Vaccine Availability System

Group Members

Rezwana Hasan
Samiha Shameem
Ramisa Farhat Noor

1. Introduction

People have been suffering from various contagious diseases since ancient times. With the advent of modern medical science and technology, vaccines were introduced to prevent fatality from such diseases. But due to the booming population in Bangladesh, the government has since been facing problems in dispersing the vaccines in an organized way so as to reach the maximum number of people. For lack of easy access and proper information, people are often deprived of the vaccines and hence are facing health risks. With such issues in mind, we have planned the Vaccine Availability System. The objective of this system is to help people get the necessary vaccines in an easy and organized manner. The system is a web application that the people can use with web browsers from any electronic device. Different hospitals will be able to register with the system. Once registered, they will be able to update their profiles in the system with information regarding their vaccines and take online booking for their appointments. People can then open user accounts in the system and book appointments for the vaccines they need from the registered hospitals in the system. They can book an appointment in their preferred time slot on any day from any hospital with just a few clicks. This is much easier than having to go to the hospitals or having to wait on busy phone lines. They will also have access to vaccine related information through the system. They can also get the contact information of health experts of different hospitals for health-related advice. Contact information of volunteers will also be available to help new users get accustomed to the system or answer any query regarding the system. This system will also help keep track of the number of vaccines available and the number of vaccines dispersed and to whom they are given. These statistical information can also help the government in making future decisions.

2. Motivation

Our motivation behind the idea of Vaccine Availability System came from the current Covid-19 situation. The pandemic has taken many lives worldwide and many are fighting a life and death battle to survive. One difficult situation that occurred during the pandemic is the scarcity of vaccines. This gave us the idea of introducing a system which will keep a record of the availability of vaccines in hospitals and allow the customers to get an idea on the availability, without creating a chaos. Hence this system would help increase efficiency and organisation in dispersing vaccines.

3. System Description

Project Sponsor: Ramisa Farhat Noor, Health Inspector, Directorate General of Health Services

Business Need:

This system will help improve access to information related to vaccines, digitalize the appointment system to make it more efficient and to help the government keep a digital record of the people vaccinated.

Business Requirements:

There will be two types of users in this system - general customers and hospital/clinic authorities. The general customers are the users looking for appointments or information related to vaccines while the latter will be in charge of updating their hospital/clinic info if change is required.

- The customers should be able to book appointments for vaccines online by opening a password protected account.
- The system should identify the eligible hospitals or clinics with empty slots for providing vaccinations.
- The customers should be able to search for the specific vaccines they have been looking for.
- The customers should be able to sort out the appointment booking process according to their preferable time or locations.
- The customers can apply for a request to be added to a queue if he/she isn't able to book any appointment so that the system sends a notification to the user if any appointment gets canceled and a slot opens up.
- After the appointment is booked, the customers should receive a confirmation message and be able to download the vaccination card after their appointment has been confirmed.
- The customers will find access to an embedded registration link for vaccines.
- The customers who are facing difficulties using the app/website should find a hotline where there will be volunteers to help them register/ book necessary appointments.
- The system should also provide the contact information of health experts to answer queries of users relating to health risks.

- The concerned authorities of the clinics/hospitals should have access to update their info on their pages if necessary.
- The system should allow the customers to choose their preferred language.
- The system should include the registration fee (if any) for each vaccine request.
- The system should be able to calculate the date for the next dose of a particular vaccine (if any) and show it to the customer.

Business Value:

- Improve our healthcare service system by increasing access to necessary vaccines.
- Provide easier ways of booking appointments using an online system.
- A large number of people can be benefitted from this system as they will be able to find and book appointments without having to waste time by going to the clinics or hospitals to get the necessary information.
- This system will also help the hospitals/clinics take a step towards a more efficient technology based system than a slower offline system.

Business Constraints:

- Getting permission from the hospitals to use their information in the system.
- Getting hospitals / clinics and customers on board with a new and unfamiliar system.
- Training a group of employees from each hospital to update the system properly.
- System will not be updated if the customers don't show up without canceling the appointment.
- Keeping the system updated 24/7.
- To provide covid-19 vaccine registration forms through this system, it needs to be completed within May 31st.
- Promoting the new vaccination system to the underprivileged customers.
- For underprivileged customers, the overall process of using the system is challenging.

4. Requirement analysis

4.1. Functional Requirements:

1. The individuals using this web app will have to login to their respective accounts.

2. System:
   - 2.1. The system will show all hospitals connected to the system and available vaccines according to diseases.
   - 2.2. The system will show all the available slots for every vaccine available in each hospital in their respective page.
   - 2.3. The system will provide the contact number of health experts from every hospital on their respective page.
   - 2.4. The system will send a confirmation text/code after the customer books an appointment.
   - 2.5. The system will provide a hotline number to the users so that if any customer is facing any issue then the volunteers will help the customer out.

