COMSATS University Islamabad (CUI)

Assignment-02

CLO-2

**Software Requirement Specification
(SRS DOCUMENT)**

for

Speech2Face

Version 2.0

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1. Introduction

The whole objective of this document is to cover all the details of **Speech2Face Application**. All the functionalities and requirements of the software are described in detail. The document contains all the description of the tasks that can be performed using the Application.

All the modules of the system are explained in detail. The functional and non-functional requirements of the system are provided in depth. This document will be useful for all the stakeholders involved in the project because it provides a comprehensive and in-depth information about the modules, function and non-functional requirements of the proposed system. The document will clearly describe what they would be able to do and what the system will not be able to do.

1.1 Purpose

The purpose of this document is to allow all the stakeholders involved in the project to understand the parameters, complexities and goals of the Speech2Face. The stakeholders include developers, project managers, project supervisors, client, users, testers and document writers.

The document will make it easy to understand the requirements and the outcomes of the project. This document will allow the developers to differentiate between the functional and non-functional requirements of the project and it will also make the requirements clear which needs to be implemented by the developer Stake holders and are assured to be included by the specified clients.

1.2 Scope

Speech2Face will be a Research and development-based Product with the main functionality to convert the voice into vector form and the vector form to image form and thus assisting in providing insights about the details of the person whose voice is under observation. It will be developed using different technologies and Deep Learning and machine learning techniques will be used. The Image generated can be modified in accordance with the users' perspective.

General user: They can retrieve their images from their voice notes.

Security Agencies: It Can help them identify the criminals and speed up the process of resolving complex cases.

1.3 Modules

1.3.1 Module 1: Profile Management

MF-1.1 Sign Up
MF-1.2 Login
MF-1.3 Sign in Via Phone
MF-1.4 Sign in as a Guest
MF-1.5 Sign in Via Voice
MF-1.6 Update Profile Information
MF-1.7 Delete Profile
MF-1.8 Logout

1.3.2 Module 2: Place Voice Record

MF-2.1 Record Voice
MF-2.2 Upload Existing Voice
MF-2.3 Upload Existing Video to fetch Voice
MF-2.4 Update Voice
MF-2.5 Update Video
MF-2.6 Delete Voice
MF-2.7 Delete Video

1.3.3 Module 3: Sound to Face Vector Model

MF-3.1 Sound to vector Modeling via Deep Learning
MF-3.2 Generate Vector Model

1.3.4 Module 4: Face-Vector to Face-Image Model

MF-4.1 Vector to Image Modeling via Deep Learning
MF-4.2 Generate Image Model

1.3.5 Module 5: Image View Customization

MF-5.1 Brightness Control
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MF-5.3 Skin Color Management
MF-5.4 Filters

1.3.6 Module 6: Features Enhancer

MF-6.1 Face Shape Enhancement
MF-6.2 Nose Enhancement
MF-6.3 Eyebrow Enhancement
MF-6.4 Beard Maker
MF-6.5 Eye Enhancement

1.3.7 Module 7: Insight Panel

MF-7.1 View Report
MF-7.2 Download Report
MF-7.3 Share on Socials

1.3.8 Module 8: Feedback Panel

MF-8.1 Rate Result
MF-8.2 Feedback in terms of words
MF-8.3 System Lagging Checks

1.3. 9 Module 9: Help and Support

MF-9.1 Chat with AI Bot
MF-9.2 Contact Support Team
MF-9.3 Change Bots-Language
MF-9.4 View Bot's Query History

1.4 Overview

The document contains all the useful frameworks and parameters of the Application Software. The document is organized in the following manner:

- The **Introduction** contains the purpose, scope and the modules of the Software.

- After the introduction, product perspective, operating environment and design/implementation constraints are defined.

- Subsequently, **use case** diagrams are used to describe use cases of our software.

- Then the functional and non-functional requirements of the software are described in depth.

- In the end, the external interface requirements like user, software, hardware, and communication interfaces are described in detail.

2. Overall Description

Speech2face is a web and mobile application-based software that is mainly built to recognize the face general structure, ethnicity and gender with the audio waves. Currently there is
no full fledge software in the world that helps in this regard although there are deep learning libraries on which much work is done in the past. It was nearly impossible to predict the appearance of some person with his/her voice. But Artificial Intelligence has made it.
It will automate the attendance system and reinvigorate the authentication system as well.

2.1 Product Perspective
The main idea of this project originated when the need of recognizing the facial features of the person from their voice arised. From the perspectives of a general user it is fun and overwhelming but from the perspective of any representative of Intelligence and security agencies it is highly benefitial. There are no realtime systems in the market which assists us in this regard.

2.2 User classes and characteristics

Table 1: Actors and their Characteristics

Character	Characteristics
User	- The user can sign up/sign in via different ways. - The user can set up voice sign up as well. - Profile updation and deletion can be happened. - The Voice can be recorded, uploaded from pre-existing sources can be updated and deleted as well. - The voice can be transformed from Sound to vector Model - The vector model can be further transformed into Image Model - The image can be customized. - The user can share the image on socials. - Feedback can be given. - For System specifications they can chat with AI Bot and even contact the support team.
Security Agencies representative	- Along with other functionalities they can also Enhance the features of the image formed. - They can download Insight report in PDF format.

2.3 Operating Environment

✓ **Web Browsers:**
> All versions of Google Chrome, Mozilla Firefox, Microsoft Edge, Opera and Apple Safari.

✓ **Operation Systems:**
> Android versions 6 and above; and iOS versions 11 and above.

✓ **Geographical Location:**
> The system mainly focuses all human beings being the R&D product.

✓ **Database and Website Hosting and Servers:**
> Netlify will host our database and website. Nearest server locations of Netlify are located in Singapore and Amsterdam.

2.4 Design and Implementation Constraints

Following are the system constraints:

- The System shall use already built top rated Machine and deep learning libraries which are trained over a vast data set.
- The application will require good internet connection.
- The application will not operate on Android versions lower than 6 and iOS version lower than 11.
- The system shall use the current Firebase standards.
- For recording voice notes the access to microphone should be provided

3. Requirement Identifying Technique

Following requirements gathering techniques were implemented.

3.1. Questionnaire and Surveys:

1.1.1. A set of Questions were given to the public for their thoughts on application. Requirements for our system were extracted from these Questionnaires. Data was gathered for Improvement and best features that were to be included.

3.2. Group Discussion:

1.2.1. Group discussions with public and group partner were held for gathering the information necessary for development of this application.

3.3. Studying Related Systems:

1.3.1. Various related system was studied to improve the requirements and cope up with the problems of the users. Research was complete and adequate to add value to the users.

3.4. Observation:

1.4.1. Different types of people were observed in different cases to make the system more reliable to the user and help solve their main problems through the system.

