

CSC 431  
Roll Companion  
Software Requirements Specification (SRS)

Team 4

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## Version History

Version	Date	Author	Description
1.0	20-Feb-2023	Alicia	Initial Draft
1.1	21-Feb-2023	Alicia	Functional Requirements
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1.6	24-Feb-2023	Robert	System Constraints
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# 1 System Requirements

## 1.1 Functional Requirements

### 1.1.1 Account Sign Up

Title	Account Sign-Up
Description	Form to create a new account
Priority	0 Mandatory
Precondition(s)	User has downloaded and opened application
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Sign-Up' button</li><li>• User is presented with a form with fields for username, email, and password</li><li>• User fills in information and selects 'Create Account' button</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• If creation is successful message 'Account has been created' appears along with the option to log in</li><li>• If email is associated to existing account error message and the option to log in will be displayed</li><li>• If fields are blank or incorrect data types error message will be displayed</li></ul>
Use Case Diagram	3.0.1

Table 1: Account Sign Up

### 1.1.2 Account Log In

Title	Account Log In
Description	Form log into existing account
Priority	0 Mandatory
Precondition(s)	User has downloaded and opened application User has created an account
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Log In' button</li><li>• User fills in email and password fields</li><li>• User selects 'Log In' button</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• If validation is successful user is directed to Home page</li><li>• If validation is unsuccessful user is presented with error message and the option to try again, create account, or recover password</li></ul>
Use Case Diagram	3.0.1

Table 2: Account Log In

### 1.1.3 View Graph

Title	View Graph
Description	User can see a graph neural network that represents their skill level at various techniques and their relationships
Priority	0 Mandatory
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li><li>• User has entered at least one skill into app</li></ul>
Basic Flow	User is on the Home screen and views the graph generated according to their skills
Postcondition(s)	NA
Use Case Diagram	3.0.1

Table 3: View Graph



#### 1.1.4 Insert/Update Skills

Title	Insert/Update Skills
Description	Insert new skills or uodate exisiting skills
Priority	0 Mandatory
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened appli-cation</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Menu' button from Home screen</li><li>• User selects 'Skills' button from Menu</li><li>• User will be presented with a form with different skills and will be able to input their skill level from 0 to 5</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• User will be directed to Home screen af-ter exiting skills screen</li><li>• Graph Neural Network in Home screen will incorporate new skills</li></ul>
Use Case Diagram	3.0.1

Table 4: Insert/Update Skills

### 1.1.5 View/Modify Account Settings

Title	Account Settings
Description	Allows user to see and modify account settings
Priority	3 Medium
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User clicks on their profile icon at the top of the home screen</li><li>• User can view profile icon/photo, username, email</li><li>• User can modify profile photo and username</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• Modifications are automatically saved when exiting Account Settings</li><li>• When exiting Account Settings user will be directed to home screen</li></ul>
Use Case Diagram	3.0.1

Table 5: Account Settings

### 1.1.6 Add Friends

Title	Add Friends
Description	Befriend other users
Priority	4 Low
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Menu' button from Home screen</li><li>• User selects 'Friends' button from Menu</li><li>• User selects 'Add' button from Friends screen</li><li>• User types desired username in the search bar</li><li>• User selects '+' button next to the desired username</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• If requested user accepts friend request new friends will be added to Friend List</li><li>• If requested user denies friend request there will be no changes</li><li>• If desired user does not exists it will not appear after search, no message will appear</li><li>• User will be directed to home screen after exiting Friends screen</li></ul>
Use Case Diagram	3.0.1

Table 6: Add Friends

### 1.1.7 View Friend Profile

Title	View Friend Profile
Description	View a specific friend's profile
Priority	4 Low
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li><li>• User selects 'Menu' button from Home screen</li><li>• User selected 'Friends' button from Menu</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User clicks on a friend's username or icon from the Friend List</li><li>• User will see friends icon, username, belt rank and skill level</li></ul>
Postcondition(s)	<ul style="list-style-type: none"><li>• User will be directed to Friends screen after exiting Friend Profile screen</li><li>• User will be directed to Home screen after exiting Friends screen</li></ul>
Use Case Diagram	3.0.1