3. User:
   - 3.1. The users can search the specific hospital or vaccines they have been looking for by typing in the search bar in the home page.
   - 3.2. The users can look for all the available slots by sorting the appointments out according to time, locations, vaccines by using the sorting filters.
   - 3.3. The users can select their preferred language - Bangla or English.
   - 3.4. The users will be able to see their booked appointments in their profiles and cancel them from there if necessary.
   - 3.5. The users can apply for a request to be added to a queue if they aren't able to book any appointment so that the system sends a notification to the user if any appointment gets cancelled and a slot opens up.
   - 3.6. The user will receive two options for registration payment (if needed). The first option is onsite payment and the second option is payment through bkash.

4. Hospital:
    4.1. The hospital updates all the information regarding the vaccine availability in their respective hospital page.
    4.2. The hospital provides all the details about all the vaccines they are providing in their respective webpage.
    4.3. The hospital authority will be able to see the name, contact number, payment status and booked appointment slot of their customers.

4.2. Non-functional Requirements:

1. Operational:
    1.1. The system should be able to run on PCs, Tablets, Smartphones, Ipads etc.
    1.2. The system should be able to work on any web browser.
    1.3. The system should connect to printers.
    1.4. The database of the system will be managed using MongoDB.
    1.5. Google Analytics will be used to track and report website traffic for further improvements and gathering necessary data.
    1.6. The system will be designed using Python.

2. Performance:
    2.1. The user should be able to load the website within 2 millisecond.
    2.2. The system should be able to handle 500 registration requests at a time.
    2.3. The whole system should be updated within every 10 milliseconds.
    2.4. The confirmation receipt provided by the system does not exceed 2MB.

3. Security:
    3.1. The system should include safeguard from viruses.
    3.2. Only the concerned hospital authorities should be able to access the customers/users personal information, if needed.
    3.3. All the customer's personal information should be protected by the system.

4. Cultural & Political:
    4.1. The system should comply with the Digital Security Act of Bangladesh.
    4.2. The system should be in both English and Bangla language.

5. Design diagram

Six design diagrams have been included in this report to describe the system. They are the use case diagram, activity diagram, sequence diagram, state machine diagram, data flow diagram and the window navigation diagram.

5.1. Use Case Diagram

There are two types of actors in the Vaccine Availability System. The primary actors of this system are the customers, who will perform the main system functions, and the secondary actors are the hospitals, who will perform the administrative functions. In order to use the system, both the parties need to log in to the webapp, into their respective accounts. Both parties get the option to select their preferred language. The options are- Bangla and English. They can both view and update their profiles.

After logging in, the customers can view the list of hospitals and vaccines available in the system. They have the option to sort the lists according to their nearest location, popularity or alphabetically. They can also search for specific vaccines or hospitals using the search option. After selecting their preferred vaccine, they can proceed to view the appointment slots, which they can filter according to the dates. If their desired slot is already booked, they can send a request to be added to a queue for that slot; in case that slot opens up again, that customer will receive a notification about it. If the customer does find their desired slot, they can book the appointment. This includes filling up the registration form and paying the fees, if any payment is needed. A customer can also cancel an appointment if needed. The system then updates the appointment status of that slot from “booked” to “available”. And if there are any customers in a queue for that slot, a notification is sent to them by the system. There are also helplines available in the system – contact information of volunteers, in case a customer is having difficulty using the system, and health experts, in case customers need advice regarding health and vaccine related issues.

Hospitals in the system can log in to their accounts and update any information on their page, this includes information regarding vaccines, appointments, contact information of health experts, etc. When a customer books an appointment, after checking the registration forms and necessary details, the hospitals can confirm that appointment. This lets the system update the appointment status of that slot from “available” to “booked” and send a confirmation text to the customer regarding their successful booking and other necessary information such as day of appointment, appointment number, etc.