3.5. Use Case(s) Diagram:
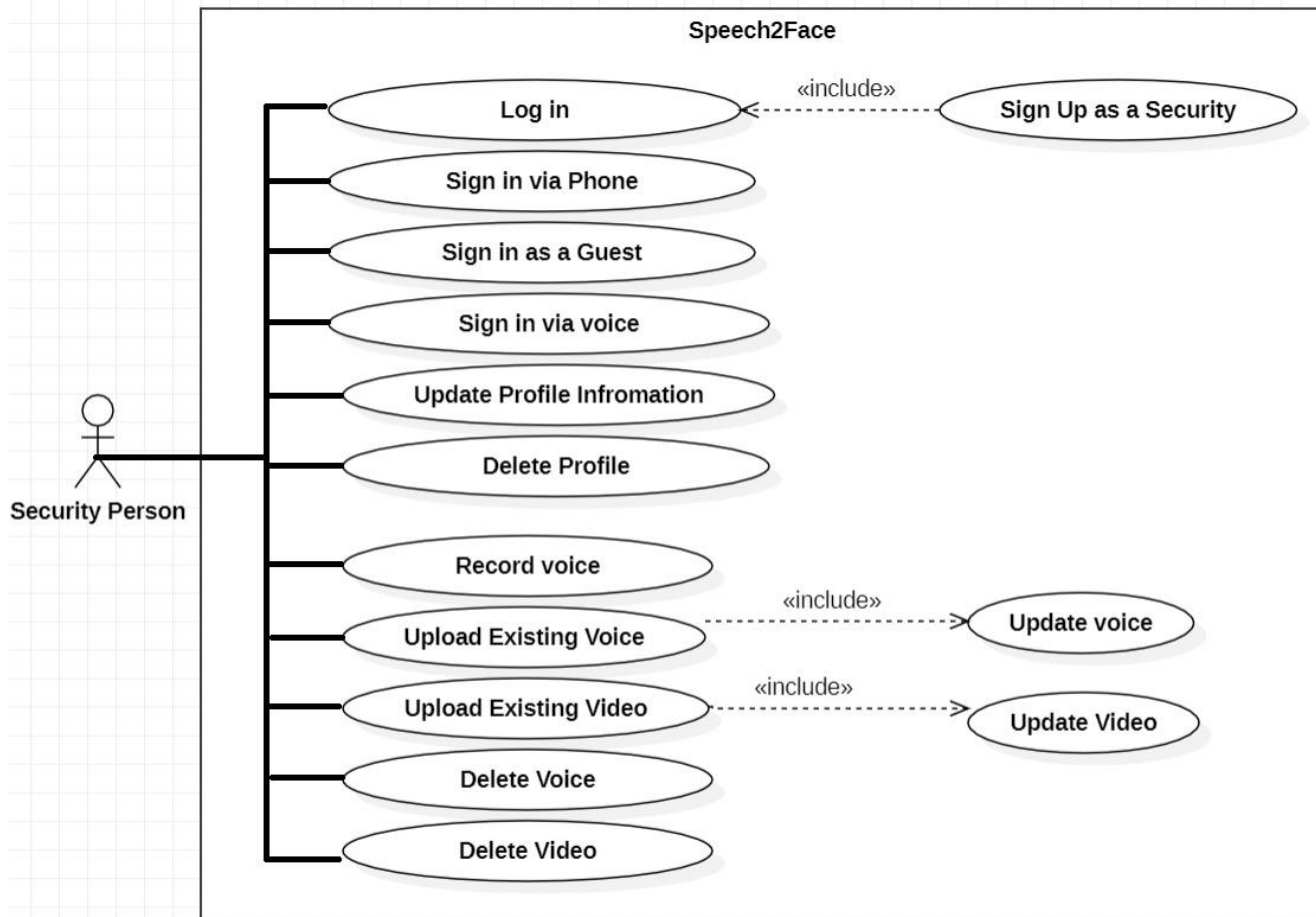
Figure 1 Use case Diagram for Module 1 and 2 for Security Person
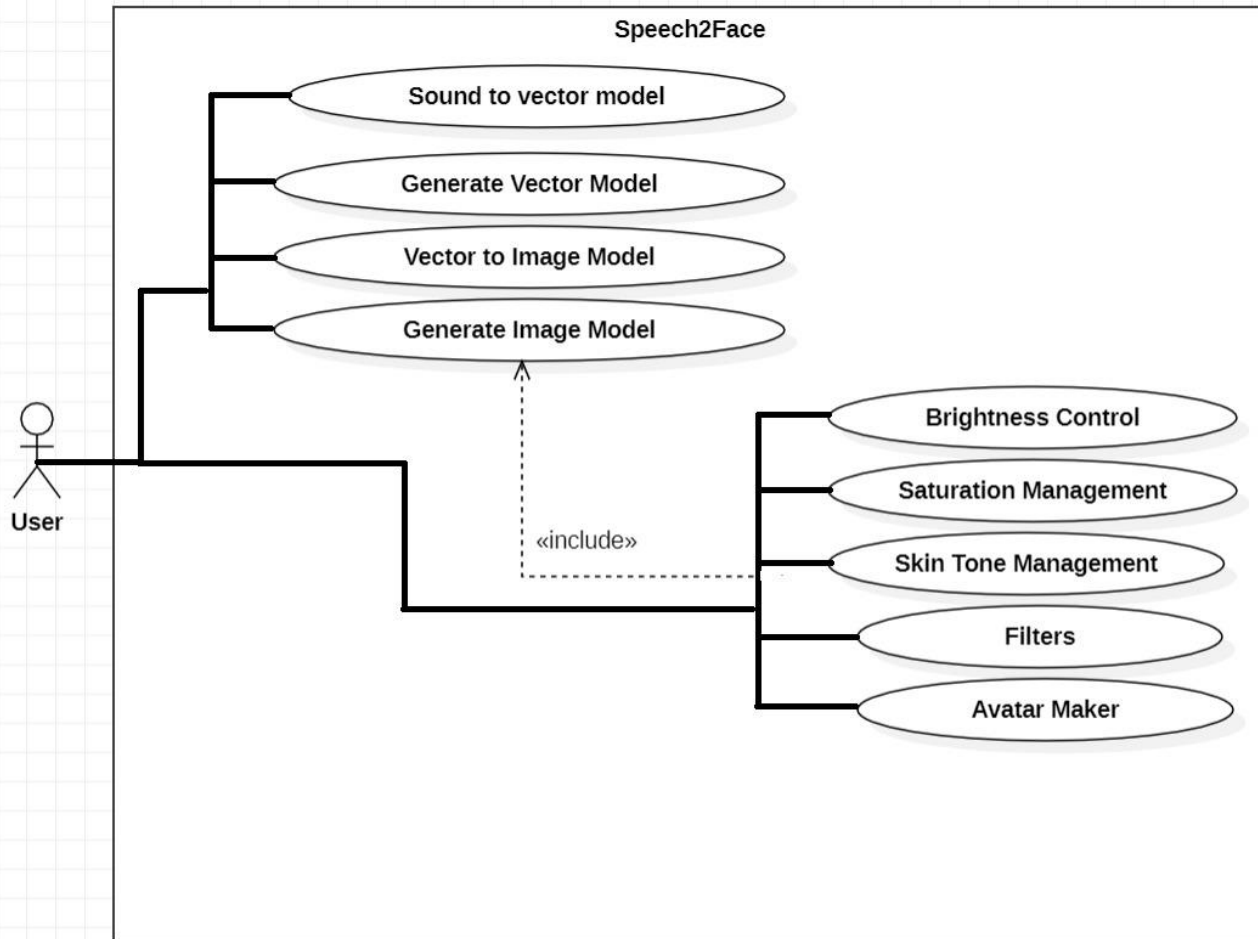
Figure 3 Use Case diagram for module 3 4 and 5 for User
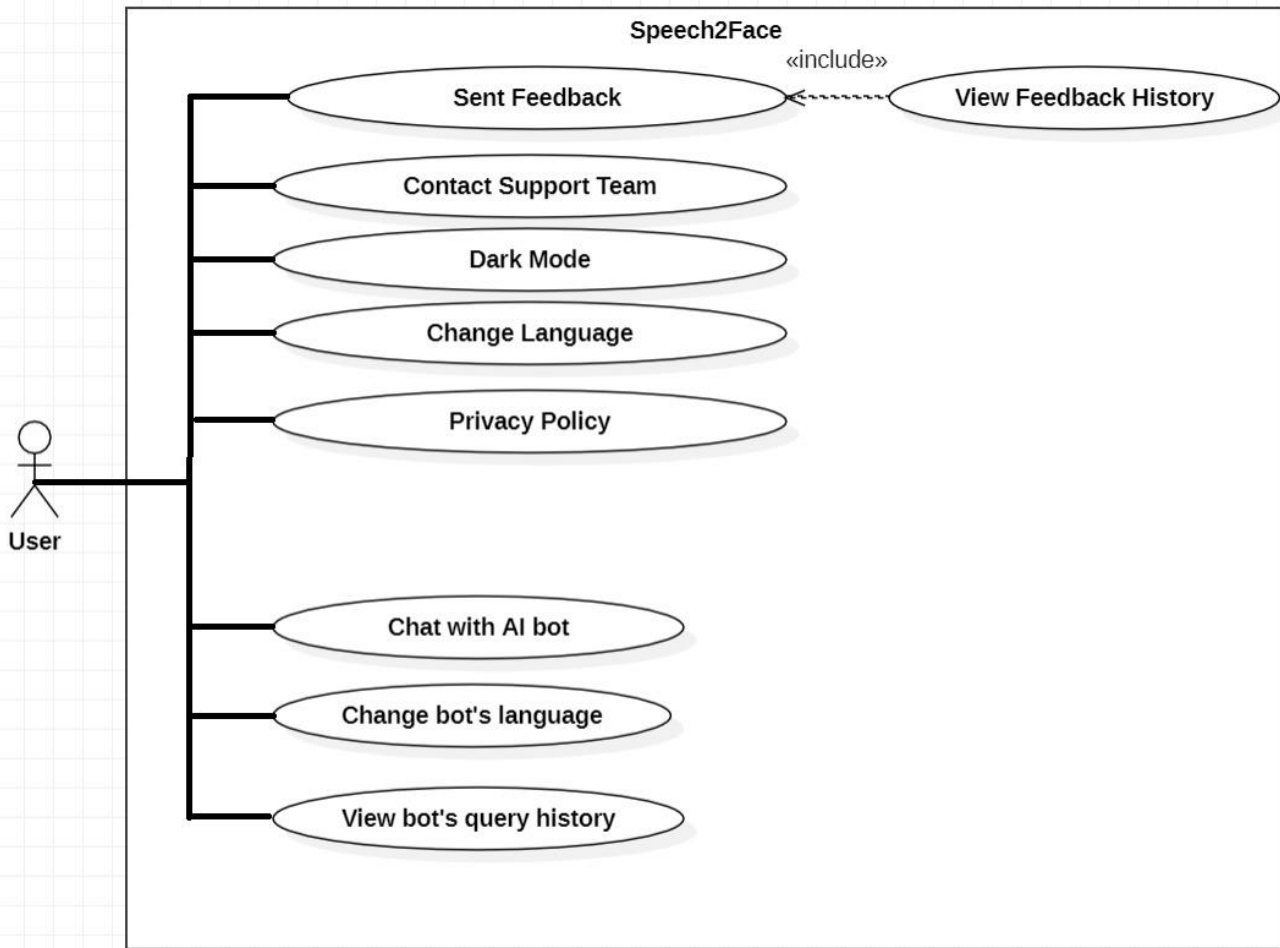
Figure 5 Use Case diagram for module 8 and 9 for User
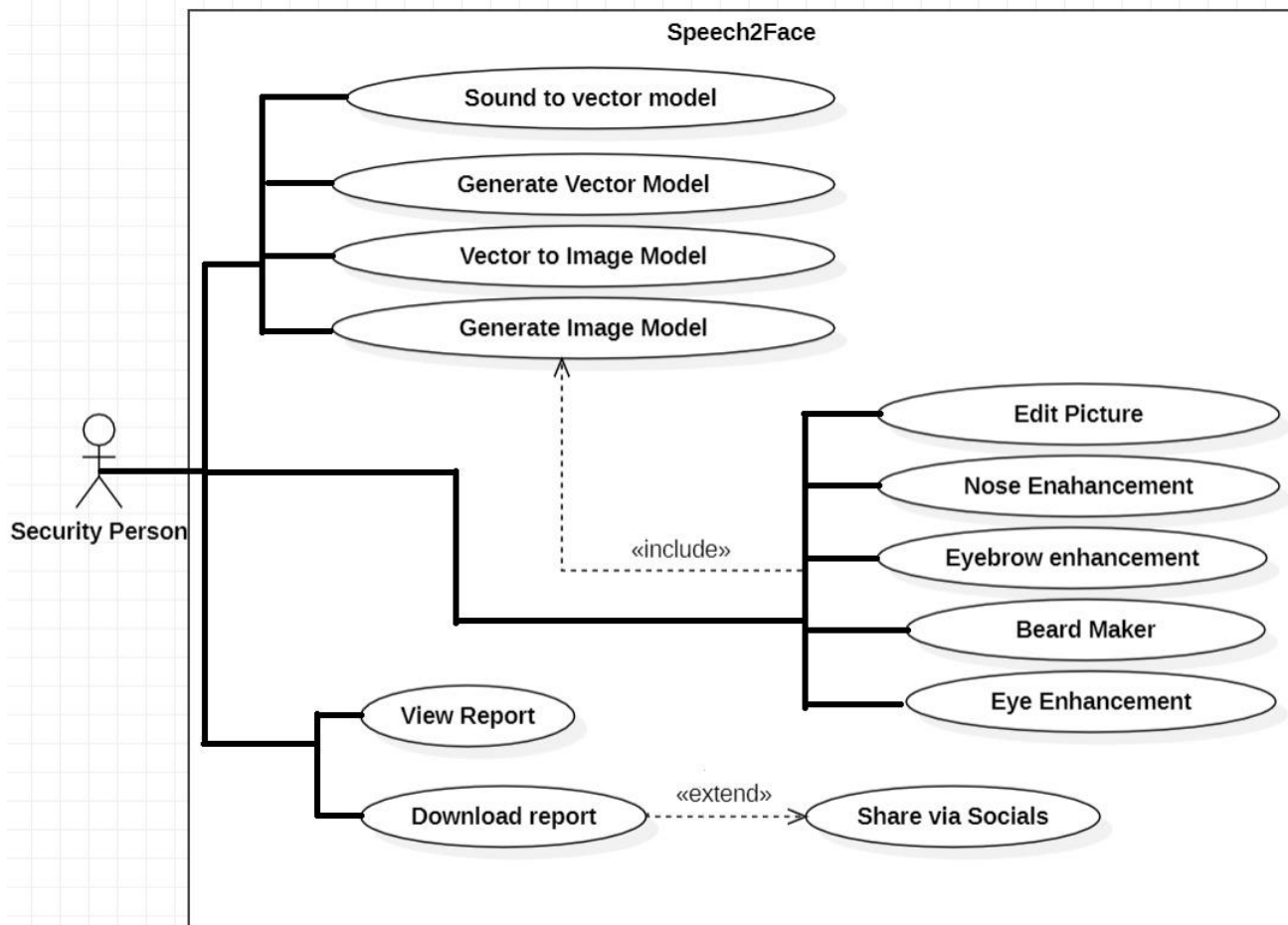
Figure 4 Use Case diagram for module 3 4 and 6 for Security Person