Table 7: View Friend Profile

### 1.1.8 View Video Tutorials

Title	View Video Tutorials
Description	View instructional videos of technique demonstrations
Priority	1 High
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Menu' button from Home screen</li><li>• User selects 'Library' button from Menu</li><li>• User clicks on the preferred category</li><li>• User clicks on the preferred video tutorial and it will open on full screen format</li></ul>
Postcondition(s)	User will be directed to Home screen after exiting Library screen
Use Case Diagram	3.0.1

Table 8: View Video Tutorial

### 1.1.9 Log Out

Title	Log Out
Description	User logs out of their account
Priority	2 High
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Basic Flow	<ul style="list-style-type: none"><li>• User selects 'Menu' button from Home screen</li><li>• User selects 'Log Out' option from Menu</li></ul>
Postcondition(s)	User will be logged out and directed to the opening screen
Use Case Diagram	3.0.1

Table 9: Log Out

## 1.2 Non-Functional Requirements

### 1.2.1 Performance

Title	Response Time
Description	Response time for in app interaction should exceed no more than 1 second.
Priority	0 Mandatory
Applicable FR(s)	1.1.3 - 1.1.8

Table 10: Performance

### 1.2.2 Security

Title	Security
Description	Must enforce secure communication and apply network security measures
Priority	0 Mandatory
Applicable FR(s)	1.1.1 - 1.1.9

Table 11: Security

### 1.2.3 Capacity and Scalability

Title	Storage
Description	1TB of cloud storage for video library.
Priority	1 Very High
Applicable FR(s)	1.1.9

Table 12: Storage

Title	Growth
Description	Must handle number of users with scaling of: 1000, 10,000, 100,000.
Priority	0 Mandatory
Applicable FR(s)	1.1.6 - 1.1.9

Table 13: Growth

### 1.2.4 Availability

Title	Hours of operation
Description	24/7 - weekly 30 min maintenance with video updates
Priority	2 High
Applicable FR(s)	1.1.10

Table 14: Hours of Operation

Title	Location of operation
Description	The app will have initial servers in New York & San Diego. With growth this can be extended to Rio de Janeiro and London.
Priority	2 High
Applicable FR(s)	View Video Library, Add Friends, Respond to Friend Request, View Friend Profile

Table 15: Capacity and Scalability

### 1.2.5 Maintainability

Title	Coding Standards
Description	Previous code and functionality must be refactored before new functionality is released.
Priority	0 Mandatory
Applicable FR(s)	All

Table 16: Coding Standards

### 1.2.6 Recovery

Title	Restore Time
Description	If servers go down the app will still be offline and video library access back in 30 minutes max
Priority	2 High
Applicable FR(s)	1.1.10

Table 17: Restore Time



## 2 System Constraints

### 2.1 Tool Constraints

#### 2.1.1 Integrated Development Environment

Title	IDE
Description	Any major IDE can be used for the development process
Priority	4 Low

Table 18: Integrated Development Environment

### 2.2 Language Constraints

#### 2.2.1 Programming Languages and Development

Title	Dart and Flutter
Description	Dart must serve as the main programming language and Flutter must be used for UI development
Priority	3 Medium

Table 19: Flutter

Title	Python
Description	Python must be used for the development of the graph neural network
Priority	2 High

Table 20: Python

Title	Firebase
Description	Firebase must be used as a back-end to host the application
Priority	3 Medium

Table 21: Flutter

## 2.3 Platform Constraints

### 2.3.1 Mobile Devices

Title	Android
Description	Must be compatible with an Android device
Priority	2 High

Table 22: Android

Title	iOS
Description	Must be compatible with an iOS device
Priority	2 High

Table 23: iOS

## 2.4 Hardware Constraints

### 2.4.1 Battery life

Title	Battery life
Description	Must use Doze and App Standby power saving methods to optimize battery efficiency
Priority	1 Urgent

Table 24: Battery life

### 2.4.2 Memory

Title	Memory
Description	Must use memory-efficient code constructs and monitor memory usage of the system
Priority	2 High

Table 25: Memory

### 2.4.3 Screen size and resolution

Title	Screen size and resolution
Description	Must design an interface appropriate for a mobile device
Priority	2 High