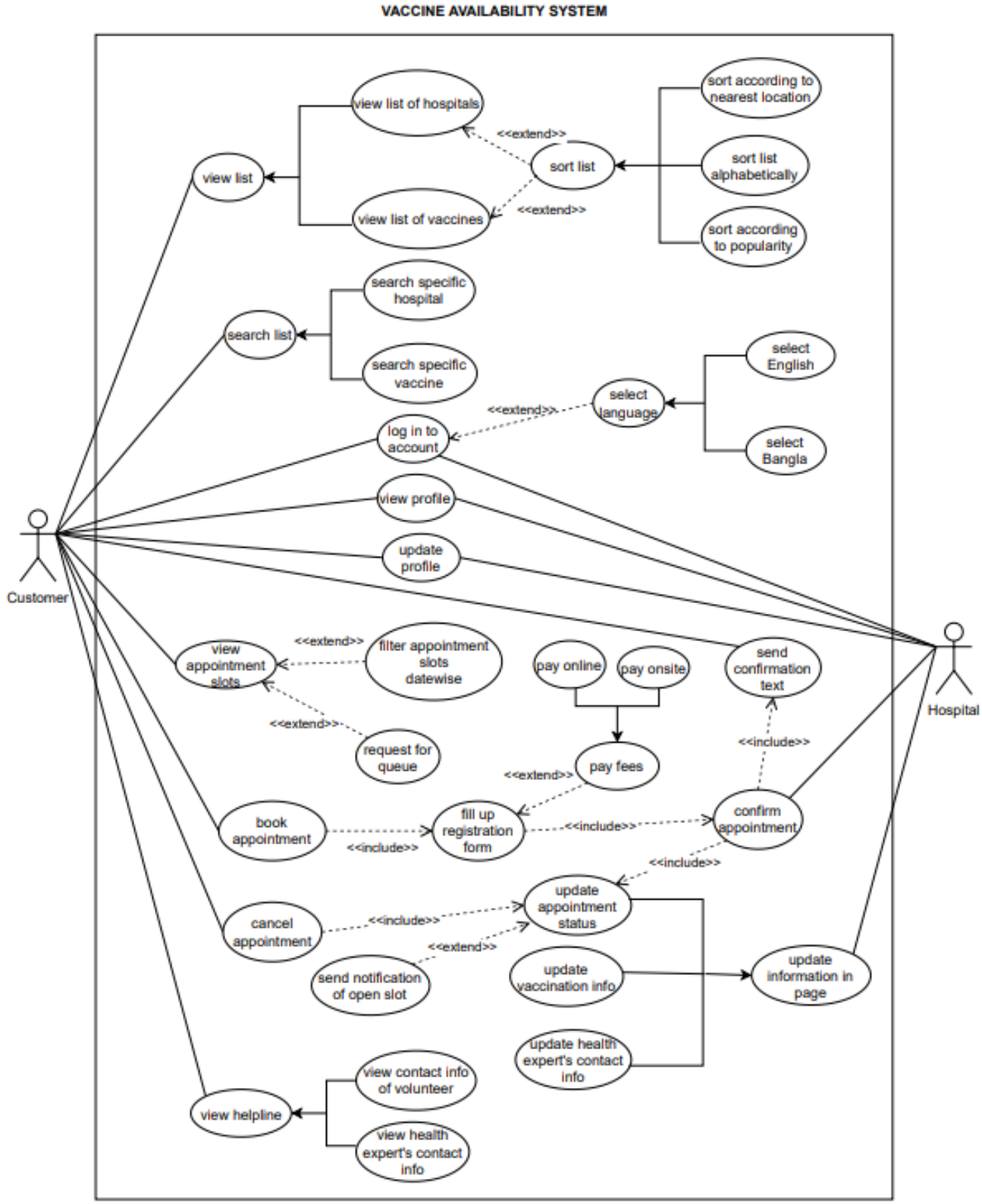


Figure 1: Use Case Diagram

5.2. Activity Diagram

The activity diagram shows the workflow of the system. The sequential and parallel activities of the objects of the system are portrayed in the following diagrams.

5.2.1. Activity Diagram for Login

The activity diagram for Login shows that at first the user has to login, and if login is verified then the user may select his/her preferred language - Bangla or English, otherwise default language is maintained. If the user login is not verified then the process of login is repeated. If login is successful, they are directed to their respective profiles. The hospital employee can now view the profile of the hospital and update information if needed.