4. Functional Requirements

This section focuses mainly on the

4.1. Use Case(s) (List):

Create Use Case List as per module aspect. For Example:

➤ *Module 1: Profile Management*

UC-ID	Use Case Name
UC-1.1	Sign up
UC-1.2	Log in
UC-1.3	Sign in Via Phone
UC-1.4	Sign in Via Voice
UC-1.5	Update Profile
UC-1.6	Logout

➤ *Module 3: Sound to Face Vector Model*

UC-ID	Use Case Name
UC-3.1	Sound to Vector Modeling Via Deep Learning
UC-3.2	Generate Vector Model

➤ *Module 5: Image View Customization*

UC-ID	Use Case Name
UC-5.1	Brightness Control
UC-5.2	Saturation Management
UC-5.3	Skin Tone Management
UC-5.4	Filters
UC-5.5	Avatar Maker

Module 7: Insight Panel

UC-ID	Use Case Name
UC-7.1	View Report
UC-7.2	Download Report
UC-7.3	Share Via Socials

➢ *Module 9: Help and Support*

UC-ID	Use Case Name
UC-9.1	Chat with AI Bot
UC-9.2	Contact with Support Team
UC-9.3	Change Bots' Language
UC-9.4	View Bot's Query History

➢ *Module 2: Place Voice Record*

UC-ID	Use Case Name
UC-2.1	Record Voice
UC-2.2	Upload Existing Voice
UC-2.3	Upload Existing Video to Fetch Voice
UC-2.4	Update Voice
UC-2.5	Update Video
UC-2.6	Delete Voice
UC-2.7	Delete Video

➢ *Module 4: Face-Vector to Face-Image Model*

UC-ID	Use Case Name
UC-4.1	Vector to Image Modeling via Deep Learning

➢ *Module 6: Features Enhancer*

UC-ID	Use Case Name
UC-6.1	Edit Picture
UC-6.2	Nose Enhancement
UC-6.3	Eyebrow Enhancement
UC-6.4	Beard Maker
UC-6.5	Eye Enhancement

➢ *Module 8: Setting and Configuration*

UC-ID	Use Case Name
UC-8.1	Sent Feedback
UC-8.2	Contact Support Team
UC-8.3	View Feedback History
UC-8.4	Dark Mode
UC-8.5	Change Language
UC-8.6	Privacy Policy

4.2. Use Case(s) (Tabular):

Module 1: Profile Management

1.   Sign Up

Use Case ID:	UC-1.1
Use Case Name:	Sign Up
Actors:	User / Security agencies authority
Description:	User will create their account in order to use the application.
Priority:	High
Precondition:	User should have an authentic and valid email address and contact number.
Trigger:	User will click on the Sign-up button from main screen.
Include:	None.
Normal Flow:	1. The user will enter authentic credentials (email, name, Voice) and password in the sign-up window. 2. Then user will click on the sign-up button. 3. OTP will be generated and sent to the user's contact or email. 4. On correct input of OTP, successful sign-up message will be displayed to the user.
Alternative Flows:	None.

Exceptions:	• In step 4 of normal flow, if the user enters an invalid email address, and password:
	   1. An appropriate error message will be displayed
	   2. Asking the user to enter the data and credentials again
	   3. Then user will provide correct data.
	   Use Case resumes from step 5 of normal flow
	• In step 7, if the user enters incorrect OTP:
	   1. An appropriate error message will be displayed.
	   2. User will be used to enter OTP again.
	   3. If fails to enter within 30 seconds, OTP will expire.
	   4. User will have to request another OTP and correctly enter it for successful sign-up.

Post condition:	After successful entry of credentials, new user account will be formed and control will move to home screen from where the user can log in or sign up.
Business Rules:	User should have a verified email address
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to enter data correctly.

2. Log In

Use Case ID:	UC-1.2
Use Case Name:	Log In
Actors:	User/ Security Agency Authority
Description:	User will log in to their account in order to use the application.
Priority:	High
Precondition:	User must have signed up for an account.
Trigger:	User will click on the Log-in button from main screen.
Include:	UC-1.1
Normal Flow:	1. The user will enter an authentic email and password used at the time of account creation in the login window. 2. Then user will click on the log in button.
Alternative Flows:	None.
Exceptions:	In step 1 of normal flow, if the user enters an invalid email address and password with which no account was formed: 1. An appropriate error message will be displayed 2. Asking the user to enter the credentials again 3. Then user will provide correct data. Use Case resumes from step 2 of normal flow
Post condition:	After logging in, the user will reach to the main menu of the application from where they can see the main screen
Business Rules:	User should log in with correct email and password combination.
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to enter data correctly.

3. Sign in Via Phone

Use Case ID:	UC-1.3
Use Case Name:	Sign in Via Phone
Actors:	User/ Security Agency Authority
Description:	User will log in to their account in order to use the application.
Priority:	Medium
Precondition:	User must have signed up for an account.
Trigger:	User will click on the Log-in button from main screen.
Include:	UC-1.1
Normal Flow:	1. Click the button Sign in via Phone.
Alternative Flows:	None.
Exceptions:	None
Post condition:	After logging in, the user will reach to the main menu of the application from where they can choose their role between renter and proprietor.
Business Rules:	None
Notes & Issues:	None.
Assumptions:	3. User will have a stable internet connection. 4. User will be able to enter data correctly.

4. Sign in Via Voice

Use Case ID:	UC-1.4
Use Case Name:	Sign in via Voice
Actors:	User
Description:	User will log in to their account in order to use the application.
Priority:	Medium
Precondition:	User must have signed up for an account.
Trigger:	User will click on the Log-in button from main screen.
Include:	UC-1.1
Normal Flow:	1.Click sign in via voice 2.Now the roller waiting symbol will appear for 30 secs and user should record the voice to get whole out of it.
Alternative Flows:	None.
Exceptions:	In step 1 of normal flow, if the user enters an invalid email address and voice with which no account was formed: 4. An appropriate error message will be displayed 5. Asking the user to enter the credentials again 6. Then user will provide correct data. Use Case resumes from step 2 of normal flow
Post condition:	After logging in, the user will reach to the main menu of the application from where they can see the main screen.
Business Rules:	User should log in with correct email and Voice combination.
Notes & Issues:	None.

Assumptions:	3. User will have a stable internet connection. 4. User will be able to enter data correctly.

5. Update Profile

Use Case ID:	UC-1.5
Use Case Name:	Update Profile
Actors:	User
Description:	User can update info of their account.
Priority:	High
Precondition:	User must be logged in an account.
Trigger:	User will click on the edit profile button from side pane.
Include:	UC-1.2
Normal Flow:	1. The user can change/edit any detail of the given module including email , name,password, and voice record (for login)
Alternative Flows:	None.
Exceptions:	While logging out, if internet connection is lost the logging out process will be cancelled and user will be redirected to the main menu instead of the home screen. Use case resumes from step 1.
Post condition:	After successfully logging out, the user will be redirected to home screen from where they can sign up or log in again.
Business Rules:	User should have stable internet connection
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to find and select the option from the menu correctly.

6. Logout

Use Case ID:	UC-1.6
Use Case Name:	Log out
Actors:	User
Description:	User can log out from their account.
Priority:	High
Precondition:	User must be logged in an account.
Trigger:	User will click on the Log-out button from side pane.
Include:	UC-1.2
Normal Flow:	2. After using the application, the user wants to switch off their account. 3. From the main account settings, the user will click on the log out button.
Alternative Flows:	None.
Exceptions:	While logging out, if internet connection is lost the logging out process will be cancelled and user will be redirected to the main menu instead of the home screen. Use case resumes from step 1.

Post condition:	After successfully logging out, the user will be redirected to home screen from where they can sign up or log in again.
Business Rules:	User should have stable internet connection
Notes & Issues:	None.
Assumptions:	3. User will have a stable internet connection. 4. User will be able to find and select the option from the menu correctly.

Module 3: Sound to Face Vector Model

3.1 Sound to Vector Modeling via Deep Learning

Use Case ID:	UC-3.1
Use Case Name:	Sound to Vector Modeling via Deep Learning
Actors:	User and System
Description:	User the initiate the Deep Learning Module of converting the sound to vector model.
Priority:	Medium
Preconditions:	User must be logged in to their account.
Trigger:	The user will click on the "vector form" button.
Include:	UC-1.2
Normal Flow:	1. The DL library will start working on the voice and the user will have to wait for a minute or so. 2.
Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will reload the loading process till it has been loaded.
Post condition:	None.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to find and select the option from the menu correctly.

3.2 Generate Vector Model

Use Case ID:	UC-3.2
Use Case Name:	Generate Vector Model
Actors:	User
Description:	User can generate and view their vector pictures.
Priority:	Medium
Preconditions:	User must be logged in to their account.
Trigger:	The user will click on the display picture icon from the side pane.
Include:	UC-1.2
Normal Flow:	3. Three options will be provided. Whether view picture, upload picture from device or take a new picture. The user will select view picture.

	4. The display picture will be opened.
Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will reload the display picture till it has been loaded.
Post condition:	View frame of profile picture will be opened.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to find and select the option from the menu correctly.

Module 5: Image View Customization

5.1 Brightness Control

Use Case ID:	UC-5.1
Use Case Name:	Brightness Control
Actors:	User
Description:	User can control the brightness of image.
Priority:	Medium
Preconditions:	Image Should be formed beforehand via DL model.
Trigger:	The user will click on the brightness control tab and then the brightness screen will appear.
Include:	UC-4.2
Normal Flow:	1. The slider will be present to control the level of brightness. 2. There are two main ways to control via shadows and via brightness.
Alternative Flows:	None.
Exceptions:	None
Post condition:	The brightness of the image is customized.
Business Rules:	None
Notes & Issues:	None.
Assumptions:	3. User will have a stable internet connection. 4. User will be able to find and select the option from the menu correctly.

