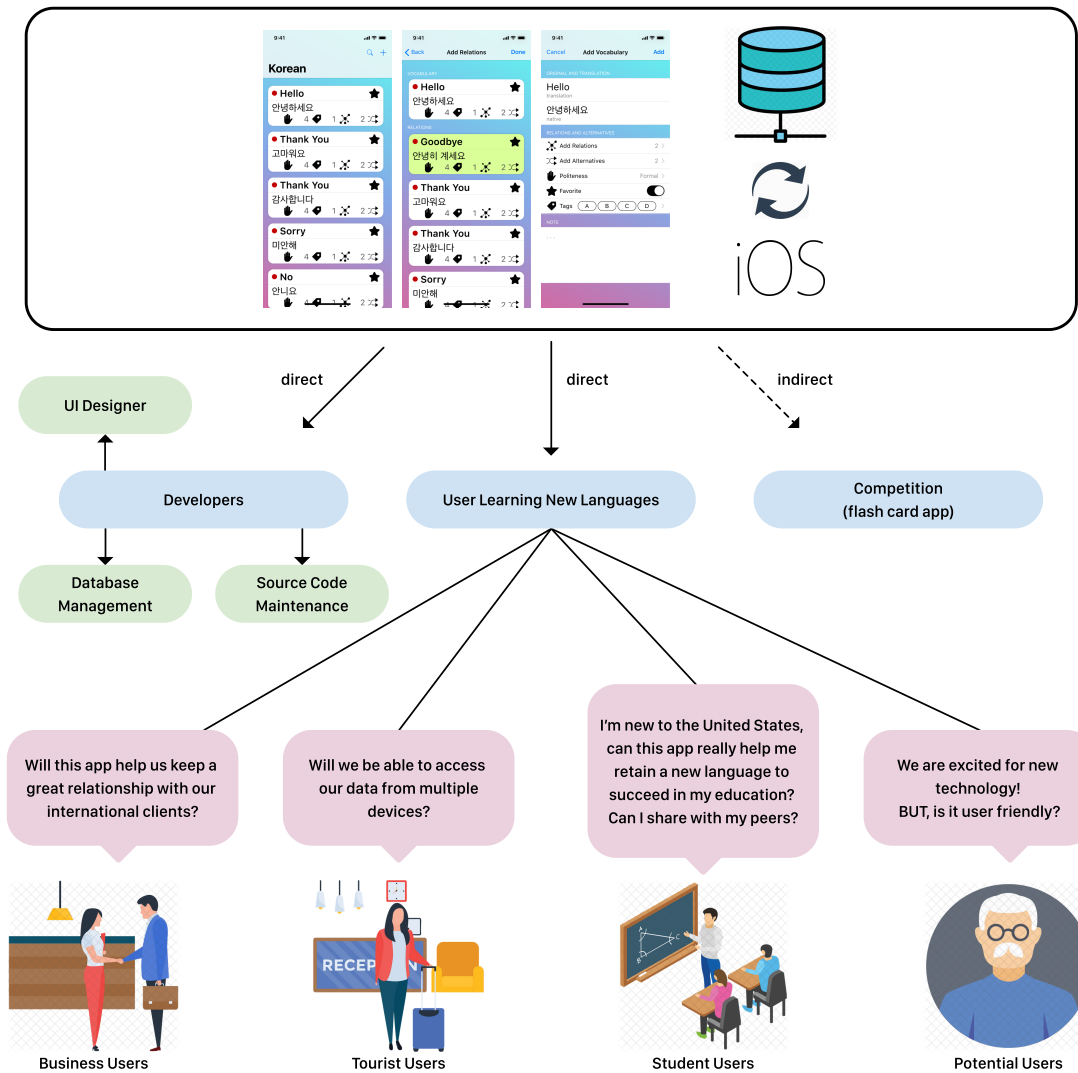


Figure 2.1: System Vision Diagram

# 3 Goal Model

## 3.1 Goal Diagram

This diagram shows goals derived from stakeholders, organized into system goals, usage goals, and business goals.

