VIRTUAL CONSULTANT

TEST CASES AND REQUIREMENTS TEST COVERAGE

Version 1.1
<18/10/2021>

Aditya Chandrasekhar (U1923951A) : Project Manager / Lead Developer
Aratrika Pal (U1922069F) : Backend Developer
Shruthi Srinivas (U1923611G) : Backend Developer / Release Engineer
Chong Zhe Ming (U1920757K) : Frontend Developer
Khush Kothari (U1922279J) : Frontend Developer
Kushal Sai Gunturi (U1923232F) : QA Manager
Yi Jia Xin, Joceline (U1920057J) : QA Engineer
Lim Yun Han Darren: (U1921275J) : Frontend Developer

Unit Testing

The primary purpose of Unit Testing is to test the individual components of Virtual Consultant. When all the procedures are tested, they are deemed to be fit to be used in the application.

Test Case 1

Test Case #	UT1	**Test Name**	Login Authentication
System	Virtual Consultant	**Sub-System**	Home Page
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	There is a 'Sign In' button at the top navigation of Virtual Consultant's home page. The user should be redirected to the login pages when the button is clicked.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is currently at the home page of Virtual Consultant	
Step #	**Action**	**Expected System Response**
1	The user clicks on the 'Sign in' button at the top navigation bar of the home page	System redirect user to the login page
2	Users can choose to sign in as a patient.	The system will display the login form for patients to the user.
ALT -2	Users can choose to sign in as a doctor.	The system will display the login form for doctors to the user.
3	The user enters the correct username and password and submits the form by clicking on the 'Sign in' button	The system authenticates the user and redirects them to the main page upon successful login.
ALT -3	The user enters the incorrect username and password and submits the form by clicking on the 'Sign in' button	The system displays a message informing the user that the login credentials are invalid and remained on the login page.
Post-Conditions	The system displays the home page upon successful login.	

Test Case 2

Test Case #	UT2	**Test Name**	User Creation
System	Virtual Consultant	**Sub-System**	Home Page
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	There is a ‘Get Started’ button on the home page of Virtual Consultant. The user should be redirected to the sign-up page when the button is clicked.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is currently at the home page of Virtual Consultant	
Step #	**Action**	**Expected System Response**
1	The user clicks on the ‘Get Started’ button in the middle of the home page	System redirect user to the sign-up page
2	Users can choose to sign up as a patient.	The system will display the sign-up form for patients to the user.
ALT -2	Users can choose to sign up as a doctor.	The system will display the sign-up form for doctors to the user.
3	The user fills up all the sign-up credentials and submits the form by clicking on the ‘Sign Up’ button	The system creates an account for the user.
ALT -3	The user did not fill up all the sign-up credentials and submits the form by clicking on the ‘Sign Up’ button	The system displays a message informing the user that some parts of the sign-up credentials are blank or invalid and remain on the sign-up page.
Post-Conditions	The system creates the account and authenticates the user.	

Test Case 3

Test Case #	UT3	**Test Name**	Feed Page
System	Virtual Consultant	**Sub-System**	Social Media
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	After the user has successfully logged in to Virtual Consultant, the user should be redirected to their feed.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is logged in.	
Step #	**Action**	**Expected System Response**
1	The user has just logged in.	System will redirect the user to their feed.
2	Users can view posts made by doctors they follow .	The system will display their feed, posts made by doctors they follow.
3	Users can choose to like a post on their feed.	The system will show the number of likes on that post increase by 1.
ALT -3	Users can click on the doctor's username shown on the post.	The system will redirect the user to the profile page of the doctor
Post-Conditions	-	

Test Case 4

Test Case #	UT4	**Test Name**	View Doctor Profile
System	Virtual Consultant	**Sub-System**	Social Media
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The user must be able to search for a doctor of their choice and view		

	their profile.