5.2 Saturation Management

Use Case ID:	UC-5.2
Use Case Name:	Saturation Management
Actors:	User
Description:	The saturation of the image can be managed in this module.
Priority:	Medium
Preconditions:	Image should be formed via the DL Model
Trigger:	The user will click on the saturation module and then the screen with the image will appear.

Include:	4.2
Normal Flow:	1.The user will click on the three different categories provided by the module including hew, darkness and contrast and manage them by scrolling the slider.
Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will reload the display picture till it has been loaded.
Post condition:	The image with enhanced saturation will be available for the record.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to find and select the option from the menu correctly.

5.3 Skin Tone Management

Use Case ID:	UC-5.3
Use Case Name:	Skin Tone Management
Actors:	User
Description:	User can modify the skin tone produced by the ML model according to his/her desire.
Priority:	Medium
Preconditions:	The Image should be already formed by the Image formation module.
Trigger:	The user will click on the skin tone enhancement button.
Include:	UC-4.2
Normal Flow:	1. The user will select the category of skin tones from given 5 options depending upon the preferred race 2.They can also change the intensity of color from mild to dark with the slider
Alternative Flows:	None.
Exceptions:	None.
Post condition:	The image with the preffered skin tone will be available for proceedings.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1.User will have a stable internet connection. 2.User will be able to find and select the option from the menu correctly.

5.4 Filters

Use Case ID:	UC-5.4
Use Case Name:	Filters
Actors:	User
Description:	Users can apply filter to the images formed
Priority:	Medium
Preconditions:	The image should be formed beforehand.
Trigger:	The user will click on the Filters button
Include:	UC-4.2
Normal Flow:	1.The user can select the filters and select the one they like the most

	2.Then they have to click the tick Icon to confirm the filter.
Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will reload the display picture till it has been loaded.
Post condition:	The image with filter will be available for the proceedings.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1.User will have a stable internet connection. 2.User will be able to find and select the option from the menu correctly.

5.5 Avatar Maker

Use Case ID:	UC-5.5
Use Case Name:	Avatar Maker
Actors:	User
Description:	User can make their avatar and customize it.
Priority:	Medium
Preconditions:	The image should be formed before hand.
Trigger:	The user will click on the Create Avatar button.
Include:	UC-4.2
Normal Flow:	1. The avatar will be made from the image generated. 2.It can be Further customized.
Alternative Flows:	None.
Exceptions:	None.
Post condition:	None.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1. User will have a stable internet connection. 2. User will be able to find and select the option from the menu correctly.

Module 7: Insight Panel

7.1 View Report

Use Case ID:	UC-7.1
Use Case Name:	Insight Panel
Actors:	User
Description:	User can view the report of their image generated.
Priority:	Medium
Preconditions:	The user must be logged in and should have generated some image via sound.
Trigger:	The user will click on the view report button.
Include:	UC-1.2 and UC-4.2
Normal Flow:	1.The user can view the report and generate it with different details.

Alternative Flows:	If internet is not present, the user will be prompt to check the connection and try again
Exceptions:	None.
Post condition:	The report will be generated.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1.User will have a stable internet connection. 2.User will be able to find and select the option from the menu correctly.

7.2 Download Report

Use Case ID:	UC-7.2
Use Case Name:	Download Report
Actors:	User
Description:	User can download the report generated.
Priority:	Medium
Preconditions:	User must have generated the image.
Trigger:	The user will click on the display picture icon from the side pane.
Include:	UC-7.1
Normal Flow:	1.The user can download via PDF or export the JPG image format.
Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will not download instead it will show some error.
Post condition:	None.
Business Rules:	User should have stable internet connection.

Notes & Issues:	None.
Assumptions:	3. User will have a stable internet connection. 4. User will be able to find and select the option from the menu correctly.

7.3 Share Via Socials

Use Case ID:	UC-7.3
Use Case Name:	Share Via Socials
Actors:	Users
Description:	Users will be able to share reports on their social handles.
Priority:	Medium
Preconditions:	User must be logged in to their account.
Trigger:	The user will click on the social button,
Include:	UC-4.2
Normal Flow:	1.The user can share their reports or imagers generated on social media platforms.

Alternative Flows:	None.
Exceptions:	If the internet connection fails, the application will not be able to share rather it will prompt that there is no internet connection.
Post condition:	The image will be shared on socials.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	5. User will have a stable internet connection. 6. User will be able to find and select the option from the menu correctly.

Module 9: Help and Support

9.1 Chat With AI Bot

Use Case ID:	UC-9.1
Use Case Name:	Chat With AI Bot
Actors:	Users
Description:	The goal is to enable the users to chat with bot to get the automated answers of the AI Bot.
Priority	High
Preconditions:	1. User must be logged into the application. 2. The user must select the FAQ option tab.
Trigger	When the user clicks the Bot at the lower section of the interface.
Include	None
Normal Flow:	1. The user will open the web or mobile application 2. The user will sign into his/her account 3. After the home screen appears, move to the FAQ section. 4. The AI implemented bot will answer user's queries.
Alternative Flows:	If the user is not connected to the internet, then he/she cannot chat with bot.
Exceptions:	None
Post condition:	The user will be able to chat with the bot.
Business Rules:	None
Notes and Issues	The bot might not answer the query if it is not fed into automated answers.
Assumptions:	1. User must have a stable internet connection. 2. The user must understand the English language. 3. The user's query exists in the answers fed into the bot.

9.2 Contact Support team

Use Case ID:	UC-9.2

Use Case Name:	Contact Support Team
Actors:	User
Description:	User can contact the support team
Priority:	Medium
Preconditions:	User must be logged in to their account.
Trigger:	The user will click on contact support team option.
Include:	UC-1.2
Normal Flow:	1. The user will open the web or mobile application 2. The user will sign into his/her account 3. After the home screen appears, move to the FAQ section. 4. Then select Contact us option.
Alternative Flows:	None.
Exceptions:	None.
Post condition:	User can propose his/her problem to the support team and get it sorted out in 24 hours.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	1.User will have a stable internet connection. 2.User will be able to find and select the option from the menu correctly.

9.3 Change Bot's Language

Use Case ID:	UC-9.3

Use Case Name:	Bot Language
Actors:	User
Description:	The goal is to enable the user to change the language
Priority	Low
Preconditions:	1. User must be logged into the application. 2. The user must go to the setting option to change the language.
Trigger	When the user clicks the change language button.
Include	None
Normal Flow:	1. The user will open the web or mobile application 2. The user will sign into his/her account 3. After the home screen appears, move to the settings menu, then select the language option to select.
Alternative Flows:	None
Exceptions:	If the user is not connected to the internet, then bot's language will not change.
Post condition:	The feedback would be sent to the management team which will help them make their application better and get notified about any bugs

Business Rules:	None
Notes and Issues	None
Assumptions:	1. The user must understand the English language. 2. The user must be able to find the correct menu.

9.4 View Bot's Query History

Use Case ID:	UC-9.4
Use Case Name:	Bot's Query
Actors:	User
Description:	User can see the Query History
Priority:	Low
Preconditions:	User must be logged in to their account and he should have some past queries.
Trigger:	The user will click on the view queires,
Include:	UC-1.2
Normal Flow:	1. User must be logged into the application. 2. The user must go to the help and support option to view the history.
Alternative Flows:	None.
Exceptions:	None.

Post condition:	The bot Query's history will be projected.
Business Rules:	User should have stable internet connection.
Notes & Issues:	None.
Assumptions:	The user must understand the English language. The user must be able to find the correct menu.

- *Module 2: Place Voice Record*

  - **Record Voice**

Use Case ID:	UC-2.1
Use Case Name:	Record Voice
Actors:	User
Description:	The goal is to enable the users to record the voice which is then used for conversion of image of that person.
Priority	High
Preconditions:	• User must be logged into the application.

Trigger	The user will click convert button.
Include	UC-1.2

Normal Flow:	- The user will open the web or mobile application - The user will sign into his/her account - After the home screen appears, move to the Add a voice option, then record voice.
Alternative Flows:	None
Exceptions:	Microphone must be present in system to record a voice.
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	- The user must understand the English language. - The user must be able to find the correct menu.

- **Upload Existing Voice**

Use Case ID:	UC-2.2
Use Case Name:	Upload Existing Voice
Actors:	Primary Actor: User Secondary Actor: Security User
Description:	The goal is to enable the users to upload existing voice which is recorded previously by person.
Priority	High
Preconditions:	Users must be logged into the application.

Trigger	The users will click convert button.
Include	UC-1.2
Normal Flow:	• The users will open the web or mobile application • The users will sign into his/her account • After the home screen appears, move to the upload existing voice option, and then upload voice.
Alternative Flows:	• When user click upload existing option then two options appear: • Upload voice from Music folder or Upload voice from saved voices.
Exceptions:	None
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	• The user must understand the English language. • The user must be able to find the correct menu.

• **Upload Existing Video to Fetch Voice**

Use Case ID:	UC-2.3
Use Case Name:	Upload Existing Video to Fetch Voice
Actors:	Primary Actor: User Secondary Actor: Security User
Description:	The goal is to enable the users to upload existing video and voice is being extracted by video which is then converted to image.
Priority	High
Preconditions:	• User must be logged into the application.
Trigger	The user will click convert button.
Include	UC-1.2
Normal Flow:	• The user will open the web or mobile application • The user will sign into his/her account • After the home screen appears, move to the upload existing video option, and then upload video.
Alternative Flows:	• When user click upload existing option then two options appear: • Upload video from gallery or Upload video from saved videos.

Exceptions:	None
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	- The user must understand the English language. - User must have a stable internet connection. - The user must be able to find the correct menu.

- **Update Voice**

Use Case ID:	UC-2.4
Use Case Name:	Update Voice
Actors:	Primary Actor: User Secondary Actor: Security User
Description:	The goal is to enable the users to update voice which is recorded previously by person.
Priority	High
Preconditions:	- User must be logged into the application. - User must record voice at least one time.

Trigger	The user will click convert button.
Include	UC-2.1
Normal Flow:	- The user will open the web or mobile application - The user will sign into his/her account - When user record voice then he/she has option to update voice by clicking update voice option.
Alternative Flows:	None
Exceptions:	None
Post condition:	The user will again allow to record voice or upload voice.

Business Rules:	None
Notes and Issues	None
Assumptions:	- The user must understand the English language. - The user must be able to find the correct menu. - User must have a stable internet connection. - Microphone must be present in application.