For more details, see [Stakeholder Goal Table](#)

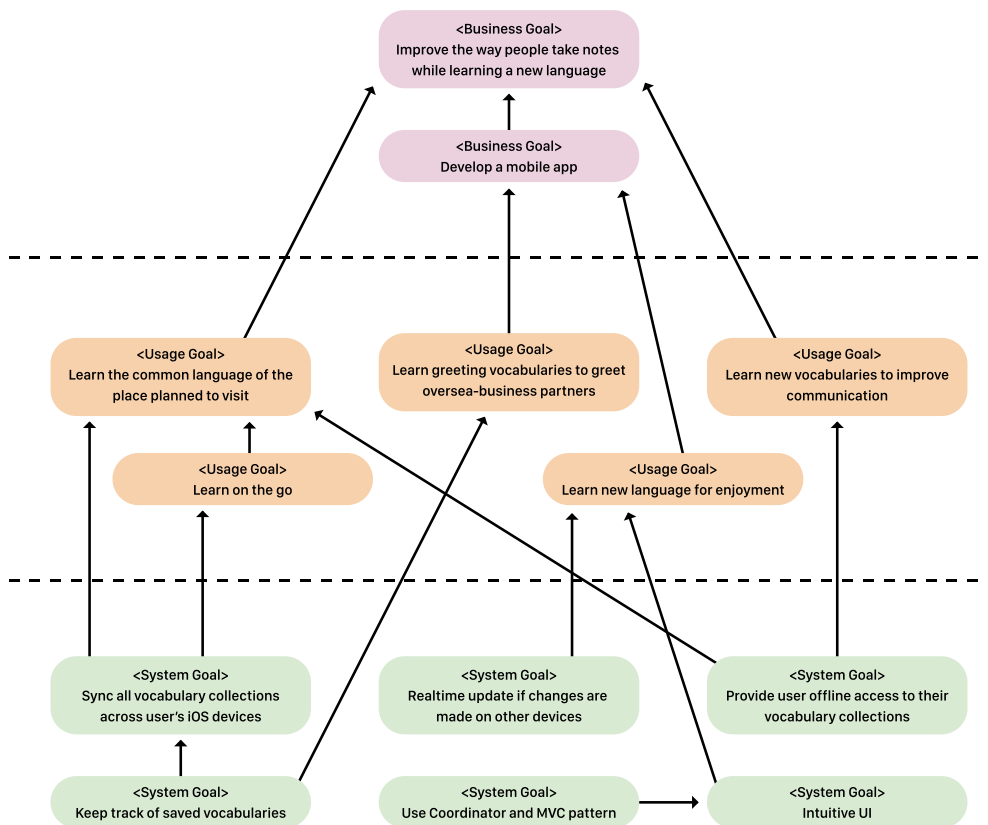


Figure 3.1: Goal Diagram

## 3.2 Stakeholder Goal Table

Matrix table of the [Goal Diagram](#)

Stakeholder	Goal
Student User	<ul style="list-style-type: none"><li>- Quickly learn to communicate</li><li>- Ex: Making new friends, education, or hanging out</li></ul>
Tourist User	<ul style="list-style-type: none"><li>- Learn the common language of the place they are travelling</li><li>- Ex: Greeting, order food, seeking medical attention, directions, or friendly conversation</li></ul>
Business User	<ul style="list-style-type: none"><li>- Learn common vocabularies while working with foreign partner-ing companies</li><li>- Ex: Greeting or business meetings</li></ul>
Potential User	<ul style="list-style-type: none"><li>- Keep track of new learning vocabularies</li><li>- Ex: Word of the day or trendy word</li></ul>
Developer	<ul style="list-style-type: none"><li>- Develop a mobile app</li><li>- Develop an app that can be used across all iOS devices</li></ul>
UI Designer	<ul style="list-style-type: none"><li>- Design a user-friendly user interface</li><li>- Adhere to <a href="#">Apple's Human Interface Guidelines</a></li></ul>

## 4 Stakeholder Model

### 4.1 Stakeholder Diagram

This Onion Model shows stakeholders and their respective relevance in the project. The closer to the center, the more important the stakeholder is.

