FABI Mobile User Manual

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Contents

1 General Information

The purpose of this document is to serve as an in-depth explanation and analysis of the system. The primary functionality and functions provided by the FABI Mobile software system are explained and outlined in an easy-to-understand and comprehensible manner.

1.1 Organization of this Manual

This user manual consist of five sections: General Information, System Summary, Getting Started, Using the System, and Troubleshooting.

The **General Information** section explains in general terms the system and the purpose for which it is intended. The Points of Contact are also provided in this section.

The **System Summary** section provides a general overview of the system. The summary outlines the use of the system's hardware and software requirements, the system's configuration, as well as the user access levels.

The **Getting Started** section explains how to get both the web and mobile applications, as well as how to use them based on the user levels.

Using the System provides a detailed description of all the system's functions.

The **Troubleshooting** sections describes all the recovery and error correction procedures. including error conditions that may generated and corrective actions that may need to be taken.

1.2 System Overview

FABI Mobile is the primary product. It encapsulates a web and mobile application intended to drastically modernize FABI's existing system as well as to compliment the roll-out of their Diagnostic Clinic to the forestry and agriculture sector. Another aspect of this software solution is to provide a central means for allowing internal staff within FABI to manage and maintain their databases, staff, and associated organizations. An external management system has been put in place for industry organizations to manage the guests that are associated to them and can in turn make use of the Diagnostic Clinic facilities.

The functionality of FABI Mobile lies within two main areas. The first main area is the web application. The intention of the web application is to provide a centralized and automated means for which organizations and users within those organizations can submit forms to the Diagnostic Clinic as well as track the progress of the samples that they submit. The web application also provides the ability for internal FABI staff to submit request and deposit forms for certain cultures as well submit samples to the Diagnostic Clinic. The mobile application will provide the exact same information with the exception that FABI administrators will not use the mobile application, as the mobile application is only intended for organizations, their members, and the FABI internal staff.

1.3 Points of Contact

FABI Contact Details:

Telephone: +27 (12) 420-3937 or 3938
FAX: +27 (12) 420-3960
Email: madelein.vanheerden@fabi.up.ac.za

Postal Address:
Forestry and Agricultural Biotechnology Institute (FABI)
University of Pretoria
Private bag X20
Hatfield
0028
South Africa

Physical address (also for courier deliveries pickups):
Forestry and Agricultural Biotechnology Institute (FABI)
University of Pretoria
Lunnon Street Entrance
Hatfield
0083
Pretoria
South Africa

1.4 Acronyms and Abbreviations

API: Application Programming Interface.
FABI: Forestry and Agricultural Biotechnology Institute.
HTTP: HyperText Transfer Protocol.
JSON: JavaScript Object Notation.
PDF: Portable Document Format.

2 System Summary

This section provides a general overview of the system. The summary outlines the use of the system's hardware and software requirements, the system's configuration, as well as the user access levels.

2.1 System Configuration

The web application will be run in a web browser and therefore any device may access the web application. There is no real constraints on these devices except that an Internet connection will be required to access the web application. The mobile application has been designed to run on both Android and IOS platforms. Again, these mobile devices will required and internet connection to use the mobile application. Offline local storage is provided by the mobile application. Once connected to the Internet, the mobile device will sync its local storage with the online databases. The Internal GPS system of the mobile devices will be used to capture the users GPS coordinates. These coordinates will also be extracted from the meta data of the images sent via the mobile application. Once download, the mobile application will need no other configuration.

2.2 System Installation

The web application will not require any installation because it can be accessed via any web browser. The mobile application will need to be downloaded from either the Android app store or the IOS app store depending on the mobile device being used. No other installations will be required for the use of this software system.

2.3 User Access Levels

With regards to the web application, all possible users will be given access, which requires them to login with their login credentials, however, their login credentials and user type will determine what they will be able to access within the web application. The same access procedure applies to the mobile application. Only registered administrators and FABI super users will be given access to the databases. As long as an organization has a registered account with FABI, the organization administrator will have access to both the mobile and web applications. Only registered members within the organization will be given access to the mobile and web applications. This system is not open to members of the general pubic outside of FABI or an organization.

3 Getting Started

3.1 Web Application

Logging In
You will be presented with the main page of the application. Click the 'login' button to move to the login page. Enter your login credentials .ie. your email and password in the fields provided and select your organization, then click the 'login' button.

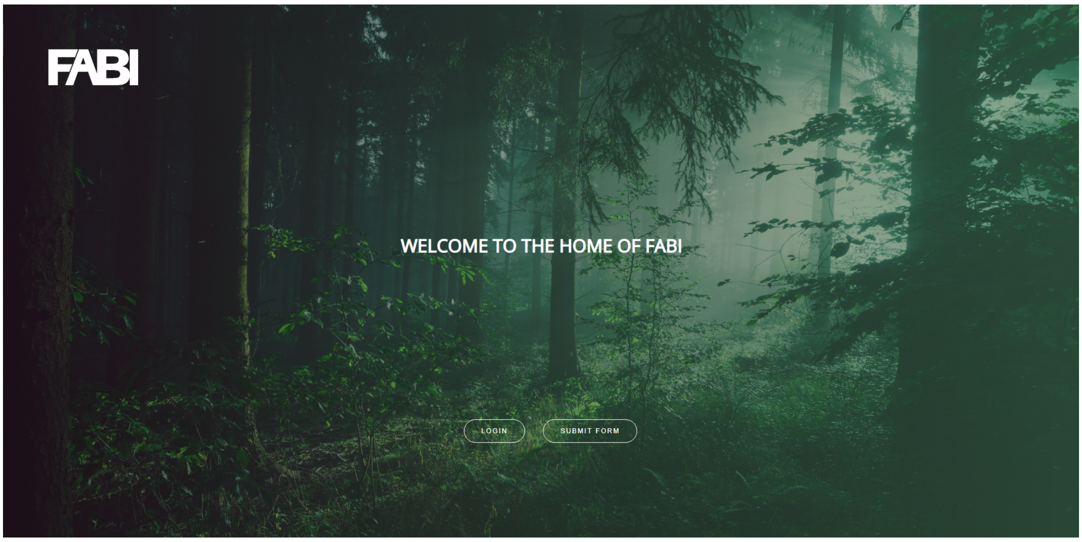


Figure 1: Web Application Main Page

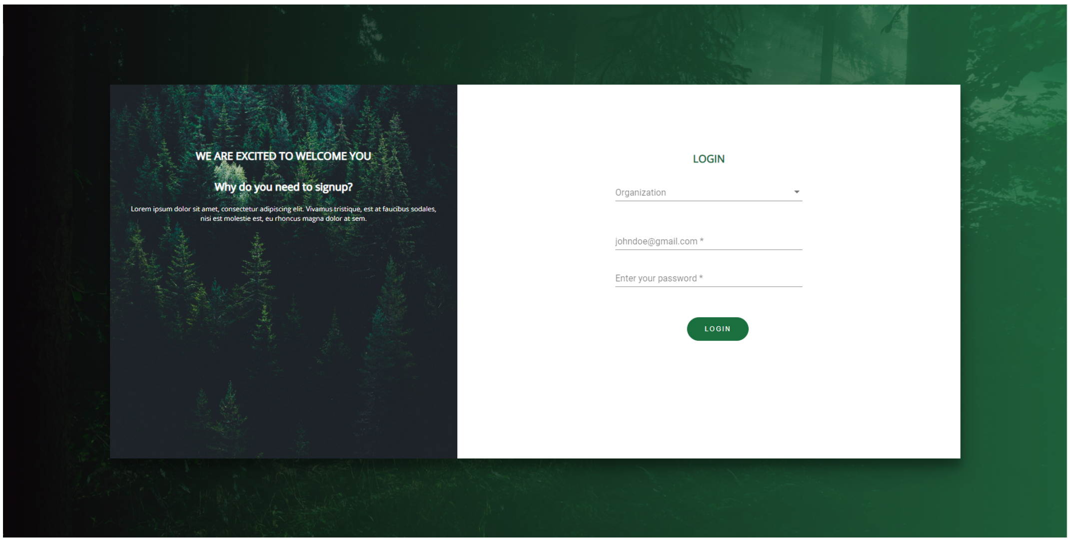


Figure 2: Web Application Login Page

Understanding the Menu

3.1.1 FABI Administrators

Understanding the Dashboard

The below image depicts what the dashboard (the main page once logged in) looks like. In the top left-hand corner is the burger menu by which the slide-out menu can be accessed. The 'help' icon on the dashboard will direct you to a 'help' page once clicked. The buttons provided on the dashboard (ie. Staff Management, Organization Management, Diagnostic Clinic Management, and Database Management) will direct you to the associated pages once clicked.