- **Update Video**

Use Case ID:	UC-2.5
Use Case Name:	Update Video
Actors:	Primary Actor: User Secondary Actor: Security Person
Description:	The goal is to enable the users to provide facility to update video, which is previously uploaded by his/her.
Priority	High
Preconditions:	- User must be logged into the application. - User must upload video at least one time.
Trigger	The user will click convert button.
Include	UC-2.3
Normal Flow:	- The user will open the web or mobile application - The user will sign into his/her account - When user upload video he/she has option to update video by clicking update video option.
Alternative Flows:	- When user click update video option then two options appear: - Upload video from gallery or Upload video from saved videos.
Exceptions:	None
Post condition:	The user will again allow to upload video.
Business Rules:	None
Notes and Issues	None
Assumptions:	- The user must understand the English language. - User must have a stable internet connection. - The user must be able to find the correct menu.

- **Delete Voice**

Use Case ID:	UC-2.6
Use Case Name:	Delete Voice

Actors:	Primary Actor: User Secondary Actor: Security Person
Description:	The goal is to enable the users to provide facility to delete saved voices.
Priority	High
Preconditions:	• User must be logged into the application. • User must have at least one saved voice.
Trigger	None.
Include	UC-1.2
Normal Flow:	• The user will open the web or mobile application • The user will sign into his/her account • User will select saved voices option. • Then, User will delete voice which he/she wants.
Alternative Flows:	None
Exceptions:	None
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	• The user must understand the English language. • User must have a stable internet connection. • The user must be able to find the correct menu.

- **Delete Video**

Use Case ID:	UC-2.7
Use Case Name:	Delete Video
Actors:	Primary Actor: User Secondary Actor: Security Person
Description:	The goal is to enable the users to provide facility to delete saved videos.
Priority	High
Preconditions:	• Users must be logged into the application. • Users must have at least one saved video.
Trigger	None.
Include	UC-1.2

Normal Flow:	• The user will open the web or mobile application • The user will sign into his/her account • User will select saved videos option. • Then, User will delete video which he/she wants.
Alternative Flows:	None
Exceptions:	None
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	• The users must understand the English language. • Users must have a stable internet connection. • The users must be able to find the correct menu.

- *Module 4: Face Vector to Face Image Model*
  - **Vector to Image Modeling via Deep Learning**

Use Case ID:	UC-4.1
Use Case Name:	Vector to image Modeling via Deep Learning
Actors:	User
Description:	The goal is to enable the users to see how vector is converted to image using Machine learning.
Priority	High
Preconditions:	• Users must be logged into the application. • User must have stable internet connection.

Trigger	Convert image button plays role of trigger here.
Include	UC-1.2, UC-3.1
Normal Flow:	• The user will open the web or mobile application • The user will sign into his/her account • When voice is converted to vector then • User enter convert image button to convert vector to image.

Alternative Flows:	None
Exceptions:	None
Post condition:	None
Business Rules:	None
Notes and Issues	None
Assumptions:	- The users must understand the English language. - Users must have a stable internet connection. - The users must be able to find the correct menu.

- *Module 6: Features Enhancer*

  - **Face Shape Enhancement**

Use Case ID:	UC-6.1
Use Case Name:	Edit Picture
Actors:	Security Person
Description:	The goal is to enable the person to edit the face of person after generation of image model.
Priority	High
Preconditions:	• person must be logged into the application.
	- The person must use place a voice option. - conversion of voice to image model is compulsory.
Trigger	None
Include	UC-4.2
Normal Flow:	- The person will open the web or mobile application - The person will sign into his/her account - After the home screen appears, move to the Add a voice, then select conversion to image button. - After generation of image click edit button and select face enhancement option and enhance according to your need.
Alternative Flows:	None

Exceptions:	• If the user is not connected to the internet, then: • Conversion of image is not possible. • Face enhancement is also not possible.
Post condition:	None
Business Rules:	Person should have a stable internet connection.
Notes and Issues	None
Assumptions:	• Person must have a stable internet connection. • The Person must understand the English language. • The Person must be able to find the correct menu.

- **Nose Enhancement**

Use Case ID:	UC-6.2
Use Case Name:	Nose Enhancement
Actors:	Security Person
Description:	The goal is to enable the person to enhance the Nose of person after generation of image model.
Priority	High
Preconditions:	• person must be logged into the application.
	• The person must use place a voice option. • conversion of voice to image model is compulsory.
Trigger	None
Include	UC-4.2
Normal Flow:	• The person will open the web or mobile application • The person will sign into his/her account • After the home screen appears, move to the Add a voice, then select conversion to image button. • After generation of image click edit button and select nose enhancement option and enhance according to your need.
Alternative Flows:	None
Exceptions:	• If the person is not connected to the internet, then: • Conversion of image is not possible. • Nose enhancement is also not possible.
Post condition:	None
Business Rules:	User should have a stable internet connection.

Notes and Issues	None
Assumptions:	- person must have a stable internet connection. - The person must understand the English language. - The person must be able to find the correct menu.

- **Eyebrow Enhancement**

Use Case ID:	UC-6.3
Use Case Name:	Eyebrow Enhancement
Actors:	Security Person
Description:	The goal is to enable the person to enhance the Eyebrow of person after generation of image model.
Priority	High
Preconditions:	person must be logged into the application.

	- The Person must use place a voice option. - conversion of voice to image model is compulsory.
Trigger	None
Include	UC-4.2
Normal Flow:	- The person will open the web or mobile application - The person will sign into his/her account - After the home screen appears, move to the Add a voice, then select conversion to image button. - After generation of image click edit button and select Eyebrow enhancement option and enhance according to your need.
Alternative Flows:	None
Exceptions:	- If the person is not connected to the internet, then: - Conversion of image is not possible. - Eyebrow enhancement is also not possible.
Post condition:	None
Business Rules:	User should have a stable internet connection.
Notes and Issues	None
Assumptions:	- person must have a stable internet connection. - The person must understand the English language. - The person must be able to find the correct menu.

- **Beard Maker**

Use Case ID:	UC-6.4
Use Case Name:	Beard Maker
Actors:	Security Person
Description:	The goal is to enable the person to make the beard of person after generation of image model.
Priority	High
Preconditions:	• Person must be logged into the application.

	• The person must use place a voice option. • conversion of voice to image model is compulsory.
Trigger	None
Include	UC-4.2
Normal Flow:	• The person will open the web or mobile application • The person will sign into his/her account • After the home screen appears, move to the Add a voice, then select conversion to image button. • After generation of image click edit button and select beard option and make according to your need.
Alternative Flows:	None
Exceptions:	• If the perosn is not connected to the internet, then: • Conversion of image is not possible. • Making of beard is also not possible.
Post condition:	None
Business Rules:	person should have a stable internet connection.
Notes and Issues	None
Assumptions:	• User must have a stable internet connection. • The user must understand the English language. • The user must be able to find the correct menu.

- *Module 8: Feedback Panel*

  - **Send Feedback**

Use Case ID:	UC-8.1
Use Case Name:	Send Feedback

Actors:	User
Description:	The goal is to enable the users to send feedback to the management team about the app.
Priority	High
Preconditions:	1. User must be logged into the application.
	2. The user must select the feedback option available in the interface of the app.
Trigger	When the user wants to send the feedback.
Include	None.
Normal Flow:	• The user will open the web or mobile application • The user will sign into his/her account • After the home screen appears, move to the feedback section, then select the feedback option to add description. • The user can also rate the app while sending feedback.
Alternative Flows:	None
Exceptions:	• If the user is not connected to the internet, then: • The feedback will be failed to be sent. • The feedback might reload if the internet facility comes back. • The feedback is blank. • No rating star is selected.
Post condition:	The feedback would be sent to the management team which will help them make their application better and get notified about any bugs
Business Rules:	User should have a stable internet connection.
Notes and Issues	None
Assumptions:	• User must have a stable internet connection. • The user must understand the English language. • The user must be able to find the correct menu.

- **Contact Support Team**

Use Case ID:	UC-8.2
Use Case Name:	Contact Support Team
Actors:	User
Description:	The goal is to enable the users to chat with the support team by sending a message.
Priority	Low
Preconditions:	User must be logged into the application.
Trigger	When the user clicks the Contact Us option provided in the interface.
Include	None.

Normal Flow:	1. The user will open the web or mobile application 2. The user will sign into his/her account 3. After the home screen appears, move to the FAQ section. 4. Then select Contact us option.
Alternative Flows:	The user can directly contact the support team through email if he/she knows the email address of the support team.
Exceptions:	1. If the user is not connected to the internet, then: 2. The message will be failed to send. 3. The message might reload if the internet facility comes back. 4. The message is blank.
Post condition:	The message will be sent to the management team and the query will be answered within 3-4 hours.
Business Rules:	User should have a stable internet connection.
Notes and Issues	None
Assumptions:	1. User must have a stable internet connection. 2. The user must understand the English language. 3. The user must be able to find the correct menu.

- **View Feedback History**

Use Case ID:	UC-8.3
Use Case Name:	View Feedback History
Actors:	User
Description:	The user can view the history of the feedbacks provided.
Priority	Low
Preconditions:	1. User must be logged into the application. 2. The user must go to the help and support option to view the feedback history.
Trigger	When the user clicks the view history button.
Include	None
Normal Flow:	None
Alternative Flows:	None
Exceptions:	The user must be connected to the internet otherwise the page will fail to load and move to the previous menu.
Post condition:	The user will be able to view the history of the feedbacks given by the user.
Business Rules:	None
Notes and Issues	None.
Assumptions:	1. The user must understand the English language. 2. The user must be able to find the correct menu.

- **Dark Mode**

Use Case ID:	UC-8.4
Use Case Name:	Dark Mode
Actors:	User
Description:	The user can switch the mode of application.
Priority	Medium
Preconditions:	User must be logged into the application with active internet connection
Trigger	When the user clicks the view history button.
Include	UC-1.2
Normal Flow:	User will click on Dark mode button and click on the check to on it and then the system will apply dark mode to application
Alternative Flows:	None
Exceptions:	The user must be connected to the internet.
Post condition:	Dark mode will apply to the application.
Business Rules:	None
Notes and Issues	None.
Assumptions:	3. The user must understand the English language. 4. The user must be able to find the correct menu.

- **Change Language**

Use Case ID:	UC-8.5
Use Case Name:	Change Language
Actors:	User
Description:	The user can change language of application according to his or her need.
Priority	Medium
Preconditions:	User must be logged into the application with active internet connection
Trigger	When the user clicks the language button.
Include	UC-1.2
Normal Flow:	User will click on Change Language button and then the system will apply that language to the application which user clicks
Alternative Flows:	None
Exceptions:	The user must be connected to the internet.
Post condition:	Chosen language will apply to the application.
Business Rules:	None

Notes and Issues	None.
Assumptions:	5. The user must understand the English language. 6. The user must be able to find the correct menu.