For more details, see [Stakeholder Matrix](#).

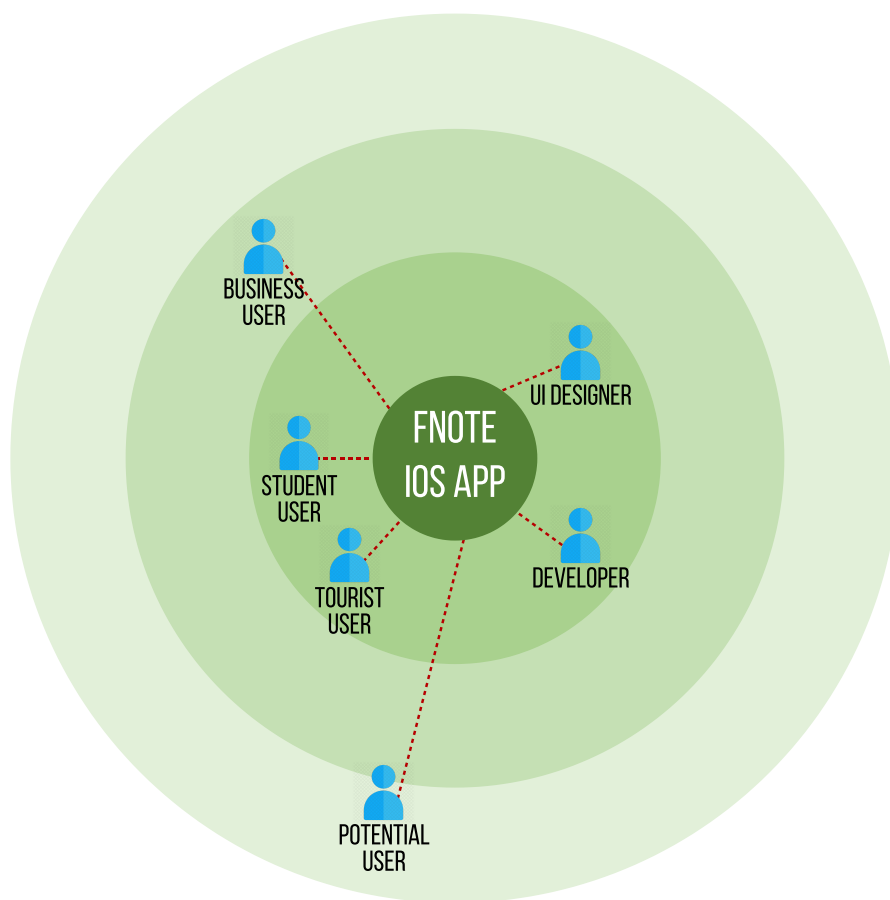


Figure 4.1: Onion Model

## 4.2 Stakeholder Matrix

Stakeholder	Motivation	Expectation	Skills	Priority
Student User	- To learn vocabulary of the common language in the new country where they have travelled to attend college	- An app that motivates them to keep learning - An app that is unique to their learning style	- Learning - Basic smart-phone knowledge - Note-taking	High
Tourist User	- To learn vocabulary that might be common in a country that they are planning to travel to	- While traveling, <i>FNote</i> should be accessible across all their iOS devices	- Planning - Basic smart-phone knowledge - Willingness to try something new	High
Business User	- To learn vocabulary from a language that might be common with a partnering foreign company	- An easy and effective app that can be used by users of any age	- Basic smart-phone knowledge - Communicating	Medium
Potential User	- To exercise their brain with some light learning that will benefit their skills of becoming multilingual	- A visually pleasing app that is user friendly	- Basic smart-phone knowledge	Low
Developer	- To aide in users learning a new language whenever and wherever they are - Make data sync across all user's devices	- Public the app on the App Store - Diverse Users - User satisfaction and frequent usage	- OOP - Data Structure and Algorithm - iOS Mobile Development - Xcode IDE - Swift Programming Language - CoreData (local database) - CloudKit (online database)	High
UI Designer	- To design a user friendly UI for the users	- Intuitive UI - Adhere to <a href="#">Apple's Human Interface Guidelines</a>	- Graphic Design - Graphic Software - Sketch or Adobe XD	High