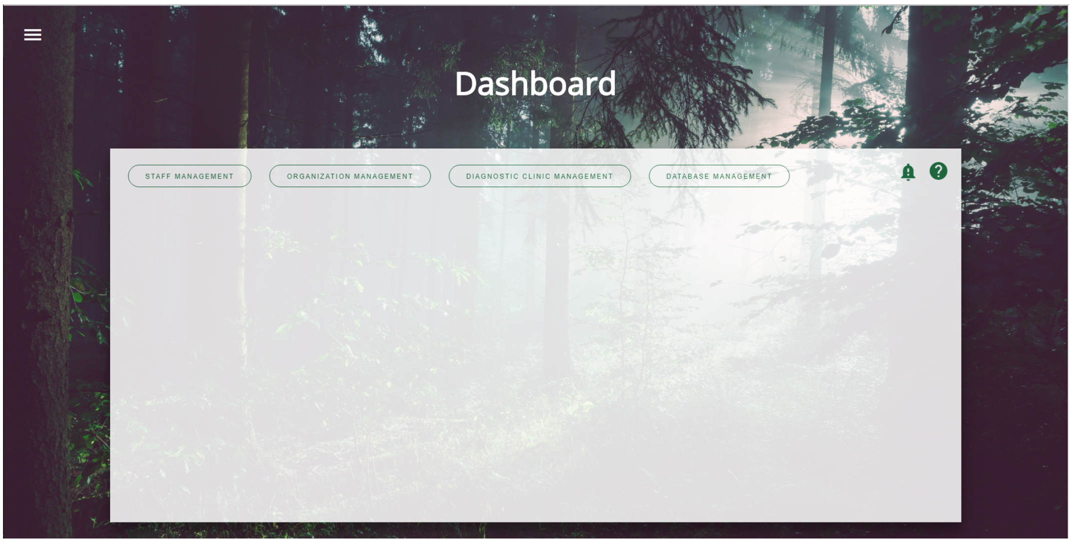


Figure 3: Web Application Dashboard

Staff Management

Organization Management

Database Management

Diagnostic Clinic Management

Exiting the System

To exit the application, select to 'logout' via the menu provided. Once selected, you will then be logged out of the application. The web application can then be closed by closing the browser tab.

3.1.2 Internal FABI Users

Understanding the Dashboard

The below image depicts what the dashboard (the main page once logged in) looks like. In the top left-hand corner is the burger menu by which the slide-out menu can be accessed. The 'help' icon on the dashboard will direct you to a 'help' page once clicked. The buttons provided on the dashboard (ie. Submit CMW request form, Submit CMW deposit form, Submit CMW revitalization form, Submit CBS request form, Submit CBS deposit form, and Submit sample) will direct you to the associated pages once clicked.

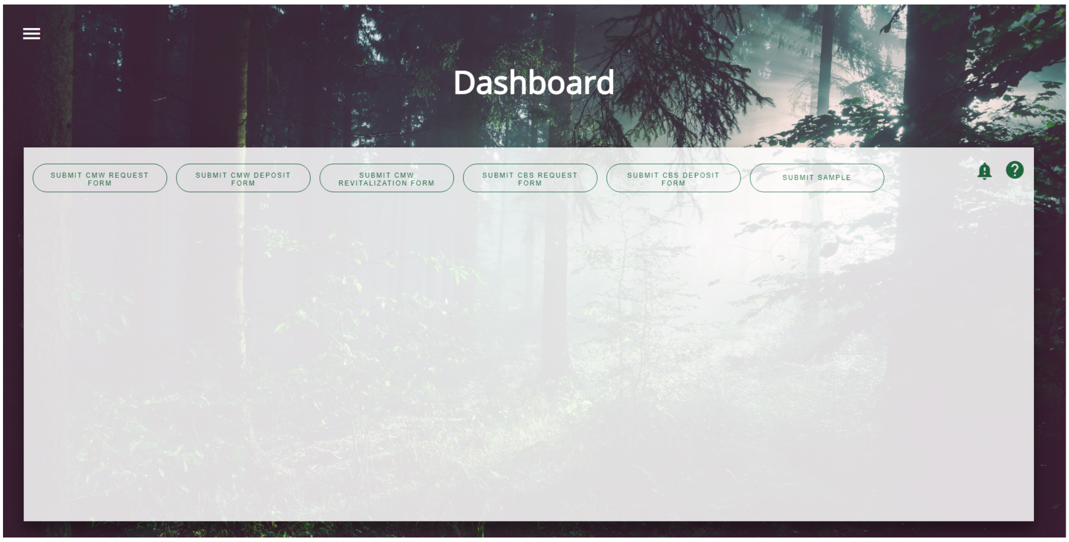


Figure 4: Web Application Dashboard

Submit a Sample
Navigate to the 'Sample' page by using the menu provided or by the button provided on the dashboard. Once at the 'sample' page, the sample submission form will be provided. Fill in all the information required in the fields provided. There is an option to upload images. To upload images, click the 'camera' icon and the images can be selected from the users computer or other online storage facilities ie. Google Drive. When ready to submit the sample form, click the 'submit' button and the form will be sent. You will then be issued with a reference number.

Submit a CMW Request Form
Click the 'Submit CMW request form' button provided on the dashboard. Fill in all the information required in the fields provided. Click the 'submit' button to submit the request form.

Submit a CBS Request Form
Click the 'Submit CBS request form' button provided on the dashboard. Fill in all the information required in the fields provided. Click the 'submit' button to submit the request form.

Exiting the System
To exit the application, select to 'logout' via the menu provided. Once selected, you will then be logged out of the application. The web application can then be closed by closing the browser tab.

3.1.3 Organization Administrator

Understanding the Dashboard

The below image depicts what the dashboard (the main page once logged in) looks like. In the top left-hand corner is the burger menu by which the slide-out menu can be accessed. The 'help' icon on the dashboard will direct you to a 'help' page once clicked. The buttons provided on the dashboard (ie. Manage Members, Manage Profile, View Organization Samples, and Submit Samples) will direct you to the associated pages once clicked.

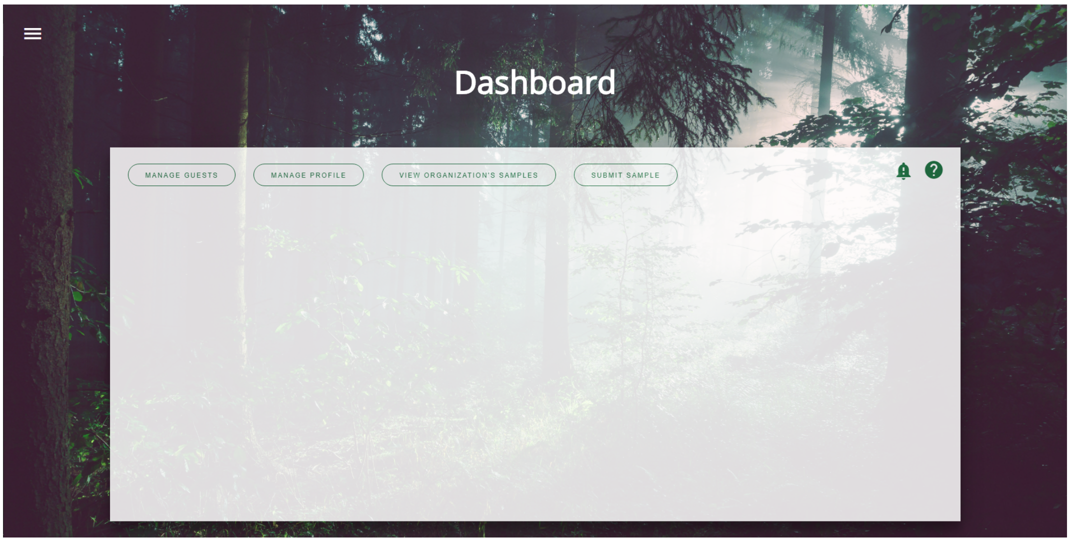


Figure 5: Web Application Dashboard

Member Management

Profile Management

Select the 'profile' button provided on the dashboard, or navigate to the 'profile' page via the menu provided. Once at the 'profile' page, all of the organization's information will be provided. Clicking on the edit icons (pencils) will allow the user to edit specific details. Once finished, click the 'save' button to ensure that all changes will be saved.