- **Privacy Policy**

Use Case ID:	UC-8.6
Use Case Name:	Privacy Policy
Actors:	User
Description:	The user can read the privacy policies about the application.
Priority	Low
Preconditions:	User must be logged into the application with active internet connection
Trigger	None
Include	UC-1.2
Normal Flow:	User will click on Privacy Policy button and then the system will show the user the privacy policy of the application.
Alternative Flows:	None
Exceptions:	The user must be connected to the internet.
Post condition:	None
Business Rules:	None
Notes and Issues	None.
Assumptions:	1. The user must understand the English language. 2. The user must be able to find the correct menu.

4.3. Functional Requirement X

Module 1 (Profile Management):
1) **Sign-Up**

Table 1: Description of FR-1.1.1

Identifier	FR-1.1.1
Title	Get first Name
Requirement	Users first name is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 2: Description of FR-1.1.2

Identifier	FR-1.1.2
Title	Get second Name
Requirement	Users second name is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 3: Description of FR-1.1.3

Identifier	FR-1.1.3
Title	Get email address

Requirement	Users email adresss is required
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 4: Description of FR-1.1.4

Identifier	FR-1.1.4
Title	Get Voice Record
Requirement	Voice Record is necessary for Sign up.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 5: Description of FR-1.1.5

Identifier	FR-1.1.5
Title	Get Password
Requirement	User password is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 6: Description of FR-1.1.6

Identifier	FR-1.1.6
Title	Get confirm Password
Requirement	User confirm password is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A
Dependencies	N/A
Priority	High

1) Login

2)   Table 7: Description of FR-1.2.1

Identifier	FR-1.2.1
Title	Get email
Requirement	User email is need for login
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user login
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 8: Description of FR-1.2.2

Identifier	FR-1.2.2
Title	Get password
Requirement	Users password is needed for login
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user login
Business Rule	N/A

Dependencies	N/A
Priority	High

3) Sign in Via Phone

Table 9: Description of FR-1.3.1

Identifier	FR-1.3.1
Title	Get email
Requirement	Users email is required for login
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user login
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 10: Description of FR-1.3.2

Identifier	FR-1.3.2
Title	Get voice for login
Requirement	Users voice for login is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user login into the system
Business Rule	N/A
Dependencies	N/A
Priority	High

4) Update Profile

Table 11: Description of FR-1.4.1

Identifier	FR-1.4.1
Title	Get new first name

Requirement	Users first name to be updated
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to update the first name
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 12: Description of FR-1.4.2

Identifier	FR-1.4.2
Title	Get new second name
Requirement	Users second name is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to update the second name
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 13: Description of FR-1.4.3

Identifier	FR-1.4.3
Title	Get new email
Requirement	Users email is to be updated
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the email updated against that user
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 14: Description of FR-1.4.4

Identifier	FR-1.4.4
Title	Delete the profile
Requirement	To delete the current user
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to delete the current user
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 15: Description of FR-1.4.5

Identifier	FR-1.4.5
Title	Get new password
Requirement	Users new password is needed for login
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to update the user password
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 16: Description of FR-1.4.6

Identifier	FR-1.4.6
Title	Get first Name
Requirement	Users first name is needed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user registered for their account.
Business Rule	N/A

Dependencies	N/A
Priority	High

5) Logout

Table 17: Description of FR-1.5.1

Identifier	FR-15.1
Title	Logout
Requirement	To logout the user
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the user logged out.
Business Rule	N/A
Dependencies	N/A
Priority	High

Module 3 (Sound to Face Vector Model):

3.1) Sound to vector modeling

Table 18: Description of FR-3.1.1

Identifier	FR-3.1.1
Title	Convert into Vector
Requirement	DL Module to be initiated for this purpose.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to initiate the ML/DL Libraries.
Business Rule	N/A
Dependencies	N/A
Priority	High

3.2) Generate Vector Model:

Table 19: Description of FR-3.2.1

Identifier	FR-3.2.1
Title	Show Vector Formed
Requirement	It will show the vector that is formed
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the vector formed.
Business Rule	N/A
Dependencies	N/A
Priority	High

Module 5 (Image View Customization):

5.1) Brightness Control

Table 20: Description of FR-5.1.1

Identifier	FR-5.1.1
Title	Brightness Scroller
Requirement	It is used for changing the brightness level.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to customize the brightness of the image formed.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Table 21: Description of FR-5.1.2

Identifier	FR-5.1.2
Title	Shadow Controller
Requirement	To change the shadow intensity.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to enhance the shadow by leveling it.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	medium

5.2) Saturation Management

Table 22: Description of FR-5.2.1

Identifier	FR-5.2.1
Title	Hue Control
Requirement	To change the Hue level of the image formed.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to enhance the hue coloring of the image
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Table 23: Description of FR-5.2.2

Identifier	FR-5.2.2
Title	Contrast Control
Requirement	To manage the contrast of image
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to enhance the contrast of the system
Business Rule	N/A

Dependencies	FR-4.2.1
Priority	High

Table 24: Description of FR-5.2.3

Identifier	FR-5.2.3
Title	Darkness Control
Requirement	To manage the darkness level
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to specifiy the darkness aspect in the image.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

5.3) Skin Tone Management:

Table 25: Description of FR-5.3.1

Identifier	FR-5.3.1
Title	Skin Cateogory
Requirement	To Decide what Skin Category is needed to modify the image.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to decide one skin category.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Table 26: Description of FR-5.3.2

Identifier	FR-5.3.2
Title	Tone Management Slider
Requirement	To manage the tone for the selected Skin category.
Source	Shahzaneer (Developer 1)

Rationale	The purpose is to manage the tone from mild to dark for the selected category
Business Rule	N/A
Dependencies	FR-5.3.1
Priority	Medium

5.4) Filters

Table 27: Description of FR-5.4.1

Identifier	FR-5.4.1
Title	Filter Slider
Requirement	To apply different filters to the image formed.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to beautify the image formed.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

5.5) Avatar Maker

Table 28: Description of FR-5.5.1

Identifier	FR-5.5.1
Title	Get Avatar
Requirement	To get the avatar.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the avatar of the image formed.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Table 29: Description of FR-5.5.2

Identifier	FR-5.5.2

Title	Customize avatar
Requirement	To Customize the avatar to a limited extend
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to enhance the avatar made.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Module 7 (Insight Panel):
7.1) View Report

Table 30: Description of FR-7.1.1

Identifier	FR-7.1.1
Title	Generate Complete Report
Requirement	To show up all the details of the image formed.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to give the insights of the result
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	High

Table 31: Description of FR-7.1.2

Identifier	FR-7.1.2
Title	Generate image only
Requirement	To generate image only
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to generate the image for insights.
Business Rule	N/A

Dependencies	N/A
Priority	Medium

7.2) Download Report

Table 32: Description of FR-7.2.1

Identifier	FR-7.2.1
Title	Get PDF
Requirement	To get the PDF format copy.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the insights in a specific format of PDF.
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

Table 33: Description of FR-7.2.2

Identifier	FR-7.2.2
Title	Get JPG
Requirement	To get the JPG format copy.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to get the insights in a specific format of JPG
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Medium

7.3) Share via Socials

Table 34: Description of FR-7.3.1

Identifier	FR-7.3.1
Title	Share via Facebook

Requirement	To share the insight report on Fb
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to share the insights on social media for marketing
Business Rule	N/A
Dependencies	FR-4.2.1
Priority	Low

Table 35: Description of FR-7.3.2

Identifier	FR-7.3.2
Title	Share via Linkedin
Requirement	To share the insight report on LinkedIn
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to share the insights on social media for marketing
Business Rule	N/A
Dependencies	N/A
Priority	Low

Table 36: Description of FR-7.3.3

Identifier	FR-7.3.3
Title	Share Via Twitter
Requirement	To share the insight report on Twitter
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to share the insights on social media for marketing
Business Rule	N/A
Dependencies	N/A
Priority	Low

Table 37: Description of FR-7.3.4

Identifier	FR-7.3.4

Title	Share Via Instagram
Requirement	To share the insight report on Instagram
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to share the insights on social media for marketing
Business Rule	N/A
Dependencies	N/A
Priority	Low

Module 9 (Help and Support):
9.1) Chat with AI Bot

Table 38: Description of FR-9.1.1

Identifier	FR-9.1.1
Title	Display Auto Generated msg
Requirement	To show the chat bot's msgs
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to help user with the understandings of the app.
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 39: Description of FR-9.1.2

Identifier	FR-9.1.2
Title	Display Reply
Requirement	To show the reply against the message
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to help the user with the understandings of the app.
Business Rule	N/A

Dependencies	N/A
Priority	High

Table 40: Description of FR-9.1.3

Identifier	FR-9.1.3
Title	Write questions
Requirement	To make the user enable for writing question
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to provide some pre-exisiting questions
Business Rule	N/A
Dependencies	N/A
Priority	High

Table 41: Description of FR-9.1.4

Identifier	FR-9.1.4
Title	Enter Question
Requirement	To provide interface for users to enter their queries.
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to provide the user ability to interact with chat bot.
Business Rule	N/A
Dependencies	N/A
Priority	High

9.2)Contact Support Team

Table 42: Description of FR-9.2.1

Identifier	FR-9.2.1
Title	Select support team member
Requirement	To provide user with facility of selecting the desired member from support team.
Source	Shahzaneer (Developer 1)

Rationale	The purpose is to help the user in order to report the bugs.
Business Rule	N/A
Dependencies	N/A
Priority	Medium

9.3)Change Bot's Language

Table 42: Description of FR-9.3.1

Identifier	FR-9.3.1
Title	Change bots language
Requirement	To allow the user to change language
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to help the user toggle between Urdu and English.
Business Rule	N/A
Dependencies	N/A
Priority	Low

9.4) View Bot's Query History

Table 43: Description of FR-9.4.1

Identifier	FR-9.4.1
Title	See Query History
Requirement	To provide user an interface to look into history
Source	Shahzaneer (Developer 1)
Rationale	The purpose is to help ther user back track their queries.
Business Rule	N/A
Dependencies	N/A
Priority	Low

Record a Voice

Table 45: Description of FR-2.1.1

Identifier	FR-2.1.1
Title	Add voice
Requirement	The user will record voice which is then converted to image later.
Source	Shayan Zameer
Rationale	Voice to be record.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Table 46: Description of FR-2.1.2

Identifier	FR-2.1.2
Title	Play voice
Requirement	The user will play voice which is previously record.
Source	Shayan Zameer
Rationale	Voice to be played.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Table 47: Description of FR-2.1.3

Identifier	FR-2.1.3
Title	Pause voice
Requirement	The user will have option to pause a voice.