## 5 Use Cases

For an overview, see [Use Case Overview Diagram](#)

### 5.1 Create Vocabulary Collection

Use Case	Create Vocabulary Collection
Goal in Context	Create a new collection to store vocabularies
Scope & Level	System
Preconditions	User must be logged in to an Apple ID.
Success End Condition	Vocabulary collection has been created.
Failed End Condition	Vocabulary collection has not been created.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps the create button
DESCRIPTION	Actions 1. System displays a create-collection scene 2. User names the collection and taps the save button 3. System create the collection
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User cancels <i>actions</i> System aborts the creation 2b. <i>condition</i> User does not name the collection <i>actions</i> System prompts user to enter the name
RELATED INFORMATION	N/A
Priority	High
Performance	5-10 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	N/A
Subordinates	<a href="#">Create Vocabulary</a>

## 5.2 Update Vocabulary Collection

Use Case	Update Vocabulary Collection
Goal in Context	Rename the collection
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. The collection must already exist.
Success End Condition	Vocabulary collection has been renamed.
Failed End Condition	Vocabulary collection has not been renamed.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps the rename button
DESCRIPTION	<p>Actions</p> <ol style="list-style-type: none"> <li>1. System displays a rename-collection scene</li> <li>2. User renames the collection and taps the save button</li> <li>3. System renames the collection</li> </ol>
EXTENSIONS	<p>Branching Actions</p> <p>3a. <i>condition</i> System finds a duplicate name  <i>actions</i> System prompts user that the name already exists and to reenter name</p>
SUB-VARIATIONS	<p>Branching Actions</p> <p>2a. <i>condition</i> User cancels  <i>actions</i> System aborts the renaming</p>
RELATED INFORMATION	N/A
Priority	High
Performance	5-10 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary Collection</a>
Subordinates	N/A

### 5.3 Delete Vocabulary Collection

Use Case	Delete Vocabulary Collection
Goal in Context	Delete the desired vocabulary collection
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. The collection must already exist.
Success End Condition	Vocabulary collection has been deleted.
Failed End Condition	Vocabulary collection has not been deleted.
Primary Actor	User
Secondary Actors	N/A
Trigger	User swipes to delete or taps the delete button
DESCRIPTION	Actions 1. System prompts for deletion confirmation 2. User agrees to delete 3. System deletes the collection
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User cancels the deletion <i>actions</i> System aborts the deletion
RELATED INFORMATION	N/A
Priority	High
Performance	3-5 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary Collection</a>
Subordinates	N/A

## 5.4 Create Vocabulary

Use Case	Create Vocabulary
Goal in Context	Add a vocabulary to the vocabulary collection
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. The collection must already exist.
Success End Condition	The vocabulary has been added.
Failed End Condition	The vocabulary has not been added.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps the add vocabulary button
DESCRIPTION	Actions 1. System displays the add-vocabulary scene 2. User fill in the required fields and tap save 3. System saves the vocabulary
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User taps cancels <i>actions</i> System aborts the creation
RELATED INFORMATION	N/A
Priority	High
Performance	60 seconds
Frequency	Often
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary Collection</a>
Subordinates	N/A

## 5.5 Update Vocabulary

Use Case	Update Vocabulary
Goal in Context	Modify the existing vocabulary
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. The vocabulary must already exist.
Success End Condition	The vocabulary has been updated.
Failed End Condition	The vocabulary has not been updated.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps the edit vocabulary button
DESCRIPTION	Actions 1. System displays the edit-vocabulary scene 2. User modifies the desired fields and tap save 3. System updates the vocabulary
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User taps cancels <i>actions</i> System aborts the editing
RELATED INFORMATION	N/A
Priority	High
Performance	60 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary</a>
Subordinates	N/A