Submit a Sample

Navigate to the 'Submit Sample' page by using the menu provided, or by clicking on the 'Submit Sample' button provided on the dashboard. Once at the 'sample' page, the sample submission form will be provided. Fill in all the information required in the fields provided. There is an option to upload images. To upload images, click the 'camera' icon and the images can be selected from your computer or other online storage facilities .ie. Google Drive. When ready to submit the sample form, click the 'submit' button and the form will be sent. You will then be issued with a reference number.

View Samples

To view all samples submitted, click the associated button provided by the dashboard. This will then show the samples.

Exiting the System

To exit the application, select to 'logout' via the menu provided. Once selected, you will then be logged out of the application. The web application can then be closed by closing the browser tab.

3.1.4 Organization's Members

Understanding the Dashboard

The below image depicts what the dashboard (the main page once logged in) looks like. In the top left-hand corner is the burger menu by which the slide-out menu can be accessed. The 'help' icon on the dashboard will direct you to a 'help' page once clicked. The buttons provided on the dashboard (ie. Manage Profile, View Your Samples, and Submit Samples) will direct you to the associated pages once clicked.

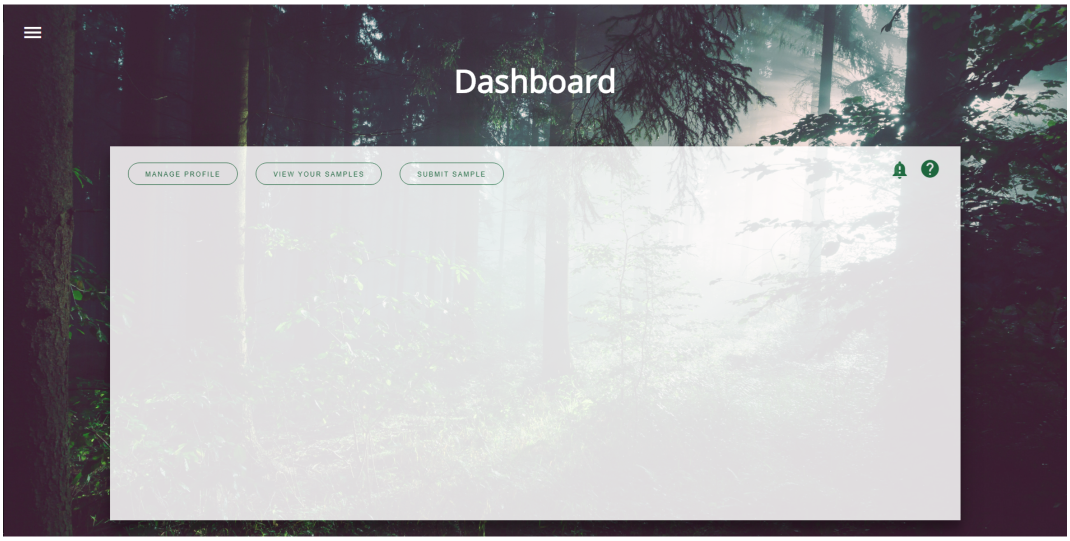


Figure 6: Web Application Dashboard

Profile Management
Select the 'profile' button provided on the dashboard, or navigate to the 'profile' page via the menu provided. Once at the 'profile' page, all of the organization's information will be provided. Clicking on the edit icons (pencils) will allow the user to edit specific details. Once finished, click the 'save' button to ensure that all changes will be saved.

Submit a Sample
Navigate to the 'Submit Sample' page by using the menu provided, or by clicking on the 'Submit Sample' button provided on the dashboard. Once at the 'sample' page, the sample submission form will be provided. Fill in all the information required in the fields provided. There is an option to upload images. To upload images, click the 'camera' icon and the images can be selected from your computer or other online storage facilities .ie. Google Drive. When ready to submit the sample form, click the 'submit' button and the form will be sent. You will then be issued with a reference number.

View Samples
To view all samples submitted, click the associated button provided by the dashboard. This will then show the samples.

Exiting the System
To exit the application, select to 'logout' via the menu provided. Once selected, you will then be logged out of the application. The web application can then be closed by closing the browser tab.

3.2 Mobile Application

Understanding the Menu
The menu provides the following options:

1. **Home:** Navigates to the dashboard
2. **Submit Sample:** Navigates to the sample form that can be submitted
3. **Profile:** Navigates to the profile page
4. **More Information:** Navigates to the page that provides more information about insects and diseases
5. **Notifications:** Navigates to a page that shows all recently received notifications
6. **Settings:** Navigates to the settings page which contains the 'About Us', 'Contact Us', 'FAQ', and 'Terms and Conditions'
7. **Help:** Navigates to the FABI website
8. **Logout:** To log out of the mobile application
9. **Search field:** To search for information

Selecting the 'burger' menu is the left-hand corner will display the menu. The 'burger' menu is provided on every page within the mobile application.

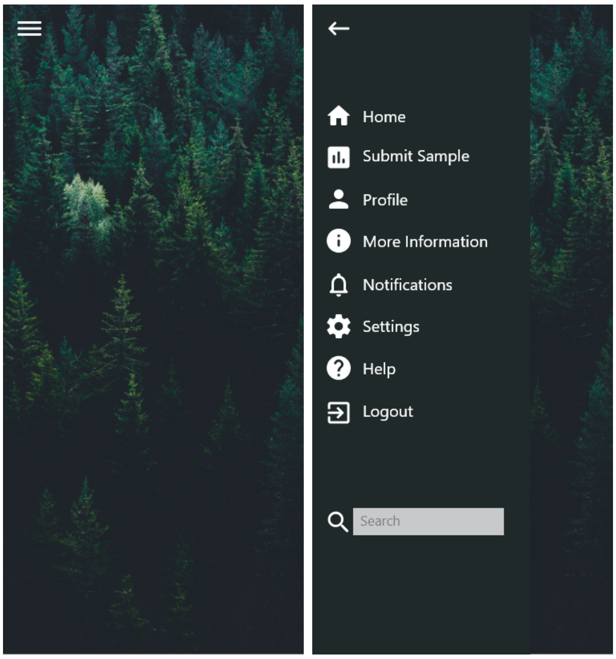


Figure 7: Mobile Application Menu

Logging In
You will be presented with the main page of the application. Click the 'login' button to move to the login page. You will need to enter your login credentials .ie. your email and password in the fields provided and then click the 'login' button.

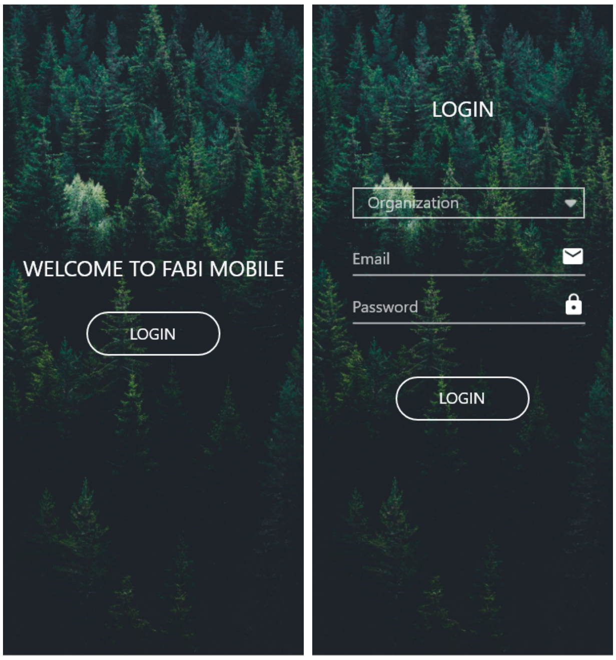


Figure 8: Mobile Application Login

Understanding the Dashboard

Profile Management
Navigate to the 'profile' page via the menu provided. Once at the 'profile' page, all of your information will be provided. Clicking on the edit icons (pencils) will allow you to edit specific details. Once finished, click the 'save' button to ensure that all changes will be saved.