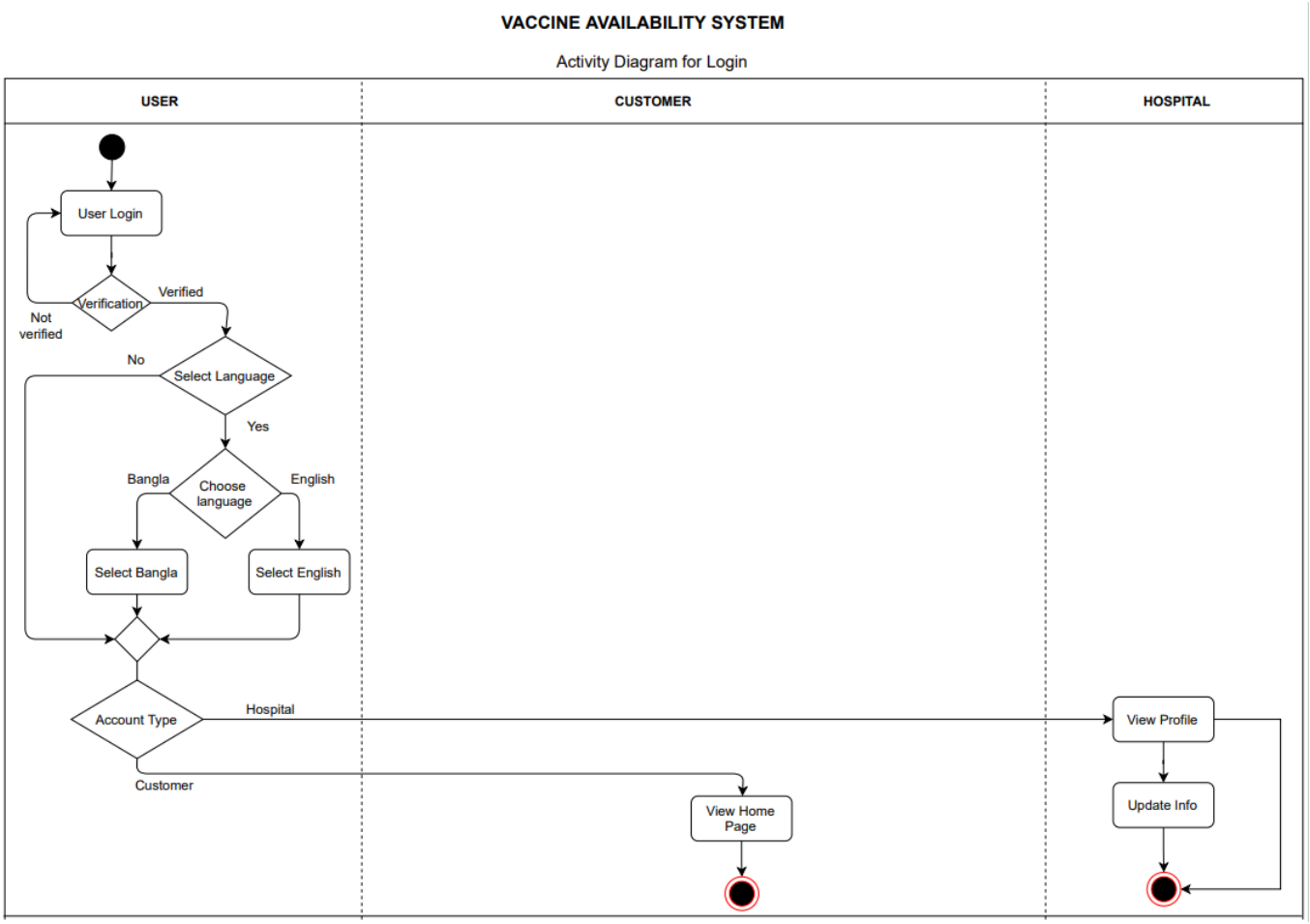


Figure 2: Activity diagram for logging in to the system

5.2.2. Activity Diagram for Booking and Canceling Appointment

After logging in, the customers can choose to go to their profile or browse the home page. If the customer decides to visit their profile, then he/she can view the profile and update any information if necessary. If the customer decides to browse the home page then he can perform the following activities.

While browsing the homepage, the customer can view the list of hospitals or the list of vaccines. Both the lists can be sorted alphabetically, by popularity or by the nearest location. The customers can also search in the lists if they want to. Once the customer has selected the hospital, he/she can view the necessary information in the hospital page and view vaccines available in that hospital. After selecting their desired vaccine, customers can view the appointment slots.

When the customer finds a preferred appointment slot, he/she proceeds towards booking an appointment. If necessary, the customer can take help from the helpline. If the customer has queries, they can select a helpline. If they are facing problems using the system, they can contact the volunteer. If they have questions regarding the vaccine, they can contact the health expert. Now, or if help is not needed, the customer can proceed towards filling up the registration form. If any payment is needed, the customer can choose to pay online or onsite. Simultaneously, the hospital employee verifies the appointment after checking the registration form. If the appointment is not approved by the hospital, then the customer is redirected to the registration form. If it is approved, the system updates the appointment slot status.

If the customer finds their preferred appointment slot already booked, he/she will request a queue for that slot. If a customer decides to cancel an existing appointment, they can do so from their profile. The system will then update the appointment status. Now, if the cancelled appointment has a queue of customers, a notification will be sent to the first person in the queue notifying them of the availability of the slot.