Source	Shayan Zameer
Rationale	Voice to be paused.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

1.1.1.1 Upload Existing Voice

Table 48: Description of FR-2.2.1

Identifier	FR-2.2.1
Title	Selection of folder
Requirement	The user will select the folder from where voice to be uploaded.
Source	Shayan Zameer
Rationale	Selection of folder.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Table 49: Description of FR-2.2.2

Identifier	FR-2.2.2
Title	Upload Voice
Requirement	The user will Upload voice to application.
Source	Shayan Zameer
Rationale	Upload voice.
Business Rule	N/A

Dependencies	UC-1.2
Priority	High

Table 50: Description of FR-2.2.3

Identifier	FR-2.2.3
Title	Check Saved Voices
Requirement	The user will have option to check saved voices folder where he/ she wants to upload voice.
Source	Shayan Zameer
Rationale	Saved voices checking.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Upload Existing Video

Table 51: Description of FR-2.3.1

Identifier	FR-2.3.1
Title	Upload Existing Video
Requirement	The user will upload video from where voice is extracted and then converted to image later.
Source	Shayan Zameer
Rationale	Upload video.
Business Rule	N/A

Dependencies	UC-1.2
Priority	High

Table 52: Description of FR-2.3.2

Identifier	FR-2.3.2
Title	Pause video
Requirement	The user will have option to pause a video.
Source	Shayan Zameer
Rationale	Video to be paused.
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

Table 53: Description of FR-2.3.3

Identifier	FR-2.3.3
Title	Play video
Requirement	The user will have option to play a video.
Source	Shayan Zameer
Rationale	Video to be played.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Table 54: Description of FR-2.3.4

Identifier	FR-2.3.3
Title	Check Saved Videos

Requirement	The user will have option to check saved videos where he/ she wants to upload video.
Source	Shayan Zameer
Rationale	Saved videos checking.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

1.1.1.2 Update Video

Table 55: Description of FR-2.4.1

Identifier	FR-2.3.1
Title	Update Video
Requirement	The user will update video which is previously uploaded.
Source	Shayan Zameer
Rationale	Video to be updated.
Business Rule	N/A
Dependencies	UC-1.2, FR-2.3.1
Priority	High

1.1.1.3 Update Voice

Table 56: Description of FR-2.5.1

Identifier	FR-2.5.1
Title	Update Voice
Requirement	The user will update voice which is previously uploaded.

Source	Shayan Zameer
Rationale	Voice to be updated.
Business Rule	N/A
Dependencies	UC-1.2, FR-2.2.1
Priority	High

1.1.1.4   Delete Voice

Table 57: Description of FR-2.6.1

Title	Delete Voice
Requirement	The user will delete voices from saved voices folder.
Source	Shayan Zameer
Rationale	Voice to be deleted.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

1.1.1.5   Delete Video

Table 58: Description of FR-2.7.1

Title	Delete Video
Requirement	The user will delete videos from saved videos folder.
Source	Shayan Zameer
Rationale	Videos to be deleted.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Module 4(Face Vector to Face Image Model)

Table59: Description of FR-4.1.1

Title	Vector to image
Requirement	The vector is converted to image using Machine learning and AI.
Source	Shayan Zameer
Rationale	Conversion of vector to image.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Table 60: Description of FR-4.1.2

Title	Generate Image
Requirement	When vector is converted to image by using Machine learning and AI the image is generated.
Source	Shayan Zameer
Rationale	Generation of image.
Business Rule	N/A
Dependencies	UC-1.2
Priority	High

Module 6(Features Enhancer)

Edit Picture

Table 61: Description of FR-6.1.1

Identifier	FR-6.1.1
Title	Adjust Brightness
Requirement	The Security person will adjust brightness according to his/her need
Source	Shayan Zameer
Rationale	Brightness to be adjusted.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 62: Description of FR-6.1.2

Identifier	FR-6.1.2
Title	Adjust Saturation
Requirement	The Security person will adjust Saturation according to his/her need
Source	Shayan Zameer
Rationale	Saturation to be adjusted.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 63: Description of FR-6.1.3

Identifier	FR-6.1.3
Title	Applying Filter
Requirement	The Security person will have authority to apply filter
Source	Shayan Zameer
Rationale	Filter to be applied.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 64: Description of FR-6.1.3

Identifier	FR-6.1.4
Title	Crop Picture
Requirement	The Security person will have authority to crop picture.
Source	Shayan Zameer
Rationale	Picture to be cropped.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 65: Description of FR-6.1.5

Identifier	FR-6.1.5
Title	Applying Lightning Effects
Requirement	The Security person will have authority to apply some effects on picture.
Source	Shayan Zameer

Rationale	Lightning affects to be applied on picture.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 66: Description of FR-6.1.5

Identifier	FR-6.1.6
Title	Selection of tool for enhancement
Requirement	The Security person will select the tools for editing such as liquify tool , dodge and run tool or any other tool etc.
Source	Shayan Zameer
Rationale	Selection of tool for Enhancement
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Nose Enhancement

Table 67: Description of FR-6.2.1

Identifier	FR-6.2.1
Title	Adjust Nose Length
Requirement	The Security person will have authority to adjust length of nose in picture.
Source	Shayan Zameer
Rationale	Adjustment of length of nose.
Business Rule	N/A

Dependencies	UC-1.2, UC 4.2
Priority	High

Table 68: Description of FR-6.2.2

Identifier	FR-6.2.1
Title	Adjust Nose Width
Requirement	The Security person will have authority to adjust width of nose in picture.
Source	Shayan Zameer
Rationale	Adjustment of width of nose.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 69: Description of FR-6.2.3

Identifier	FR-6.2.3
Title	Add New Layer
Requirement	The Security person will have authority to add new layer to nose.
Source	Shayan Zameer
Rationale	Addition of new layer to nose.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Low

Eyebrow Enhancement

Table 70: Description of FR-6.3.1

Identifier	FR-6.3.1
Title	Change Eyebrow Colour
Requirement	The Security person will have authority to change eyebrow colour.
Source	Shayan Zameer
Rationale	Colour changing of eyebrow.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 71: Description of FR-6.3.2

Identifier	FR-6.3.2
Title	Add some hairs
Requirement	The Security person will have authority to add hairs to eyebrow.
Source	Shayan Zameer
Rationale	Adding hairs to eyebrows.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 72: Description of FR-6.3.3

Identifier	FR-6.3.3
Title	Selection of Brush
Requirement	The Security person will select the brush for the enhancement of eyebrows.

Source	Shayan Zameer
Rationale	Selection of brush.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 73: Description of FR-6.3.4

Identifier	FR-6.3.4
Title	Adjust Size of Brush
Requirement	The Security person will have to adjust the size of brush for the enhancement of eyebrows.
Source	Shayan Zameer
Rationale	Adjustment of size of brush.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2, FR-6.3.3
Priority	High

1.1.1.6 Beard Maker

Table 74: Description of FR-6.4.1

Identifier	FR-6.4.1
Title	Selection of Brush tool
Requirement	The Security person will have to select the brush tool for beard making.
Source	Shayan Zameer

Rationale	Selection of brush tool.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 75: Description of FR-6.4.2

Identifier	FR-6.4.2
Title	Selection of Existing Template of beard
Requirement	The Security person will have option to select beard that are already existing.
Source	Shayan Zameer
Rationale	Selecting existing template of beard.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Table 76: Description of FR-6.4.3

Identifier	FR-6.4.3
Title	Change beard color
Requirement	The Security person will have option to change the color of beard.
Source	Shayan Zameer
Rationale	Changing beard color.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	High

Eye Enhancement

Table 78: Description of FR-6.5.1

Identifier	FR-6.4.3
Title	Add Lens
Requirement	The Security person will have option to add lens to the eye.
Source	Shayan Zameer
Rationale	Adding lenses.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 79: Description of FR-6.5.2

Identifier	FR-6.5.2
Title	Adjust Eyelashes
Requirement	The Security person will have option to adjust the eyelashes.
Source	Shayan Zameer
Rationale	Adjusting eyelashes.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Table 80: Description of FR-6.5.3

Identifier	FR-6.5.3

Title	Adjust Eye Width
Requirement	The Security person will have option to adjust the width of eye.
Source	Shayan Zameer
Rationale	Adjusting eye width.
Business Rule	N/A
Dependencies	UC-1.2, UC 4.2
Priority	Medium

Module 8 (Setting and Configuration):

Sent Feedback

Table 81: Description of FR-8.1.1

Identifier	FR-8.1.1
Title	Write Feedback
Requirement	The user will be able to write feedback in the text box provided
Source	Shayan Zameer
Rationale	To send feedback to the support team about the app
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

Table 82: Description of FR-8.1.2

Identifier	FR-8.1.2
Title	Give Rating
Requirement	The user will be able to give rating out of 10.

Source	Shayan Zameer
Rationale	To send feedback
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

Contact Support Team

Table 83: Description of FR-8.2.1

Identifier	FR-8.2.1
Title	Shayan Zameer
Requirement	The user will be able to type a message to the provided email to contact the support team.
Source	User
Rationale	To Answer user's query
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

View Feedback History

Table 84: Description of FR-8.3.1

Identifier	FR-8.3.1
Title	View Feedback History
Requirement	The user will be able to view the feedback history.
Source	Shayan Zameer
Rationale	To view feedback history.

Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

Dark Mode

Table 85: Description of FR-8.4.1

Identifier	FR-8.4.1
Title	Dark Mode
Requirement	The user will be able to convert the mode of application into dark colour.
Source	Shayan Zameer
Rationale	To change the mode of application.
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

Select Language

Table 86: Description of FR-8.5.1

Identifier	FR-8.5.1
Title	Select Language
Requirement	The user can select the any language including Urdu and English.
Source	Shayan Zameer
Rationale	To Select a Language
Business Rule	N/A

Dependencies	UC-1.2
Priority	Medium

Privacy Policy

Table 87: Description of FR-8.6.1

Identifier	FR-8.6.1
Title	Privacy Policy
Requirement	The user can read the privacy policy of system.
Source	Shayan Zameer
Rationale	To read a privacy policy.
Business Rule	N/A
Dependencies	UC-1.2
Priority	Medium

5. Non-Functional Requirements

The non functional requirements which would affect the quality attributes of the system are given below:

5.1 Reliability

- **MTBF (Mean Time between Failures):**

The estimated mean time between failures will be 24 **hours ÷ 3 Errors**. So the estimated MTBF value is **8**.

- **Consequences of the Software Failure:**

The software can fail in multiple ways:
   o User Interface Bugs (i.e., Buttons not working correctly, UI responsiveness).
   o Long waiting for processing (in each case for sound to vector and vector to image as well).
   o Chat bot not responding.
   o App not responding.

The users can report the bug by contacting the support team so that the error maybe rectified as soon as possible to maintain the quality.