Submit a Sample
Navigate to the 'Submit Sample' page by using the menu provided. Once at the 'sample' page, the sample submission form will be provided. Fill in all the information required in the fields provided. There is an option to upload images. To upload images, click the 'camera' icon and the images can be selected from your computer or other online storage facilities .ie. Google Drive. When ready to submit the sample form, click the 'submit' button and the form will be sent. You will then be issued with a reference number.

View Samples
To view all samples submitted, navigate to the 'dashboard' page via the menu provided. The dashboard graphically presents all submitted samples and their current stages in the analysis process. From the dashboard, individual samples may be selected to view in more detail.

Exiting the System
To exit the application, select to 'logout' via the menu provided. Once selected, you will then be logged out of the application. The mobile application can then be closed.

4 Using the System

4.1 Handling Staff

4.1.1 Adding a staff member

This functionality is reserved for FABI super users and administrators, and can be performed on both the web and mobile applications. To add a new staff member, the super user/administrator will navigate to the 'Staff Management' option using the dashboard (home page). The user will be provided with a multitude of options relating to staff management. Selecting the 'Add new staff' option will provide the user with a form by which a new staff member may be added. All the relevant new user information will need to be provided, and the super user/administrator will need to select the user type for the new user (this will indicate what rights they will have within the system). The user will then click the 'Add new user' button. This will send an HTTP POST request to the 'Staff Management' API containing all the new user's information. The API will first search the user database to ensure that the user does not already exist in the system. If the user does exist, they will not be added to the system but rather a response message will be sent back to the web application indicating that the user already exists within the system. If the user was not found (ie. they do not exists in the system) the API will begin the processing of adding the new user. Once the processing of this request is complete, the API will send a response message to the web application indicating that the new user was successfully added. In addition to this, an email will be sent to the new user with a temporary login password. This password can be changed by the user via the 'profile' page when they log into either the mobile application or the web application.

4.1.2 Viewing the staff compliment

This functionality is provided by both the mobile and web applications. The user (a FABI super user, general administrator, secretary, or other members of staff that will need to view the staff compliment) will navigate to the 'Staff Management' option using the dashboard (home page). Selecting the option to 'View staff compliment' will result in an HTTP GET request being sent to the 'Staff Management' API. In response, the API will send back the staff compliment. This information will be displayed such that sensitive information (ie. passwords) will not be viewable.

4.1.3 Searching for a staff member

This functionality is provided by both the mobile and web applications. The user will either select to search by filling in the search criteria in the field provided once navigated to the 'Staff Management' option provided on the dashboard (home page), or by navigating to the menu and filling in the search criteria in the field provided. A user can be identified by their name, surname, email address, and phone number, meaning that any one of these can be used as the search criteria to find a user. An HTTP POST request will be sent to the 'Staff Management' API containing the search criteria. The API will then search through the user database for the user whose information matches that of the given search criteria. If the user is not found, a response message will be sent to the web application indicating that the user does not exists in the system. If the user is found, their information (excluding any sensitive information) will be sent with the response message to the web or mobile application. The web application will then display this information for the user.

4.1.4 Updating a staff member's details

This functionality is provided by both the mobile and web applications. The user will either select to update a user's information by searching for the user and then selecting the necessary options to edit the user's information, or by selecting to view all the users provided by the 'Staff Management' option provided by the user's dashboard (home page). The necessary user information can be edited and then selecting to 'save' this updated information will result in an HTTP POST request being sent to 'User Management' API. This request will contain all the updated information as well as the user's session id. If the session id is valid, the API will process the changes and updated in the relevant user database. Otherwise, a response message will be sent back to the web or mobile application indicating that the session id is invalid. If all updates have been processed and saved successfully, a response message will be sent indicating so.

4.1.5 Deactivating a staff member

This functionality is reserved for FABI super users, and can be performed on both the web and mobile applications. The user can perform this action by either navigating to the 'Staff Management' option provided on their dashboard (home page) and selecting to 'remove' the staff member, or by searching for the staff member and selecting the appropriate option to remove the user. The selection to remove a staff member will result in an HTTP POST request being sent to the 'User Management' API. This request will contain the user's session id as well as the request to remove the user. The system has been designed to never fully delete a user from the system, but rather to deactivate their account. The API will perform the necessary session validation and then begin the processing of the request. The relevant user database will be searched through and if the user is not found, a response message will be sent back to either the mobile or web application indicating so. If the user is found, their account/profile within the database will be deactivated. The API will then send a success response to the web or mobile application indicating that the staff member has been 'removed' from the system.

4.2 Authentication

4.2.1 Authenticating a FABI administrator

When a FABI administrator logs into either the web application or the mobile application (by clicking the 'login' button provided on the 'Login' interface) using their login credentials (ie. the email address and password), these details will be authenticated against the details in the associated user database. This process will involve sending the FABI administrator's details to the 'User Management' API via an HTTP POST request. This request will contain the user's details in JSON format. Once the API has received the POST request, it will extract the login details using an internal function. The API will then compare these details to details within the user database. If the credentials are correct, a success message will be sent back to the web applications, otherwise an unsuccessful message will be sent. If the credentials are correct, the API will also generate a session id for this user, as well as send through the user's user type in the form of a hashed sequence (this will allow the web application and/or mobile application to respond dynamically based on the user's user type). If the activity receives a success response, the user's dashboard will then be loaded. If an unsuccessful message is received, the error sent through with the unsuccessful response will be displayed for the user. The user will then have to try login again.

4.2.2 Authenticating a FABI staff member

When a FABI staff member logs into either the web application or the mobile application (by clicking the 'login' button provided on the 'Login' interface) using their login credentials (ie. the email address and password), these details will be authenticated against the details in the associated user database. This process will involve sending the FABI staff member's details to the 'User Management' API via an HTTP POST request. This request will contain the user's details in JSON format. Once the API has received the POST request, it will extract the login details using an internal function. The API will then compare these details to details within the user database. If the credentials are correct, a success message will be sent back to the web application, otherwise an unsuccessful message will be sent. If the credentials are correct, the API will also generate a session id for this user, as well as send through the user's user type in the form of a hashed sequence (this will allow the web application and/or mobile application to respond dynamically based on the user's user type). If the activity receives a success response, the user's dashboard will then be loaded. If an unsuccessful message is received, the error sent through with the unsuccessful response will be displayed for the user. The user will then have to try login again.

4.2.3 Authenticating an organization's member

When a member of an organization logs into either the web application or the mobile application (by clicking the 'login' button provided on the 'Login' interface) using their login credentials (ie. the email address and password), these details will be authenticated against the details in the associated user database. This process will involve sending the organization member's details to the 'Organization Management' API via an HTTP POST request. This request will contain the user's details in JSON format. Once the API has received the POST request, it will extract the login details using an internal function. The API will then compare these details to details within the user database. If the credentials are correct, a success message will be sent back to the 'Login' activity (that originally called to authenticate the user), otherwise an unsuccessful message will be sent. If the credentials are correct, the API will also generate a session id for this user, as well as send through the user's user type in the form of a hashed sequence (this will allow the web application and/or mobile application to respond dynamically based on the user's user type). If the activity receives a success response, the user's dashboard will then be loaded. If an unsuccessful message is received, the error sent through with the unsuccessful response will be displayed for the user. The user will then have to try login again.

4.2.4 Logging out as a FABI administrator

To log out of the mobile application and/or web application, the FABI administrator will need to navigate to the menu and select to 'logout'. This will send and HTTP POST request to the 'User Management' API. This will enable the API to destroy the user's session. Once the session has been destroyed, the API will send a response to the web or mobile application indicating so. The mobile application or web application will then revert back to the main page and the user will the be required to log in again in order to gain access.

4.2.5 Logging out as a FABI staff member

To log out of the mobile application and/or web application, the FABI staff memeber will need to navigate to the menu and select to 'logout'. This will send and HTTP POST request to the 'User Management' API. This will enable the API to destroy the user's session. Once the session has been destroyed, the API will send a response to the web or mobile application indicating so. The mobile application or web application will then revert back to the main page and the user will the be required to log in again in order to gain access.