## 5.6 Delete Vocabulary

Use Case	Delete Vocabulary
Goal in Context	Delete the existing vocabulary
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. The vocabulary must already exist.
Success End Condition	The vocabulary has been deleted.
Failed End Condition	The vocabulary has not been deleted.
Primary Actor	User
Secondary Actors	N/A
Trigger	User swipes to delete or taps the delete vocabulary button
DESCRIPTION	Actions 1. System removes the vocabulary from the collection
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 1a. <i>condition</i> System allows to undo the deletion <i>actions</i> System does not delete the vocabulary
RELATED INFORMATION	N/A
Priority	High
Performance	5 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary</a>
Subordinates	N/A

## 5.7 Create Tag

Use Case	Create Tag
Goal in Context	Allow user to generate custom tag and attach it to vocabularies, for instance, for easy searching and filtering
Scope & Level	System
Preconditions	User must be logged in to an Apple ID.
Success End Condition	The tag has been created.
Failed End Condition	The tag has not been created.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps on the create new tag button
DESCRIPTION	Actions 1. System displays create-tag scene 2. User names the tag 3. System saves the tag
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions N/A
RELATED INFORMATION	N/A
Priority	High
Performance	5 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	N/A
Subordinates	N/A

## 5.8 Update Tag

Use Case	Update Tag
Goal in Context	Rename the existing tag
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. A tag must already exist.
Success End Condition	The tag has been updated.
Failed End Condition	The tag has not been updated.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps on the rename button
DESCRIPTION	Actions 1. System renames the tag
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User cancels <i>actions</i> System aborts the renaming
RELATED INFORMATION	N/A
Priority	High
Performance	5 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Tag</a>
Subordinates	N/A



## 5.9 Delete Tag

Use Case	Delete Tag
Goal in Context	Delete the existing tag
Scope & Level	System
Preconditions	User must be logged in to an Apple ID. A tag must already exist.
Success End Condition	The tag has been deleted.
Failed End Condition	The tag has not been deleted.
Primary Actor	User
Secondary Actors	N/A
Trigger	User swipes to delete or taps on the delete tag button
DESCRIPTION	Actions 1. System prompts for deletion confirmation 2. User agrees to delete 3. System deletes the collection
EXTENSIONS	Branching Actions N/A
SUB-VARIATIONS	Branching Actions 2a. <i>condition</i> User cancels the deletion <i>actions</i> System aborts the deletion
RELATED INFORMATION	N/A
Priority	High
Performance	5 seconds
Frequency	Sometimes
Channels to actors	Database
OPEN ISSUE	What if there is not internet connection?
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Tag</a>
Subordinates	N/A

## 5.10 Search or Filter Through Vocabulary or Tag

Use Case	Search or Filter Through Vocabulary or Tag
Goal in Context	Look for specific existing vocabularies or tags
Scope & Level	System
Preconditions	User must be logged in to an apple ID.
Success End Condition	The user finds the word they are searching for.
Failed End Condition	The user does not find the word they are searching for.
Primary Actor	User
Secondary Actors	N/A
Trigger	User taps the search bar
DESCRIPTION	<p>Actions</p> <ol style="list-style-type: none"> <li>1. User types query in search field</li> <li>2. System displays live results while user is typing in search field</li> <li>3. User taps search button</li> <li>4. System displays desired search results</li> </ol>
EXTENSIONS	<p>Branching Actions</p> <ol style="list-style-type: none"> <li>3a. User selects from live results</li> </ol>
SUB-VARIATIONS	<p>Branching Actions</p> <ol style="list-style-type: none"> <li>2a. <i>condition</i> The word does not pop up in suggested <i>actions</i> System displays empty result</li> <li>4a. <i>condition</i> User selects filter options <i>actions</i> System displays the filtered result</li> </ol>
RELATED INFORMATION	N/A
Priority	High
Performance	1-3 seconds (depending on user's vocabulary collections size)
Frequency	Often
Channels to actors	Database
OPEN ISSUE	N/A
Due Date	Version 1.0 release
Other Management Info	N/A
Superordinate	<a href="#">Create Vocabulary</a>
Subordinates	N/A

## 5.11 Use Case Overview Diagram

This diagram represents a user and their potential usage within the system.