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is logged in.	
Step #	**Action**	**Expected System Response**
1	The user clicks on the search bar.	The system will be ready to take in input from the user.
2	The user enters the Doctor's name,	The system will reflect what the user has typed and a dropdown selection of doctor's matching that name will be shown.
ALT- 2	The user enters a wrong name/ name that does not exist.	The system will reflect what the user has typed and inform the user that no such Doctor was found.
3	The user clicks on a Doctor's name.	The system will redirect the user to the Doctor's profile page which will show the user personal information of the doctor, the area in which the doctor specialises in and posts made by the doctor.
4	The user can choose to like a post made by the doctor	The system will show the number of likes on that post increase by 1.
5	The user can choose to follow the doctor.	The system will start showing the user posts made by the doctor from now on.
ALT -5	The user can can choose to unfollow the doctor	The system will stop showing the user posts made by the doctor from now on.
Post-Conditions	-	

Test Case 5

Test Case #	UT5	**Test Name**	View own profile page
System	Virtual Consultant	**Sub-System**	Social Media
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The user must be able to view their own profile page.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is logged in.	
Step #	**Action**	**Expected System Response**
1	The user clicks on the account button.	System will redirect the user to their profile page and show the user his/her personal information
2	The user can choose whether to edit his/her username and enter his/her new username.	The system takes in the new username, saves the changes made and modifies values in the database.
3	The user can choose whether to edit his/her password and enter his/her new password.	The system takes in the new password, saves the changes made and modifies values in the database.
4	The user can choose whether to edit his/her email and enter his/her new email.	The system takes in the new email, saves the changes made and modifies values in the database.
5	The user can choose whether to edit his/her medical history and enter his/her new medical history.	The system takes in the new information, saves the changes made and modifies values in the database.
Post-Conditions	-	

Test Case 6

Test Case #	UT6	**Test Name**	Create/ Delete posts
System	Virtual Consultant	**Sub-System**	Social Media
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	After the user has successfully logged in to Virtual Consultant, the user should be redirected to their feed.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is logged in.	
Step #	**Action**	**Expected System Response**
1	The user clicks on “New post” button	The system displays a text box for the user to input and allows attachments.
2	The user types in a description of 300 words.	System accepts the text description.
ALT -2	The user types in a description of 501 words.	System does not accept additional words after 500.
3	The user can choose to add an attachment to his/her post and uploads an attachment in .jpeg	System accepts the user’s attachment.
ALT -3	The user uploads an attachment in .gif format	System does not accept the user’s attachment and informs the user that only .jpeg, .png, pdf, or mp3 format is accepted.
4	The user clicks submit	The system creates the new posts, updates the database and updates the feed of the user.
Post-Conditions	The user uploads a post.	

Test Case 7

Test Case #	UT7	**Test Name**	Delete post
System	Virtual Consultant	**Sub-System**	Social Media
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	After the user has successfully logged in to Virtual Consultant, the user should be redirected to their feed.		

Pre-Conditions	1. The device is connected to a stable internet connection. 2. The user is logged in.	
Step #	**Action**	**Expected System Response**
1	The user clicks on the delete button on his/her post.	The system will send the user a confirmation popup to delete the post.
2	The user clicks yes.	The system will update the database and update the feed of the user by removing the post.
ALT -2	The user clicks no	Popup message is removed.
Post-Conditions	User deletes a post.	

Test Case 8

Test Case #	UT8	**Test Name**	Send Consultation Request
System	Virtual Consultant	**Sub-System**	Telecommunication
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	After successful login, the user can send requests to consult with doctors.		

Pre-Conditions	1. The device is connected to a stable internet connection 2. The user is logged in	
Step #	**Action**	**Expected System Response**
1	The user clicks on the send consultation request button.	System will redirect the user a form to fill out.
2	The user selects the type of problem and severity level from drop down menus.	The system waits for the user to fill the next field.
3	The user can choose to add a text message if necessary.	The system waits for the user to fill the next field.
4	The user can choose to add any attachment if necessary.	The system waits for the user to fill the next field.
ALT - 4 (1)	The user adds an attachment of a format other than jpg/png/pdf/mp4.	The system prompts the user to add attachments of jpg/png/pdf/mp4 format.
ALT -4 (2)	The user adds 6 attachments.	The system prompts the user to add a maximum of 5 attachments..
Post-Conditions	The system sends consultation requests to all doctors who specialise in the type of problem specified by the user.	

Test Case 9

Test Case #	UT9	**Test Name**	Chat Interface
System	Virtual Consultant	**Sub-System**	Telecommunication
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	Once a doctor has accepted a users consultation request, the user can communicate with the doctor.		