4.2.6 Logging out as an organization's administrator

To log out of the mobile application and/or web application, the organization administrator will need to navigate to the menu and select to 'logout'. This will send and HTTP POST request to the 'User Management' API. This will enable the API to destroy the user's session. Once the session has been destroyed, the API will send a response to the web or mobile application indicating so. The mobile application or web application will then revert back to the main page and the user will the be required to log in again in order to gain access.

4.2.7 Logging out as an organization's member

To log out of the mobile application and/or web application, the organization's member will need to navigate to the menu and select to 'logout'. This will send and HTTP POST request to the 'User Management' API. This will enable the API to destroy the user's session. Once the session has been destroyed, the API will send a response to the web or mobile application indicating so. The mobile application or web application will then revert back to the main page and the user will the be required to log in again in order to gain access.

4.2.8 Terminating a user's session

This use case will be employed when the user either logs out of the web or mobile application or they have been inactive within the mobile application or web application for too long. In the former case, when a user requests to log out of the application an HTTP POST request will be sent to either the 'User Management' API or the 'Organization Management' API (depending on the type of user) indicating so. The API will then destroy the session and send a response message back. In the latter case, both the mobile and web applications have an internal specified timeout period that has been programmatically set. When this timeout period is reached, the application will itself send a request to either the 'User Management' API or the 'Organization Management' API (depending on the type of user) to log the user out. The session assigned to that user will be destroyed and the API will send a response message indicating so. The user will then be logged out of the application.

4.2.9 Verifying a user's session

When a user is authenticated (ie. they log into either the web application or the mobile application), the 'User Management' API or the 'Organization Management' API (depending on the type of user) will generate a session id that will be associated with that user until they log out of the application or their session is destroyed due to timeout constraints. Whenever the user makes changes to either their profile, or information in a database, their session id will also be sent in the HTTP POST request. The appropriate API will authenticate the session id before performing any other actions. If the session id is valid (ie. it exists and that it is associated with a user who has the rights to perform the specific action), the API will continue to proces the action performs. If the session id is not valid, the API will send a response message back to the activity indicating that either the session id does not exists, or that it is associated with a user who does not have the rights to perform the kind of action that they are trying to perform.

(This functionality is still to be implemented and therefore has not been completed in this user manual)

4.3 Handling the Diagnostic Clinic

4.3.1 Adding a processing stage

4.3.2 Updating a processing stage

4.3.3 Removing a processing stage

4.3.4 Viewing current samples

4.3.5 Searching through samples

4.4 Central Data Access Point

4.4.1 Adding a database

This functionality has only been allocated to a FABI super user, and can be performed on both the web and mobile applications. There are two methods via which a database may be created: manually or by using the porting system. In the case of the former approach, the FABI super user will navigate to the 'Database Management' option provided by theie dashboard (home page). Selecting to 'Add a new database' will then provide the user with the necessary interface in order to create a new database. The user will be required to fill in all the necessary information and then select 'Add new database'. This selection will send a HTTP POST request to the 'Database Management' API containing the new database information. Session validation will take place before any other processing begins. If the session id is not valid, an appropriate response message will be sent indicating so. If the session is valid, the API will then begin the processing in order to create a new database. Once created, the API will send a response message to the activity indicating that the database has been created. In the case of creating a database via the porting system, the user will also navigate to the 'Database Management' page, however, they will select to upload a csv file. The validity of this file will be checked on the client side (ie. by the web application). If the file is a valid csv file, an HTTP POST request will be sent to the 'Database Management' API containing the csv file. The API will check the validity of the session id sent, and if invalid, an appropriate response will be sent to the activity indicating so. If the session id is valid, the API will begin the processing of the csv file and creating a database from that. Once the database has been successfully created, the API will send a response message indicating that the database has been created using the csv file.

4.4.2 Viewing databases

This functionality depends on the user and what 'kind' of viewing is to be provided, and can be performed on both the web and mobile applications. FABI super users and general administrators will be able to search for a database and then it will be displayed. To view a database, the user will navigate to the 'Database Management' option provided by their dashboard (home page). FABI super users will be shown a dashboard that contains all the relevant databases. To view one of these database, the user will 'click' on the displayed name of the database. This will send an HTTP POST request to the 'Database Management' API. This request will contain the user's session id so that the API can validate the request action. If the session id is valid, the API will send a response message containing the chosen database's information. Otherwise, an appropriate response will be sent indicating that the session id is not valid. The web application will then display the information returned in a logical and understandable manner. With regards to a general FABI administrator, they will only be allowed to view the database(s) that they are the administrators of. Again, to view one of these database, the user will 'click' on the displayed name of the database. This will send an HTTP POST request to the 'Database Management' API. This request will contain the user's session id so that the API can validate the request action. If the session id is valid, the API will send a response message containing the chosen database's information. Otherwise, an appropriate response will be sent indicating that the session id is not valid. The web application will then display the information returned in a logical and understandable manner.

4.4.3 Searching databases

This functionality is provided by both the mobile and web applications. The searching functionality is provided by either navigating to the 'Database Management' option on the dashboard (home page) and filling in the search criteria in the field provided, or the user can navigate to the menu and fill in the search bar. A 'smart' searching algorithm has been implemented to search through all databases based on the input in the search field. An HTTP POST request will be sent to the 'Database Management' API containing the searching criteria provided by the user, as well as the user's session id. The API will validate the user's session id. If the search criteria if found in a database that the user does not have authorization to access or view, the API will send a response message indicating so. Otherwise, the API will return the required information to the web application. In terms of searching, users, samples, diagnostic clinic, culture clinic, and other information may be searched for.

4.4.4 Maintaining a database

This functionality has only been allocated to a FABI super user and general administrators that have been assigned to a database, and and can be performed on both the web and mobile applications. Maintaining a database includes inserting new records (information/data), updating records, and deleting records within the database. FABI super users have the rights to maintain all databases, and general administrators have the rights to only maintain the database(s) that they have been assigned the administrators of. The user will navigate to the 'Database Management' option provided by their dashboard (home page) and select the database that they would like to maintain. This will invoke the 'View Database' use case. Once the database has been displayed for the user, they will be able to edit records and make any necessary changes. Certain records that may not be altered (due to internal configuration requirements or for other reasons) will be 'greyed' out and uneditable (ie. the user will not be able to 'click' on that entry nor request to edit that entry) to indicate to the user that they may not edit those entries. The necessary options have been provided for the user to make the alterations that they wish to. When a user is finished with the database, they will click the 'save' button. This will send an HTTP POST request to the 'Database Management' API containing all the changes that were made. The API will then go through the necessary processing in order to save those changes. If the API finds errors, that could have arisen by leaving out an entry .etc., an appropriate message will be sent to the web application indicating so. In this case, the alterations will not be processed and the database will remain in the state that it was before the alterations. If the changes were successfully processed and applied, the API will send a response to the web application indicating so. The updated database will then be displayed for the user.

4.4.5 Assigning an administrator to a database

This functionality has only been allocated to a FABI super user, and can be performed on both the web and mobile applications. Preconditions to this function include the database existing within the system as well as the user to be allocated as the administrator to exist in the system. To allocate an administrator, the super user will navigate to the 'Database Management' option provided on their dashboard (home page). Selecting the 'Add database administrator' option will open a form via which an administrator can be assigned to a database. The super user will select the database and input the user's email. Clicking the 'Assign administrator' button will send an HTTP POST request to the 'Database Management' API containing the selected database and the selected administrator's email address. The API will search for the user's email in the user database. If the user does not have 'administrator' status they will then be given administrator rights. The API will then assign the selected user to be the administrator of the chosen database. The API will then send a response message to the web application indicating that the assignment was successful. In addition to this response message, an email will be sent to the new database administrator informing them of the administrator assignment.

4.5 Handling the Culture Collection

4.5.1 Submitting a CMW request form

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submit a form' option provided by their dashboard (home page). Selecting to submit a CMW request form will present the user with the CMW request form to fill out. Filling in the necessary information and selecting to 'submit' the form, will result in the web or mobile application checking that all the necessary information has been provided before submitting the form. If the form is not valid, an appropriate message will be displayed for the user indicating so. Otherwise, an HTTP POST request will be sent to the 'Form Management' API containing all the form information. Session validation will also task place before any processing of the form submission will take place. After the session validation, the API will either being with the processing of the form submission or not (depending on the result from the session validation). Once the form has been processed and the information has been inserted into the relevant database, a response message will be sent back to the web or mobile application indicating that the form has been successfully submitted.