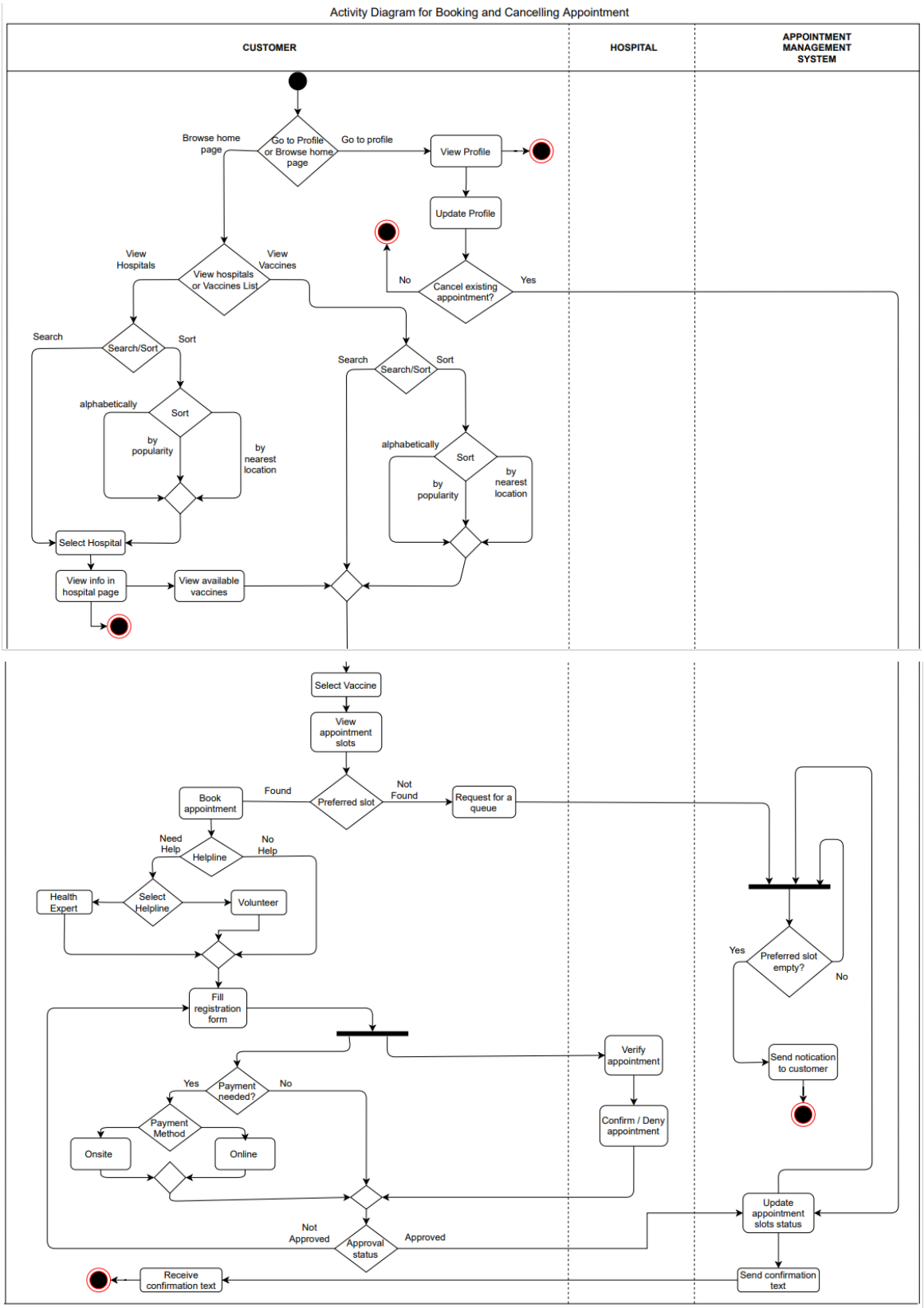


Figure 3: Activity diagram for booking and cancelling appointments

5.3. Sequence Diagram

The sequence diagrams portray how the interaction between the user and system would be like.

5.3.1. Sequence Diagram for Login System:

The sequence diagram for the login system shows how a user can log in to the system. The user first enters their username and password in the Login page. The credentials are then checked in the Account Database. If the user does not have an existing account, the user is required to enter his/her details in the sign-up form that is provided in the login page. Then using the information, an Account is created and added to the Account database. A message for confirmed account is displayed in the login page. The user can then enter username and password again to log in. If the user already has an account, the credentials are checked in the Accounts database and verified. If they are valid, the user is redirected to the Home page. The user can then select preferred language and see contents of the Home page in that language. If the credentials are invalid, the system informs the user.