Pre-Conditions	1. The device is connected to a stable internet connection 2. The user is logged in 3. A doctor has accepted the users consultation request	
Step #	**Action**	**Expected System Response**
1	The user and doctor send each other text messages.	The system allows both parties to receive and view the messages.
2	The user and doctor send each other any image, audio or video attachments.	The system allows both parties to receive and view the attachments.
3	The user/doctor clicks the audio conference button.	The system redirects both parties to a page where they can communicate via audio.
4	The user/doctor clicks the video conference button.	The system redirects both parties to a page where they can communicate via audio and video.
Post-Conditions	-	

Test Case 10

Test Case #	UT10	**Test Name**	View Chat History
System	Virtual Consultant	**Sub-System**	Telecommunication
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The system must allow the users to view their chat history with doctors.		

Pre-Conditions	1. The device is connected to a stable internet connection 2. The user is logged in	
Step #	**Action**	**Expected System Response**
1	The user clicks the chat history button.	The system displays a list of all the conversations the user has had with any doctors.
2	The user selects any one of the conversations at one instance.	The system displays the entire history of the conversation including text, audio call duration and video call duration with respective time stamps.
3	The user clicks on the name of the doctor the conversation is with.	The system displays the profile of the doctor.
Post-Conditions	-	

Integration Testing

An incremental top-down approach has been used to conduct integration tests on Virtual Consultant. This ensures that usability is not compromised for edge cases and when the use case involves a long sequence of actions.

Test Case #	IT1	**Test Name**	User Authentication
System	Virtual Consultant	**Sub-System**	Authentication
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The user must be able to login into the system using their credentials and the credentials must be verified with the ones in the MongoDB in the backend by NodeJS.		

Pre-Conditions	1. The device must be connected to a stable internet connection. 2. The user must be registered in the database.	
Step #	**Action**	**Expected System Response**
1	The user clicks on the sign in button on the start page.	The system redirects the user to the sign in page which consists of a text box for username and password.
2	The user chooses whether he/she is a doctor or a patient.	The system reflects the choice of the user on the sign in page and informs the application about the database to use for login.
3	The user enters username and password to login.	The system retrieves the user's document from the database if it exists to verify whether they are correct.
Post-Conditions	Upon successful verification, the user reaches their home page.	

Test Case #	IT2	**Test Name**	View Feed-Patient
System	Virtual Consultant	**Sub-System**	View Feed
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The user must be able to perform all the features of their feed page.		

Pre-Conditions	1. The device must be connected to a stable internet connection. 2. The user account must be registered in the database.	
Step #	**Action**	**Expected System Response**
1	The user signs in with their credentials.	The system redirects the user to their homepage which consists of a feed of posts made by the doctors that the user follows.
2	The user can choose to like or dislike any of the posts.	The system reflects the change in the number of likes on the homepage immediately and makes the respective changes in the database as well.
3	The user can choose to follow or unfollow any doctor.	The system reflects the change for the particular user in the database by adding or removing the particular doctor from their following.
4	The user can choose to click on the chat icon on the navigation bar.	The system redirects the user to their chat page and retrieves all the past conversations from the database for the user to view.
5	The user can choose to click on the send consultation request icon on the navigation bar.	The system redirects the user to the consultation request page and prompts the user to enter the required details.
6	The user can choose to view their own profile.	The system redirects the user to their profile and retrieves the user

		information from the database.
Post-Conditions	The user is taken to the respective page based on their choice.	

Test Case #	IT3	**Test Name**	View Feed-Doctor
System	Virtual Consultant	**Sub-System**	View Feed
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The user must be able to perform all the features of their feed page.		

Pre-Conditions	1. The device must be connected to a stable internet connection. 2. The user account must be registered in the database.	
Step #	**Action**	**Expected System Response**
1	The user signs in with their credentials.	The system redirects the user to their homepage which consists of a feed of posts made by them.
2	The user can choose to delete old posts or create new ones.	The system reflects the change in the number of posts on the homepage immediately and makes the respective changes in the database as well.
3	The user can choose to click on the chat icon on the navigation bar.	The system redirects the user to their chat page and retrieves all the past conversations from the database for the user to view.
4	The user can choose to click on the notifications icon on the navigation bar.	The system redirects the user to the notifications page and retrieves all the consultation requests that they have received.
6	The user can choose to view their own profile.	The system redirects the user to their profile and retrieves the user information from the database.