4.5.2 Submitting a CMW deposit form

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submit a form' option provided by their dashboard (home page). Selecting to submit a CMW deposit form will present the user with the CMW deposit form to fill out. Filling in the necessary information and selecting to 'submit' the form, will result in the web or mobile application checking that all the necessary information has been provided before submitting the form. If the form is not valid, an appropriate message will be displayed for the user indicating so. Otherwise, an HTTP POST request will be sent to the 'Form Management' API containing all the form information. Session validation will also task place before any processing of the form submission will take place. After the session validation, the API will either being with the processing of the form submission or not (depending on the result from the session validation). Once the form has been processed and the information has been inserted into the relevant database, a response message will be sent back to the web or mobile application indicating that the form has been successfully submitted.

4.5.3 Submitting a CMW revitalization form

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submit a form' option provided by their dashboard (home page). Selecting to submit a CMW revitalization form will present the user with the CMW revitalization form to fill out. Filling in the necessary information and selecting to 'submit' the form, will result in the web or mobile application checking that all the necessary information has been provided before submitting the form. If the form is not valid, an appropriate message will be displayed for the user indicating so. Otherwise, an HTTP POST request will be sent to the 'Form Management' API containing all the form information. Session validation will also task place before any processing of the form submission will take place. After the session validation, the API will either being with the processing of the form submission or not (depending on the result from the session validation). Once the form has been processed and the information has been inserted into the relevant database, a response message will be sent back to the web or mobile application indicating that the form has been successfully submitted.

4.5.4 Submitting a CBS request form

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submit a form' option provided by their dashboard (home page). Selecting to submit a CBS request form will present the user with the CBS request form to fill out. Filling in the necessary information and selecting to 'submit' the form, will result in the web or mobile application checking that all the necessary information has been provided before submitting the form. If the form is not valid, an appropriate message will be displayed for the user indicating so. Otherwise, an HTTP POST request will be sent to the 'Form Management' API containing all the form information. Session validation will also task place before any processing of the form submission will take place. After the session validation, the API will either being with the processing of the form submission or not (depending on the result from the session validation). Once the form has been processed and the information has been inserted into the relevant database, a response message will be sent back to the web or mobile application indicating that the form has been successfully submitted.

4.5.5 Submitting a CBS deposit form

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submit a form' option provided by their dashboard (home page). Selecting to submit a CBS deposit form will present the user with the CBS deposit form to fill out. Filling in the necessary information and selecting to 'submit' the form, will result in the web or mobile application checking that all the necessary information has been provided before submitting the form. If the form is not valid, an appropriate message will be displayed for the user indicating so. Otherwise, an HTTP POST request will be sent to the 'Form Management' API containing all the form information. Session validation will also task place before any processing of the form submission will take place. After the session validation, the API will either being with the processing of the form submission or not (depending on the result from the session validation). Once the form has been processed and the information has been inserted into the relevant database, a response message will be sent back to the web or mobile application indicating that the form has been successfully submitted.

4.5.6 Generating a CMW request list

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Reporting' option provided on their dashboard (home page) and will select to 'Generate a CMW request list'. This will send a HTTP GET request to the 'Form Management' API to retrieve all the CMW request forms that have been submitted for the week, and/or the forms that have not been processed. The API will fetch the necessary information from the relevant database and send a response message to the mobile or web application containing this information. The mobile or web application will then generate and display the CMW request form list based on the information returned form the API. The users will also be provided with the option to download this generated list as a PDF.

4.5.7 Generating a CBS request list

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Reporting' option provided on their dashboard (home page) and will select to 'Generate a CBS request list'. This will send a HTTP GET request to the 'Form Management' API to retrieve all the CBS request forms that have been submitted for the week, and/or the forms that have not been processed. The API will fetch the necessary information from the relevant database and send a response message to the mobile or web application containing this information. The mobile or web application will then generate and display the CBS request form list based on the information returned form the API. The users will also be provided with the option to download this generated list as a PDF.

4.6 Handling the Organization

4.6.1 Adding an organization

This functionality is reserved only for the FABI super users, and is provided by both the mobile and web applications. The user will navigate to the 'Organization Management' option provided by their dashboard (home page) and select to 'add' a new organization. The user will then be presented with a form by which they can add a new organization. The user will have to provide all the required information and then select to 'add' the new organization. The web or mobile application will perform form validation before the form information is submitted for processing. If their is missing and/or incorrect information, the user will be informed of this. If the form is valid, an HTTP POST request will be sent to the 'User Management' API containing the form information. The API will first search though the 'organization' database. If the organization already exists within the system, a response message will be sent back to the mobile or web application indicating so. Otherwise, the API will begin processing the new organization information and created the organization's account/profile based on this information. A response message will then be sent back to the mobile or web application indicating weather the processing was successful or not. In addition to this, an email will be sent to the administrator assigned to oversee the organization's account, containing the organization's temporary login password. This password can be changed via the mobile or web application.

4.6.2 Viewing an organization

This functionality is reserved only for FABI super users, and is provided by both the mobile and web applications. The user will navigate to the 'Organization Management' option provided by their dashboard (home page) and select to either 'view' an organization, or by searching for the organization in the search field provided. A HTTP GET request will be sent to the 'User Management' API to request the information associated with the organization. If no information is found (ie. the organization does not exist within the system), a response message will be sent back to the web or mobile application indicating so. Otherwise, the found organization's information will be sent in a response message back to the web or mobile application. The web or mobile application will then display this information for the user.

4.6.3 Searching for an organization

This functionality is provided by both the mobile and web applications. A user can search for an organization by one of two ways: either by using the search field provided by the menu or by the search field provided by the 'Organization Management' option provided by the user's dashboard (home page). Once the user selects to 'search' an HTTP POST request will be sent to the 'User Management' API containing the search criteria. The API will search through the relevant database using the search criteria sent through with the request. If the search does not produce any result, a response will be sent back to the mobile or web application indicating that the organization does not exists within the system, otherwise the found organization's information will be sent in the response message back to the mobile or web application. The mobile or web application will then display this information for the user.

4.6.4 Deactivating an organization's account

This functionality is reserved for FABI super users, and can be performed on both the web and mobile applications. The user can perform this action by either navigating to the 'Organization Management' option provided on their dashboard (home page) and selecting to 'remove' the organization, or by searching for the organization and selecting the appropriate option to remove the organization. The selection to remove an organization will result in an HTTP POST request being sent to the 'User Management' API. This request will contain the user's session id as well as the request to remove the organization. The system has been designed to never fully delete an organization from the system, but rather to deactivate their account. The API will perform the necessary session validation and then begin the processing of the request. The relevant organization database will be searched through and if the organization is not found, a response message will be sent back to either the mobile or web application indicating so. If the organization is found, their account/profile within the database will be deactivated. The API will then send a success response to the web or mobile application indicating that the organization has been 'removed' from the system.

4.7 The Organization

4.7.1 Adding an organization member

This functionality is reserved for the administrator assign to be in charge of the organization's account, and is provided by both the mobile and web applications. The user will navigate to the 'Member Management' option provided on their dashboard (home page). Selecting the option to 'add' a new member will present the user will the necessary form by which to add a new member. The user will provide all the required information and select to 'add' the new member. The web or mobile application will validate the form before submitting the form. If not all the necessary information has been provided, a message will be displayed for the user indicating so. Otherwise, a HTTP POST request will be sent to the 'Organization Management' API containing the form information. The APi will first search through the 'member' database to determine if the member already exists within the system or not. If the member does exist, a response message will be sent back to the mobile or web application indicating so. If the member is not found, the API will begin processing the form information sent through with the request. Once the new member's account/profile has been created and saved to the 'member' database, a response message will be sent to the web or mobile application indicating that the request was successful. In addition to this, an email will be sent to the new member containing a temporary login password that they can change via the 'profile' page provided by both the mobile and web applications.

4.7.2 Viewing a member's details

This functionality is reserved only for the organization's administrator, and is provided by both the mobile and web applications. The user will navigate to the 'Member Management' option provided by their dashboard (home page) and select to either 'view' a member, or by searching for the member in the search field provided. A HTTP GET request will be sent to the 'Organization Management' API to request the information associated with the member. If no information is found (ie. the member does not exist within the system), a response message will be sent back to the web or mobile application indicating so. Otherwise, the found member's information will be sent in a response message back to the web or mobile application. The web or mobile application will then display this information for the user.