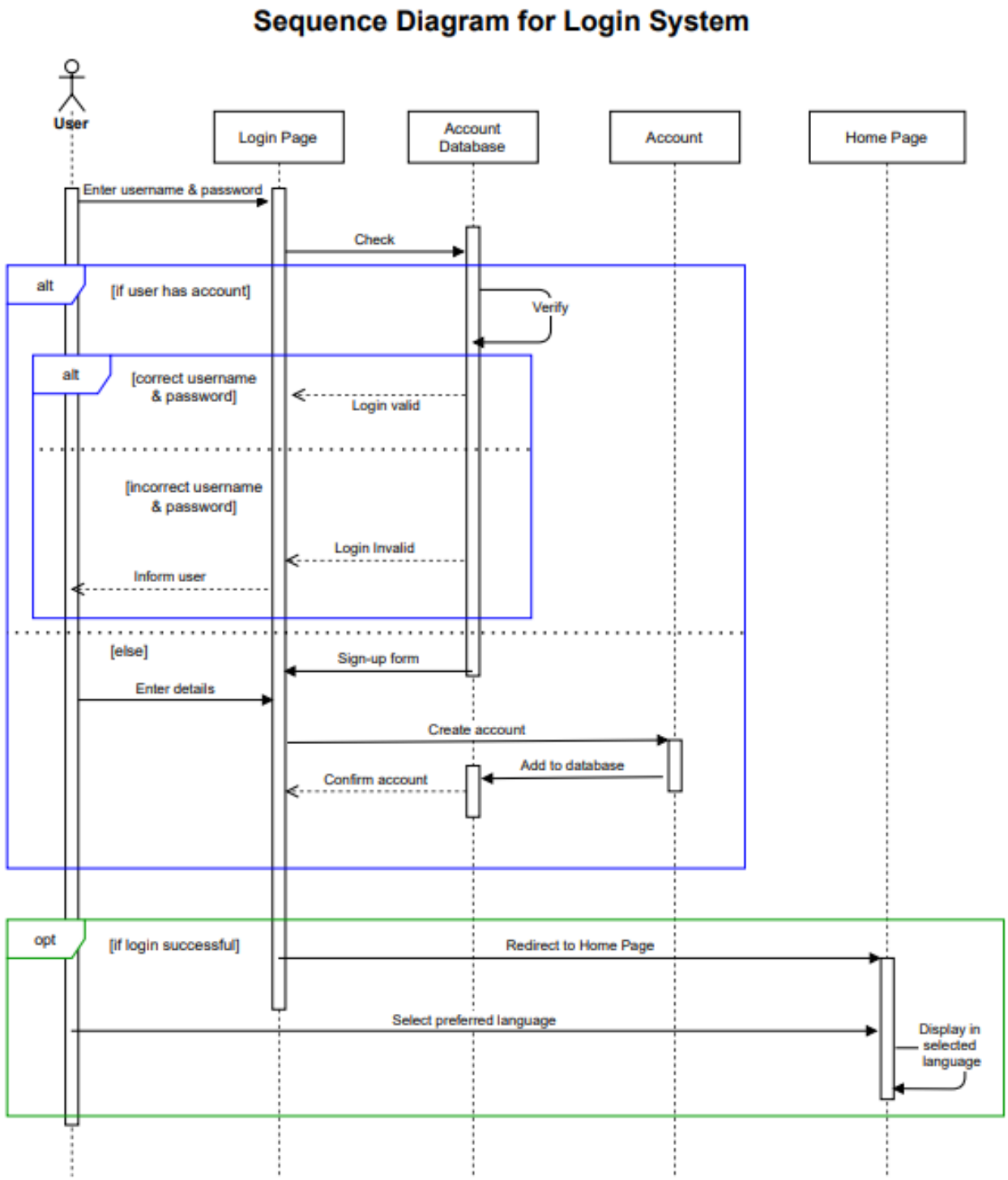


Figure 4: Sequence diagram for Login System

5.3.2. Sequence Diagram for Booking Appointment:

The sequence diagram for booking appointments shows how a customer books an appointment in the system. The customer can look for their preferred hospital or vaccine by searching or sorting through the list of hospitals and vaccines from the Hospital and Vaccine database respectively. They can look for their preferred appointment slot from the Appointment Database. If they find their desired slot, they can proceed to book the appointment. This is managed by the Appointment Management System. The customer then needs to fill up the registration form and make payment if required. The Hospital will then look through the form and other details to verify and then let the system know. If the appointment is confirmed by the hospital, they will request to send a confirmation text. The Appointment Management System will then update the Appointment database with the recent changes and create and send a confirmation text to the customer. If the hospital denies the appointment, the system will then notify the user. Customers can also take help from the helpline if needed.