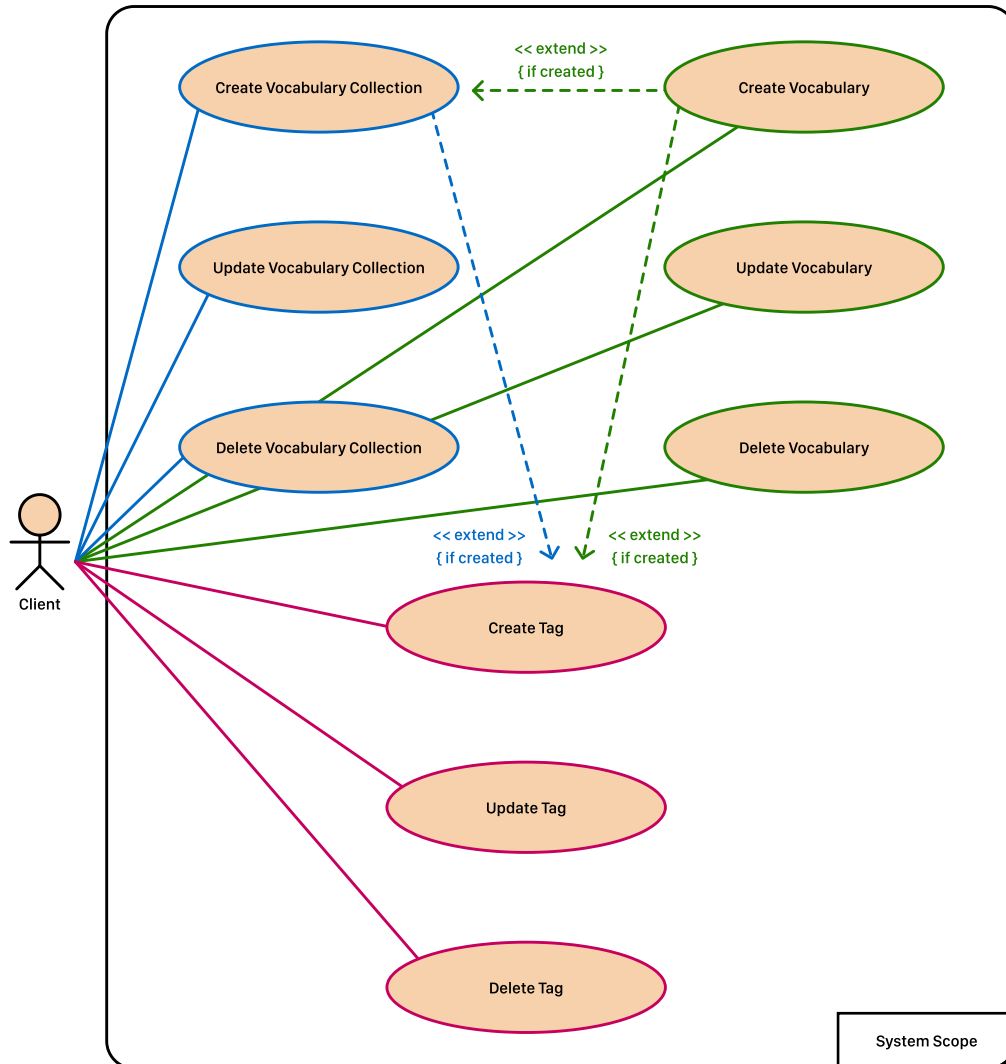


Figure 5.1: Use Case Overview Diagram

## 6 Other Nonfunctional Requirements

### 6.1 Process Requirement

#### 6.1.1

NFR	Meeting in an online environment
Rationale	Develop a mobile app
Satisfaction	We use discord to quickly chat with each other.
Measurement	Getting each other's usernames to connect on discord.
Risk	We will not be able to develop this app.