Post-Conditions	The user is taken to the respective page based on their choice.

Test Case #	IT4	**Test Name**	Video Call
System	Virtual Consultant	**Sub-System**	Video Call
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The doctor and patient must be able to communicate via video call remotely.		

Pre-Conditions	1. The device must be connected to a stable internet connection. 2. The user account must be registered in the database. 3. The doctor must accept the patient's consultation request. 4. The doctor and patient must provide access to their device's microphone and camera.	
Step #	**Action**	**Expected System Response**
1	The patient sends a consultation request.	The system broadcasts the request and notifies all the doctors of the required specialisation in the database about the request.
2	The doctor can choose to accept the consultation request.	The system redirects the patient and the doctor to a private room for video call.
3	The patient and doctor can mute their microphone.	The system stops the audio from the respective device from being transmitted.
4	The patient and doctor can turn off their camera if they only want an audio call.	The system stops video from the respective device from being transmitted.
Post-Conditions	The patient and doctor are able to have a conversation remotely via a video call.	

System Testing

System Testing is a process of testing all the integrated hardware and software components of our system to verify that the application meets its specified requirements.

Test Case 1

Test Case #	ST1	**Test Name**	Smoke Testing
System	Virtual Consultant	**Sub-System**	Smoke Testing
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	Users must be able to login into the application and be able to navigate across and use all the features designed.		

Pre-Conditions	The device is connected to a stable internet connection	
Step #	**Action**	**Expected System Response**
1	Requesting for a consultation by clicking on the consultation button	A virtual display of the consultation form is shown to allow patients to fill in.
2	View post of the doctors they followed	Patients can view a list and details of the posts which are posted by the doctors they have followed
3	Patients can like and comment on posts by doctors.	The virtual display of a post or likes is updated along with being updated in our database.
4	Patients can view and edit their profile	Virtual display of patient's profile is displayed and patients can choose to update their profile accordingly along with behind updates in our database.
Post-Conditions	The complete system is able to interact based on the user's actions.	

Test Case 2

Test Case #	ST2	**Test Name**	Stress Testing
System	Virtual Consultant	**Sub-System**	Stress Testing
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	Multiple users must be able to use the application simultaneously		

Pre-Conditions	The device is connected to a stable internet connection	
Step #	**Action**	**Expected System Response**
1	101 users are operating the application simultaneously.	The application should work smoothly without crashing. The users should be able to navigate across pages and be able to use all the features of Virtual Consultant.
Post-Conditions	The application is operated by 101 users simultaneously.	

Test Case 3

Test Case #	ST3	**Test Name**	Scalability Testing using Database
System	Virtual Consultant	**Sub-System**	Scalability Testing using Database
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The database should be able to process queries from multiple users without crashing		

Pre-Conditions	The device is connected to a stable internet connection

Step #	Action	Expected System Response
1	101 users are operating the application simultaneously. All 101 users must send consultation requests.	The database should update the consultation page for the patients and process these requests by sending all the requests to the relevant doctors. The update to MongoDB should be smooth and the server should not crash.
Post-Conditions	The database is updated based on the application usage of 101 users simultaneously	

Test Case 4

Test Case #	ST4	**Test Name**	Recoverability Testing
System	Virtual Consultant	**Sub-System**	Recoverability Testing
Designed by	QA Team	**Design Date**	18 October 2021
Executed by	QA Engineer	**Execution Date**	19 October 2021
Description	The data stored for any user must be stored in the database if the application crashes or the device loses internet connectivity		

Pre-Conditions	The device is connected to a stable internet connection	
Step #	**Action**	**Expected System Response**
1	Users edit their profiles. The OS kernel library is deleted supporting Virtual Consultant which results in the application crashing.	The database must contain the data for the user operating the application. The system must update the database at small intervals of time which prevents loss of data in cases where the application crashes
Post-Conditions	The application is able to recover the data of the user in case the application crashes during its operation.	