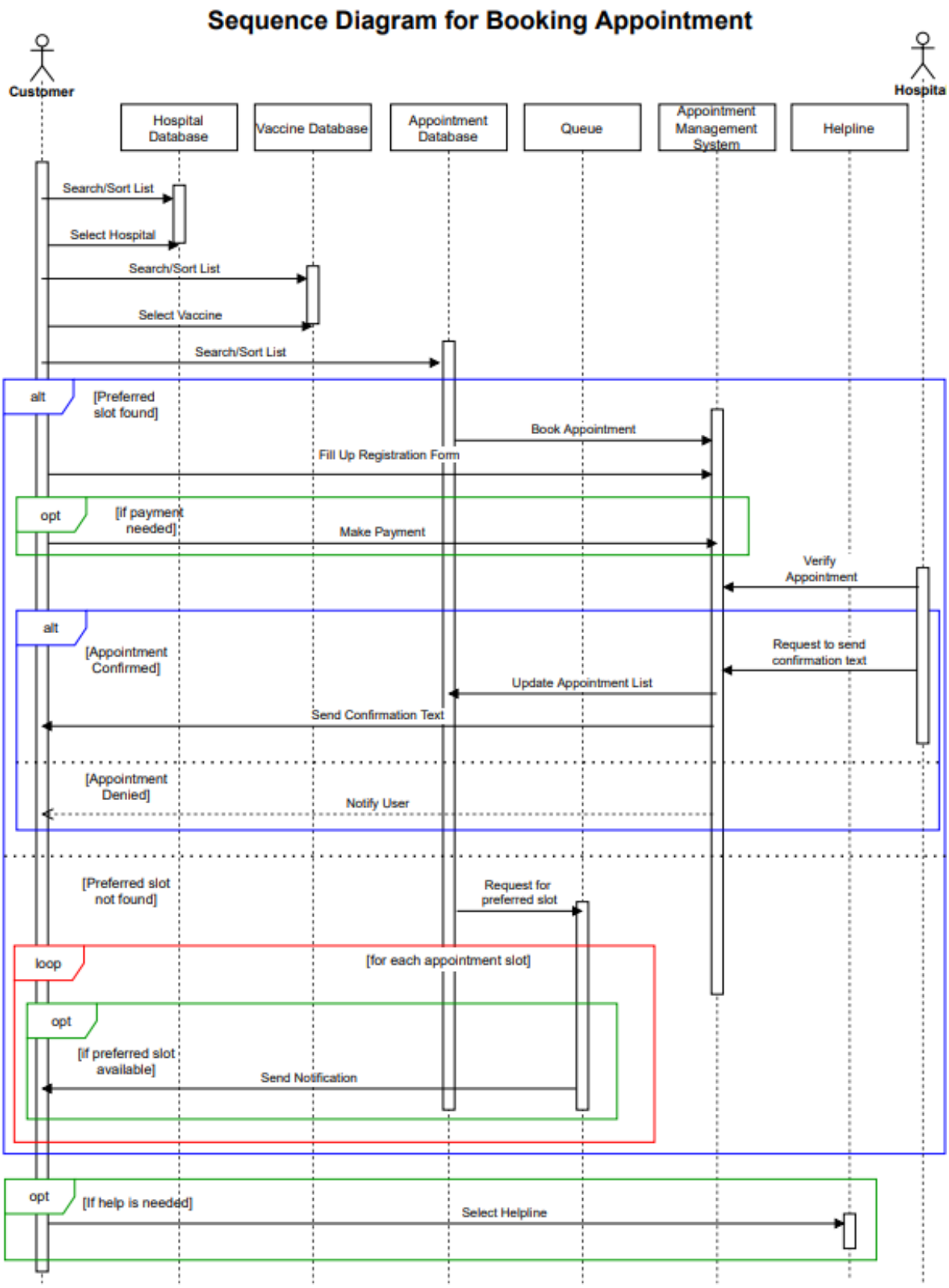


Figure 5: Sequence diagram for booking an appointment

5.3.3. Sequence Diagram for Canceling Appointment:

However, if the customer does not find their desired slot, they can send a request to be added to the queue for that slot. In that case, if a customer cancels an appointment from his/her profile, as shown in Figure 5, the system will loop through the Appointment database to see whether the canceled slot has a queue of customers. If it does, then a notification is sent to the first customer in that queue to let them know of its availability.