#### 6.1.2

NFR	Meeting during 491
Rationale	Develop a mobile app
Satisfaction	We have perfect attendance to class meetings.
Measurement	Holding each other accountable for coming to class twice a week.
Risk	We will not be able to develop this app.

#### 6.1.3

NFR	Using collaborative documents
Rationale	Develop a mobile app
Satisfaction	Everyone participates on the latest deliverables.
Measurement	We have access to the documents at the same time using Google Docs.
Risk	Developers are not on the same page.

#### 6.1.4

NFR	Use project management software
Rationale	Develop a mobile app
Satisfaction	Everyone is organized, knows what tasks are assigned to them, and knows what has been completed.
Measurement	Use Trello and have team leader check it weekly.
Risk	The project will take longer to complete due to being unorganized and wasting potential time by working on duplicate tasks, not knowing what to do, or when due dates are.

## 6.2 Deployment Requirement

### 6.2.1

NFR	Obtain Developer License
Rationale	Develop a mobile app
Satisfaction	Able to access developer portal
Measurement	Check account membership details.
Risk	We are unable to publish to the apple store.

### 6.2.2

NFR	Apple's Approval of the app
Rationale	Develop a mobile app
Satisfaction	Adhere to Apple's guidelines.
Measurement	Review the guidelines prior to development.
Risk	We are unable to publish to the apple store.

### 6.2.3

NFR	Public to the Apple's App Store
Rationale	Develop a mobile app
Satisfaction	Users can find and download our app on the store.
Measurement	We check how many downloads we get per day.
Risk	We are unable to publish to the apple store.

## 6.3 System Constraints

### 6.3.1

NFR	App must solely run on an iOS device
Rationale	Learn on the go
Satisfaction	The app can run on a device with two versions below the latest iOS version.
Measurement	Check which version the app is installed on the most.
Risk	The app will not be used by the user.

### 6.3.2

NFR	User must be logged in
Rationale	Sync all vocabulary collections across all owned iOS devices
Satisfaction	User's data syncs in 10 seconds or less.
Measurement	Test sync time on multiple iOS devices.
Risk	The user cannot access their data

### 6.3.3

NFR	Use Core Data to persist data locally
Rationale	Provide user offline access to their vocabulary collections
Satisfaction	Data will persist in local storage.
Measurement	Exit the app and check if the data is still there after logging in while connected to cellular data.
Risk	The user cannot access their data.

### 6.3.4

NFR	Use CloudKit to sync and update data
Rationale	Real time update if changes are made on their devices
Satisfaction	The data syncs in 10 seconds.
Measurement	Exit the app after making a change and check if the data is updated on another device after waiting 10 seconds.
Risk	The user cannot access their data across their owned iOS devices.

## 6.4 Quality Requirement

### 6.4.1

NFR	Build user-friendly User Interface
Rationale	Intuitive UI
Satisfaction	Users are confident in their ability to use the app.
Measurement	Log how many times users use the help function during beta phase.
Risk	Receive bad reviews.

### 6.4.2

NFR	Easy to maintain
Rationale	Use MVC and Coordinator design pattern
Satisfaction	The code and modules are reusable and easy to refactor.
Measurement	Developers should be able to understand each other's code during monthly code review.
Risk	Takes a long time to fix bugs.

### 6.4.3

NFR	Vocabulary searching/filtering
Rationale	Keep track of saved vocabularies
Satisfaction	System should take 1-2 seconds to search and filter.
Measurement	Use unit testing to measure the search speed.
Risk	User cannot quickly find what they are looking for.