Table 26: Screen size and resolution

## 2.5 Network Constraints

### 2.5.1 Latency

Title	Latency
Description	Must have a latency time of 20 ms
Priority	2 High

Table 27: Latency

### 2.5.2 Internet and Bluetooth

Title	Internet and Bluetooth
Description	Must connect to the internet and interact with other devices
Priority	3 Medium

Table 28: Internet and Bluetooth

## 2.6 Deployment Constraints

### 2.6.1 Publishing Application

Title	App Store
Description	Must be released on the App Store
Priority	2 High

Table 29: App Store

Title	Google Play
Description	Must be released on the Google Play Store
Priority	2 High

Table 30: Google Play

## 2.7 Transition & Support Constraints

### 2.7.1 Maintenance

Title	Maintenance
Description	Application must be maintained but no support provided for users after completion of development
Priority	4 Low

Table 31: Maintenance

## 2.8 Budget & Schedule Constraints

### 2.8.1 Timeline

Title	Timeline
Description	Project needs to be completed by May 3, 2023
Priority	2 High

Table 32: Timeline

Title	Agile Development
Description	Project must be completed using Agile development, delivering frequent results
Priority	3 Medium

Table 33: Agile Development

### 3 Requirements Modeling

#### 3.0.1 User and System Use-Case Diagram

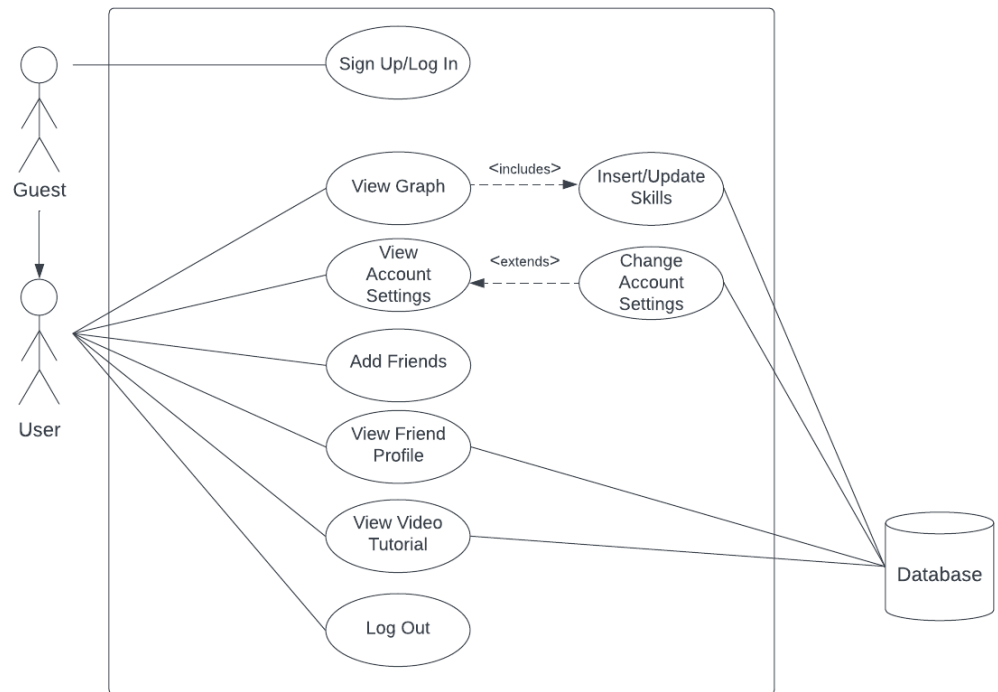


Figure 1: User and System Use-Case Diagram

## 4 Evolutionary Requirements

### 4.1 Functional Requirements

#### 4.1.1 Save Videos

Title	Save Videos
Description	Ability to save videos into own library
Priority	4 Low
Precondition(s)	<ul style="list-style-type: none"><li>• User has downloaded and opened application</li><li>• User has created an account</li><li>• User is logged in</li></ul>
Postcondition(s)	Videos saved will be in a separate personal library

### 4.2 Non-Functional Requirements

#### 4.2.1 Uptime

Title	Uptime
Description	Application should not be down for more then 20 minutes a month.
Priority	3 Medium
Applicable FR(s)	N/A