- **Protection from Failure:**

The Software will be highly tested against test cases so that all the errors come before the launch of the product and there will be **7-8%** chance of some new error faced by a user.

- **Strategy of Error Detection:**

The feedback feature of the system will allow the user to report bugs which will get the management notified about the errors and it would be fixed within **two working days i.e., 42 hours.**

- **Strategy for Correction:**

    As the design methodology that will be used is Object Oriented, so even if the error shows up, it will be easier to detect the line of code where the bug is present. So, the average time to fix an error would be **2-3 hours**.

5.2) Usability

Use-1: A new user of the software will take only **10-15 minutes** to understand the use of the system. Although AI Chat bot is also available in case of any difficulty in usage.

Use-2: The software will be easy to use as the system will be using the phenomenon of shared preferences i.e., no need to logiin again if the user is already logged in.

Use-3: The lost data can can recovered in less than 15 minutes through the backup system.

5.3) Performance

- **Response Time**

The system will have a minimum response time of **1.5 second** and maximum response time of **5 seconds**. After reaching 5 seconds limit, user will receive a prompt message and previous activity will be restored.

- **Throughput**

The application will work on minimum Internet speed of **10 mbps/sec** as it is working on **deep learning models**.

- **Memory Utilization**

The average memory required by the application will be **28 MBs for mobile App**.

- **Degradation Modes**

If the system crashes, it will work towards restoring the previous app activity. If it is not achieved within **5 seconds**, the app will restart.

5.4) Security

The system will ensure the security of data and information of users.The image generated won't be given to anyone else. Proper authentication of users will be simultaneously performed as they try to access their accounts, taking less than 1 minute.

6. External Interface Requirements

This section defines the interfaces that contain adequate specificity, protocols, ports, and logical addresses, etc. so that the software can be developed and verified against the interface requirements.

6.1)   User Interfaces Requirements

The user interface requirements are given below:

- Our application is "**Speech2Face**" is very easy to understand and there is no training time of more than 5-10 minutes.
- Our goal while making user interfaces is to make the experience of user easy and good.
- The font style that will be used in the application will be Bold.
- The font size may vary from one menu to the other, but the standard font size would bemaintained at 24-26.

- Screen layout would be optimized for every device.
- Buttons like Back button might appear in different menus.

Mockups
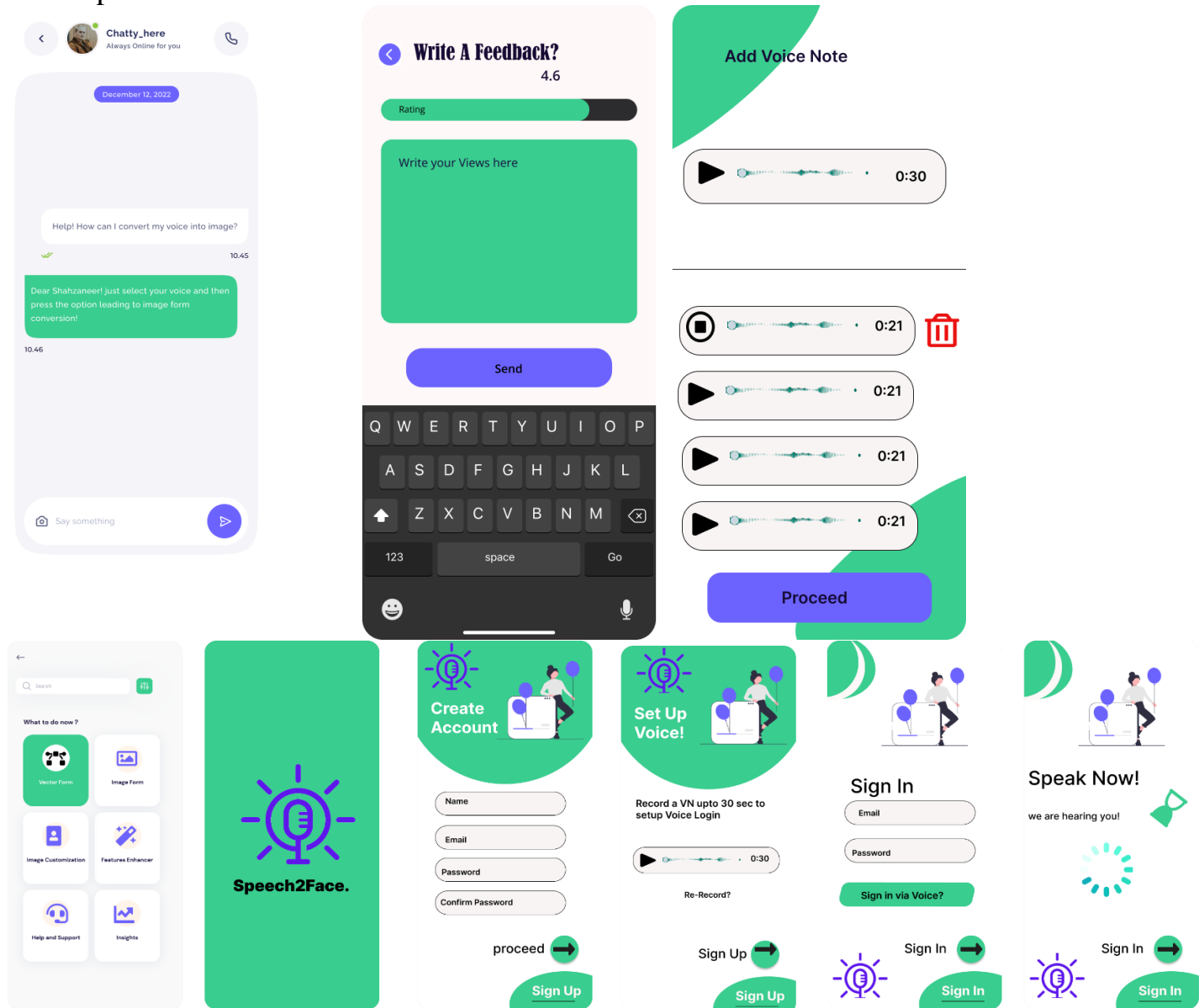
6.1 Software interfaces

o   Our application is "**Speech2Face**" is an android and web-based application.
o   The application will maintain active connections with MongoDB Database version 5.0,Machine Learning Libraries and will support Flutter Dart version 3.5.
o   The software will be supported on Android 6 and above, and iOS 11 and above.
o   Our application also supports multitasking functionality and split screen functionality also available in our application.

6.2 Hardware interfaces

- Our application automatic "**Speech2face**" also need some hardware help as well to complete its task.
- Microphone is used in our application to input the user's voice so that it can detect it and to process it digitally.

6.3 Communications interfaces

- Our application "**Speech2Face**" needs active internet connection.
- If user has downloaded something using internet, he can access that later without internet connection
- When users send feedbacks, the application will send an email to the support team.
- For security authentication, application will connect the user to their mobile network bysending an OTP (One Time Password) code to their phones.

7. Conclusion

The SRS document portrays the final product of the project. The Functional and Non-Functional Requirements of the system are stated in detail. The document explains and quantifies Non- Functional Requirements. The document also portrays interface mockups. It is the ultimate guideline for all the stakeholders involved in the project. This SRSdocument is the first step into the development phase of the project**.**

8. Sprint Sheet

User Profiling		Sound to Face Vector Model		Image View Customization	
Sign-up	First Name Second Name Email password	Sound to Vector Modeling via DL	Convert into vector quality selection loading icon	Brightness Control	Brightness Scroller Shadow Controller
Log in	password email Password MultiFactor Authenication I am not a robot captcha	Generate Vector Model	show vector model success message	Saturation Management	Hue Control Contrast Control Darkness Control
Sign in Via Phone	email phone number OTP			Skin Tone Management	Skin Categories Slider for tone management Change successfully message
Sign in Via Voice	email Voice check			Filters	Filter Slider Multiple filters Change successfully message
Update profile	First Name Second Name Email voice record password			Avatar Maker	make avatar Customize avatar
Logout	Logout				

Insight Panel		Help and Support	
View Report	generate detailed report Insights only Image only	Chat witl AI Bot	Display auto generated msg Display reply write questions Enter Questions
Download Report	download in PDF download in JPG download in PNG	Contact with Support Team	select support team member profile msg call email
Share via Socials	Share via Facebook Share via Linkedin Share via Twitter Share via Instagram	Change Bot's Language	select language
		View Bot's Query History	see bot's Query History clear history

Place a Voice record		Face Vector to Face Image Model	
Record Voice	Add Voice	Vector to Image	Vector to image
Upload Existing Voice	Upload Voice	Generate Image	Generate image
	Selection of folder		
Upload Existing Video	Upload Video		
	Pause Video		
	Play Video		
	Check Saved Videos		
Update Voice	Update Voice		
Delete Voice	Delete Voice		
Delete Video	Delete Video		

Features Enhancer		Settings and Configuration	
	Adjust Brightness	Select Language	select language
Face Shape Enhancement	Adjust Saturation	Sent Feedback	Sent Feedback
	Applying Filters		GiveRating
	Applying Lightnening Effects		
	Selection tool for Enhancement		
	Crop image		
Nose Enhancement	Adjust Nose Length	View Feedback History	view history
	Adjust Nose Width		
	Add New Layer		
	upload button		
		Dark Mode	Applying Dark mode
Eye Brow Enhancement	Change Eyebrow Colour	Privacy policy	privacy policy
	Add some hairs		
	Selection of Brush		
	Adjust Size of Brush		
Beard Maker	Selection of brush tool		
	Selection of existing template of beards		
	Change Beard Colour		
Eye Enhancement	Add Lens		
	Adjust Eye lashes		
	Adjust Eye Width		

9. References

8.1)   Related System:

- **https://www.github.com/topics/sound-classification**.

- **https://speech2face.github.io/**

- **Google Facenet**

8.2)   YouTube Resources:

https://www.youtube.com/watch?v=aKYlSIs3UDY&t=334s

10. SRS Work Division

Shahzaneer Ahmed (SP21-BCS-087)	Shayan Zameer (SP21-BCS-088)
1. Overall Description 2. Requirement Identifying Technique (Module 1, 3, 5, 7,9) 3. Functional Requirements (Module 1, 3, 5, 7,9) 4. External Interface Requirements (Software & Communication interfaces) 5. Final Format Preparation of SRS Document (Word .docx file)	1. Introduction & Conclusion 2. Requirement Identifying Technique (Module 2, 4, 6, 8) 3. Functional Requirements (Module 2, 4, 6, 8) 4. External Interface Requirements (User interfaces & Mockups) 5. Presentation (PowerPoint .ppt file)

11. Plaragism Report

Attach the Plaragism report of your project requirement document from library staff of turnitin tool (http://turnitin.com)