4.7.3 Searching for a member

This functionality is provided by both the mobile and web applications. The user will either select to search by filling in the search criteria in the field provided once navigated to the 'Member Management' option provided on their dashboard (home page), or by navigating to the menu and filling in the search criteria in the field provided. A member can be identified by their name, surname, email address, and phone number, meaning that any one of these can be used as the search criteria to find a user. An HTTP POST request will be sent to the 'Organization Management' API containing the search criteria. The API will then search through the member database for the member whose information matches that of the given search criteria. If the member is not found, a response message will be sent to the web application indicating that the member does not exists in the system. If the member is found, their information (excluding any sensitive information) will be sent with the response message to the web or mobile application. The web application will then display this information for the user.

4.7.4 Deactivating a member's account

This functionality is reserved for the organization's administrator, and can be performed on both the web and mobile applications. The user can perform this action by either navigating to the 'Member Management' option provided on their dashboard (home page) and selecting to 'remove' the member, or by searching for the member and selecting the appropriate option to remove the member. The selection to remove a member will result in an HTTP POST request being sent to the 'Organization Management' API. This request will contain the user's session id as well as the request to remove the member. The system has been designed to never fully delete a member from the system, but rather to deactivate their account. The API will perform the necessary session validation and then begin the processing of the request. The relevant member database will be searched through and if the member is not found, a response message will be sent back to either the mobile or web application indicating so. If the member is found, their account/profile within the database will be deactivated. The API will then send a success response to the web or mobile application indicating that the member has been 'removed' from the system.

4.7.5 Viewing an organization's profile

This functionality is reserved only for the organization's administrator, and is provided by both the mobile and web applications. The user will navigate to the 'profile' page via the menu. A HTTP GET request will be sent to the 'Organization Management' API to request the information associated with the organization. If no information is found (ie. the organization does not exist within the system), a response message will be sent back to the web or mobile application indicating so. Otherwise, the found organization's information will be sent in a response message back to the web or mobile application. The web or mobile application will then display this information for the user.

4.7.6 Updating an organization's profile

This functionality is provided by both the mobile and web applications. The user will either select to update an organization's information by searching for the organization and then selecting the necessary options to edit the organization's information, navigate to the profile page via the menu, or by selecting to update the organization's details provided by the 'Organization Management' option provided by the user's dashboard (home page). The necessary organization information can be edited and then selecting to 'save' this updated information will result in an HTTP POST request being sent to 'Organization Management' API. This request will contain all the updated information as well as the user's session id. If the session id is valid, the API will process the changes and updated in the relevant organization database. Otherwise, a response message will be sent back to the web or mobile application indicating that the session id is invalid. If all updates have been processed and saved successfully, a response message will be sent indicating so.

4.7.7 Viewing all submitted samples

This functionality is reserved only for the organization's administrator, and is provided by both the mobile and web applications. The user will select the 'View all submitted samples' option provided on their dashboard (home page). This will send a HTTP GET request to the 'Organization Management' API requesting all the submitted samples associated with the organization. If not samples are found, a response message will be sent back to the mobile or web application indicating so. Otherwise, this found information will be sent in a response message to the mobile or web application, and the information will be displayed for the user.

4.8 The Organization's Members

4.8.1 Viewing their profile

This functionality is provided by both the mobile application and the web application. The user will navigate to the 'profile' page via the menu. This will open the 'profile' page as well as simultaneously send a HTTP GET request to the 'Organization Management' API requesting the associated member's information. This information will then be sent back to the web or mobile application in the response message. The information sent through from the API will be displayed by the mobile or web application for the user.

4.8.2 Updating their profile

This functionality is provided by both the mobile application and the web application. The user will navigate to the 'profile' page via the menu. This will open the 'profile' page as well as simultaneously send a HTTP GET request to the 'Organization Management' API requesting the associated member's information. This information will then be sent back to the web or mobile application in the response message. The information sent through from the API will be displayed by the mobile or web application for the user. 'Clicking' on the edit icons (pencils) provided for each field, will allow the member to edit the selected field. Once the user has updated their information, 'clicking' the 'save' button will send a HTTP POST request to the 'Organization Management' API containing the updated information. The APi will begin the processing the information and save the necessary changes to the 'member' database. A response message will then we sent back to the mobile or web application indicating whether the processing was successful or not.

4.8.3 Viewing their submitted samples

This functionality is provided by both the mobile and web applications. The user will navigate to the 'Submitted samples' option provided by their dashboard (home page). This will send an HTTP GET request to the 'Form Management' API requesting the sample forms associated with the user. If no sample forms are found to be associated with the user, a response will be sent back to the mobile or web application indicating so. Otherwise, the found information will be sent in a response message to the web or mobile application. This information will then be displayed for the user.

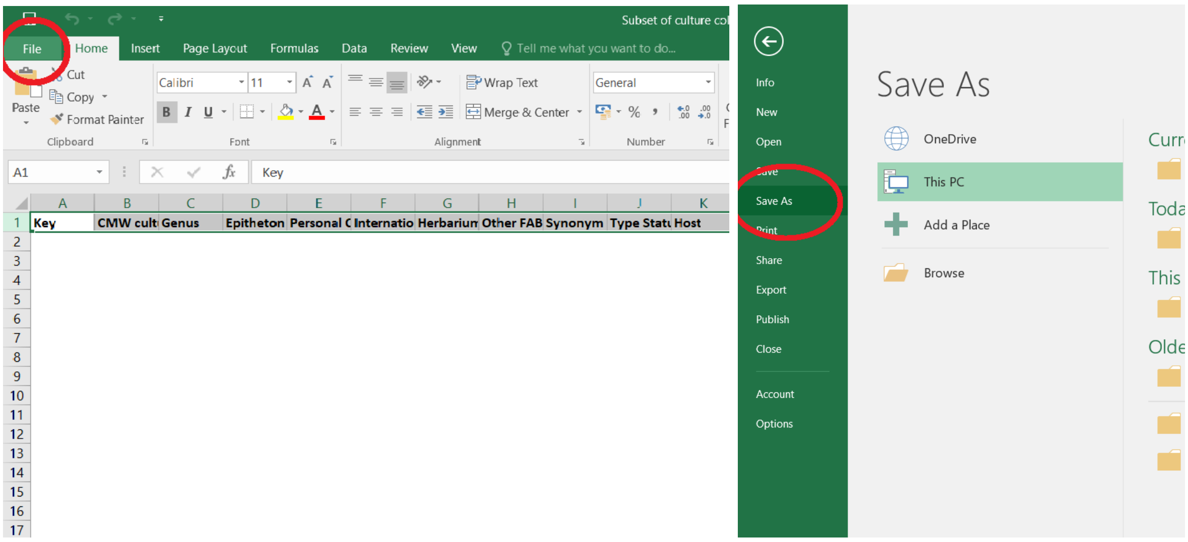
4.9 Porting

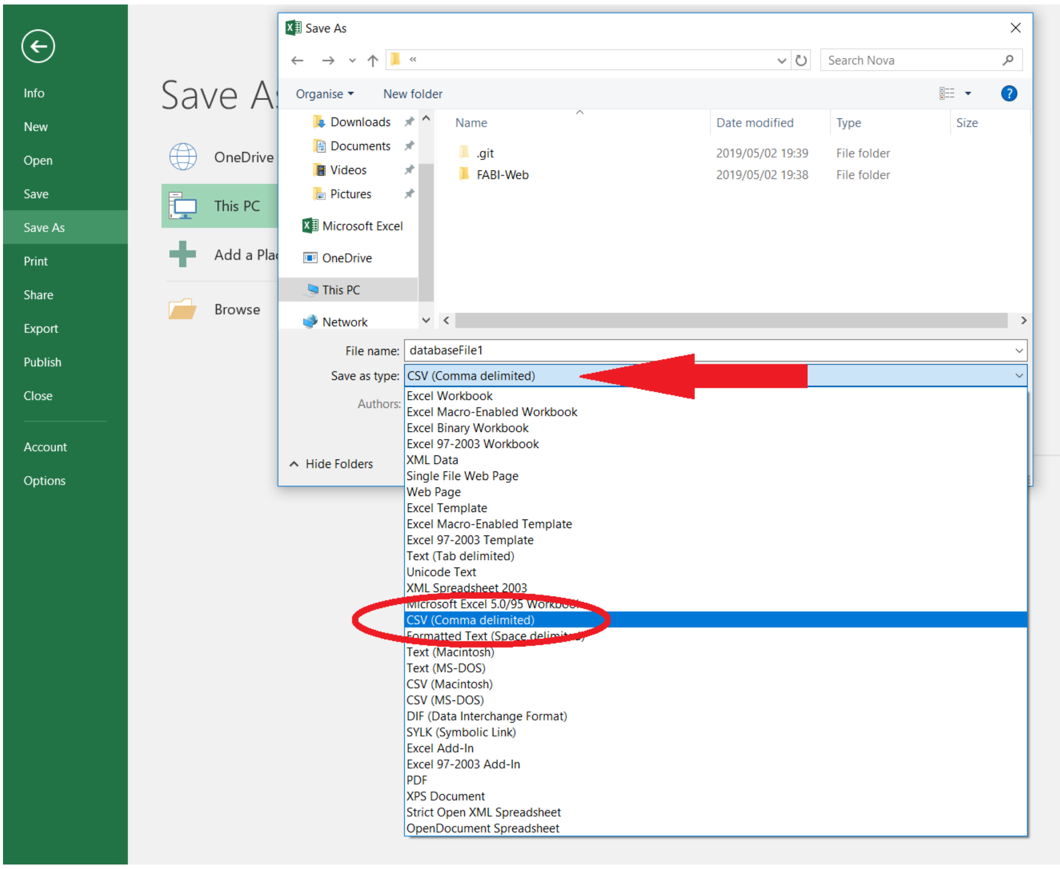
4.9.1 Submitting a CVS file

This functionality is restricted to the web application alone. This function can be used in two ways. First, a FABI super user may use this to create a database by uploading a csv file. Second, a FABI super user or a database administrator may upload a csv file to add information to an already existing database. In both cases, the user will navigate to the 'Database Management' option provided by their dashboard (home page), and select the option to either upload a csv file or to create a new database. The web application will validate the csv file before it is sent to the 'Database Management' API. If the file is not valid, the user will be notified. If the file is in a valid format, an HTTP POST request will be sent to the 'Database Management' API containing the file as well as the user's session id. The API will first validate that the session id is valid. If it is not valid, a response will be sent back to the web application indicating so. If the session id is valid, the API will begin processing the csv file. If the file was uploaded by a super user and was selected to create a new database, the API will create a new database based on the csv file and other information sent through with the HTTP request. If the csv file has been submitted to add information to a database, the API will process the csv file and insert the necessary information into the selected database. Once the processing has finished, a response message will be sent back to the web application indicating that either a new database was created or that information was successfully added to the chosen database.

The processing of saving your Excel document as a csv file:

1. Select the 'File' option provided at the top of the page.
2. Select the 'Save As' option provided by the menu
3. Select the 'CSV' option





4.9.2 Processing the submitted CVS file

This is internal functionality that is called upon when a csv file is submitted and sent through to the 'Database Management' API via a HTTP POST request. The API will process this csv file into a format that it can work with. This will be in the format of a JSON object. The necessary processing will be performed (ie. the new database will be created from the csv file or the information from the csv file will be added to an existing database). Once the processing has taken place, the appropriate response message will be sent back to the web application.

(This functionality is still to be implemented and therefore has not been completed in this user manual)

4.10 Sample Processing

4.10.1 Submitting a sample

4.10.2 Canceling a sample's processing

4.10.3 Initiating a sample's processing

4.10.4 Confirming a samples allocation

4.10.5 Completing a process

4.10.6 Sending a diagnosis report

4.11 Notifications

4.11.1 Notifying an organization on their account creation

This is an internal function that is employed when a new organization is added to the system. An email will be sent to the organization with confirmation of their account creation, as well as a temporary login password that can be changed via the 'profile' page provided by both the mobile and web applications.

4.11.2 Notify an organization's on their account deactivation

This is an internal function that is employed when an organization's account is 'removed' from the system (ie. their account is deactivated). An email will be sent to the organization notifying them of their account deactivation.

4.11.3 Notifying FABI personnel

4.11.4 Sending a sample reference number

This is an internal function that is employed when a sample form submission is received by FABI. A reference number will generated and assigned to represent the sample. This reference number will be sent to both the Diagnostic Clinic Administrator, as well as to the organization member who submitted for sample form.

4.11.5 Notifying on sample received

This is an internal function that is employed when a sample submission form is received by FABI and/or the physical sample package has been received by FABI. An email will be sent to the respective organization member as indicated by the member's email that is sent through when the sample form is submitted. This notification (ie. email) will also contain the sample's reference number.

4.11.6 Sending a log report

4.11.7 Sending a CBS notification

4.12 Logging

4.12.1 Logging authentication details

This is internal functionality that can only be triggered when a user is authenticated, either successfully or unsuccessfully. When users login, they will be authenticated. The system will log this process and whether it was successful or not.

4.12.2 Logging database changes

This is internal functionality that can only be triggered when changes have been made to a database. When users select to 'maintain' a database and either insert, update, or delete records, the system will log this process.

4.12.3 Logging system errors

This is internal functionality that can only be triggered when an error occurs within the system. When an error occurs within the system, the system will log this error and what could have possibly caused it.

4.12.4 Logging culture requests

This is internal functionality that can only be triggered when a culture request form is submitted. When users submit a culture request form, the system will log this process and whether it was successful or not.

4.12.5 Logging culture deposits

This is internal functionality that can only be triggered when a culture deposit form is submitted. When users submit a culture deposit form, the system will log this process and whether it was successful or not.

4.12.6 Logging sample submissions

This is internal functionality that can only be triggered when a sample form is submitted. When users submit a sample, the system will log this process and whether it was successful or not.

4.12.7 Sending log information

This functionality is triggered when a user selects to generate a report. The 'Reporting' system will request information from the logs regarding either authentication details, database changes, system errors, culture requests, culture deposits, or sample submissions. The information will be sent back to the 'Reporting' system in the form of an HTTP POST response.

4.13 Reporting

4.13.1 Generating a request report

This functionality is provided by both the mobile and web applications. The user will request to generate a request report by selecting the appropriate option. This option will only be provided to FABI super users, general administrators, and the culture collection managers. Once selected, an HTTP GET request will be sent to the 'Reporting' API. The API will pull information from the stored logs about the culture requests submitted. If no recent requests have been located, the API will send a response to the web application indicating so. The API will construct a report from this information and send it in the response to the web application. The web application will display this report for the user as well as provide the user with an option to download the report in the form of a PDF.

4.13.2 Generating a deposit report

This functionality is provided by both the mobile and web applications. The user will request to generate a deposit report by selecting the appropriate option. This option will only be provided to FABI super users, general administrators, and the culture collection managers. Once selected, an HTTP GET request will be sent to the 'Reporting' API. The API will pull information from the stored logs about the culture deposits submitted. If no recent requests have been located, the API will send a response to the web application indicating so. The API will construct a report from this information and send it in the response to the web application. The web application will display this report for the user as well as provide the user with an option to download the report in the form of a PDF.

4.13.3 Generating a sample submission report

This functionality is provided by both the mobile and web applications. The user will request to generate a report based on the sample submissions by selecting the appropriate option. This option will only be provided to FABI super users and the general administrators. Once selected, an HTTP GET request will be sent to the 'Reporting' API. The API will pull information from the stored logs about the samples submitted. If no recent sample submissions have been located, the API will send a response to the web application indicating so. The API will construct a report from this information and send it in the response to the web application. The web application will display this report for the user as well as provide the user with an option to download the report in the form of a PDF.

4.13.4 Generating an error report

This functionality is provided by both the mobile and web applications . The user will request to generate an error report by selecting the appropriate option. This option will only be provided to FABI super users. Once selected, an HTTP GET request will be sent to the 'Reporting' API. The API will pull information from the stored logs about any system errors that have occurred. If no recent errors have been occurred, the API will send a response to the web application indicating so. The API will construct a report from this information and send it in the response to the web application. The web application will display this report for the user as well as provide the user with an option to download the report in the form of a PDF.

5 Troubleshooting

All forms to be submitted have been designed to provide error checking on the input fields. If an input field has not been filled out, the system will detect this and inform the user. No form will be submitted unless all the required information has been provided.