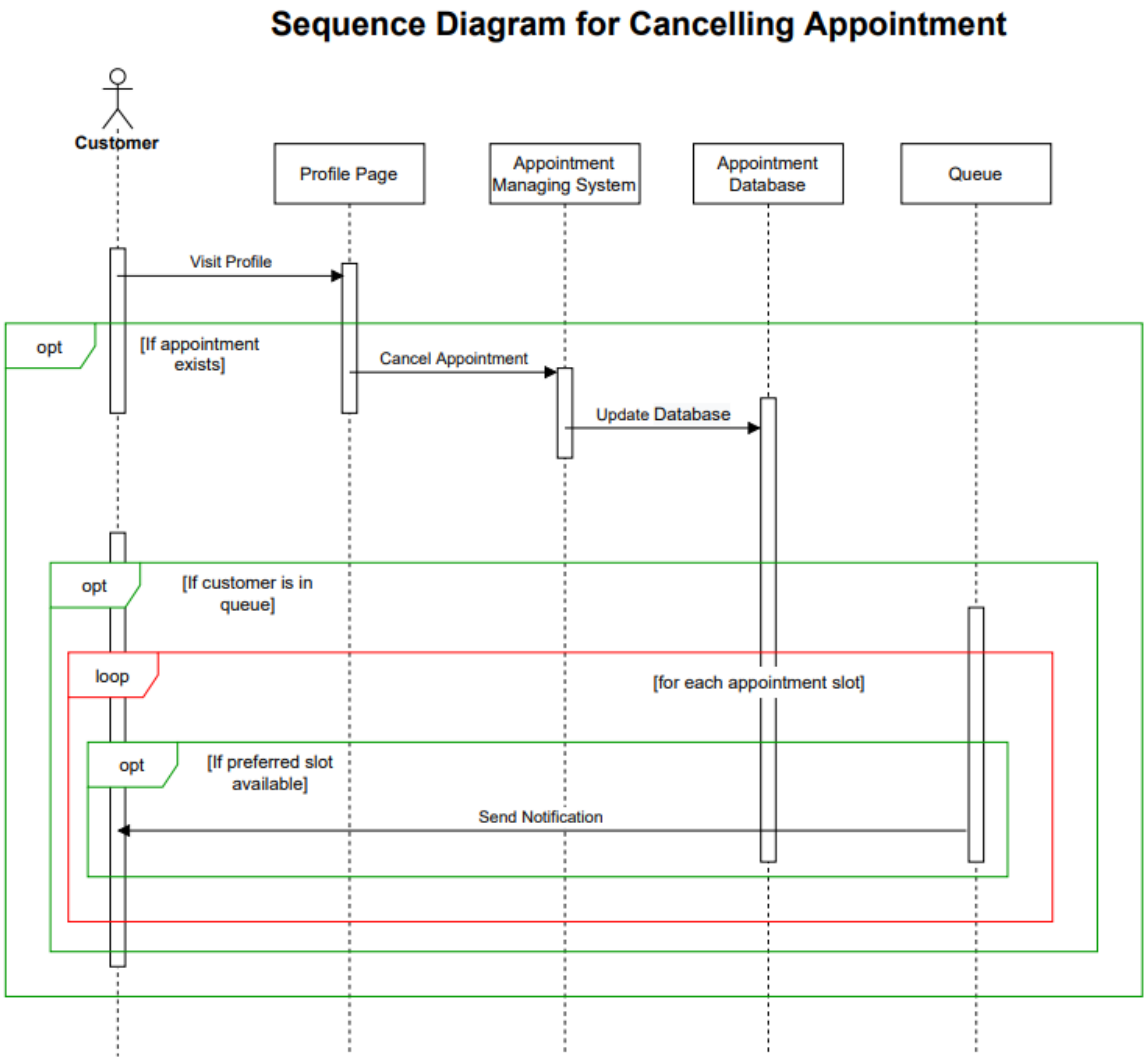


Figure 6: Sequence diagram for canceling an appointment

5.4. State Machine Diagram:

The state machine diagram shows the states of the objects in the system.

5.4.1. State Machine Diagram for User Login:

After opening the system the user can login in the "Login" state of the Login Page. If the user has an account then after entering the username and password, the credentials will be verified in the "Verification" state. By checking the account database the system will check if the information filled out by the user is valid or not. If the login is valid then the page will move on to its next state "Home" where the user gets to enter the Homepage of the system. If the login is not valid then the user will be taken back to the Login state. Finally, if the user does not have any account, he/she will be redirected to the "Sign-Up" state from the Login state. After entering user details, the Sign-up state will double check with the account database to exit the state. The account database will check if the information has been filled out correctly. If the details are correctly filled out then the system will go to the next state which is "Database Updated" where the account information is updated. If the details are not properly entered then the system will stay in the "Sign-Up" state.

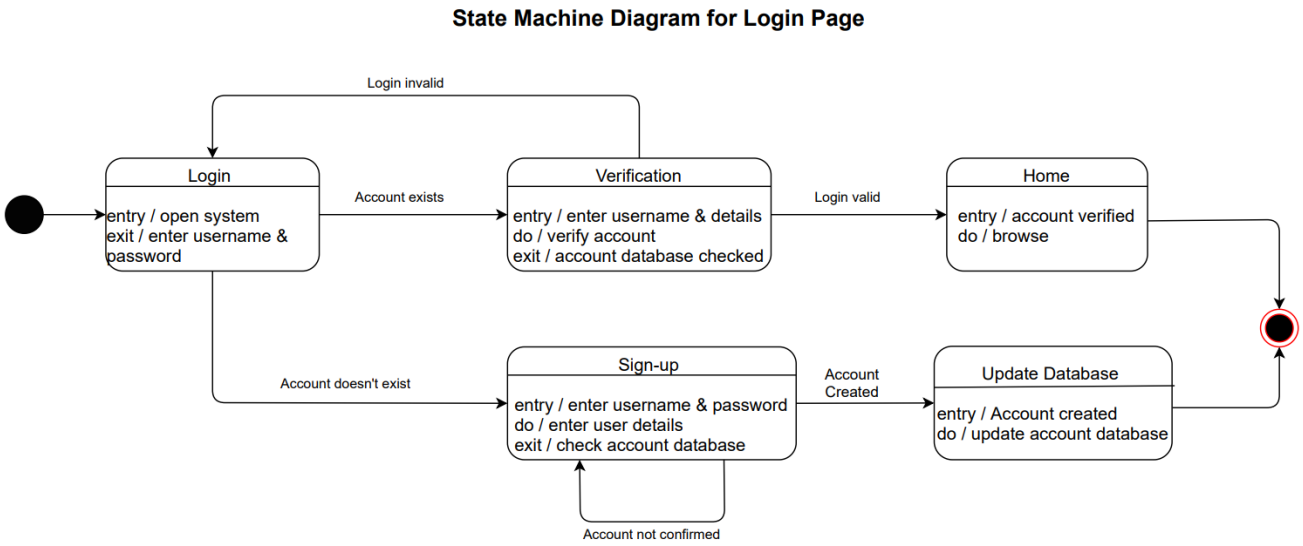


Figure 7: State Machine Diagram for Login Page

5.4.2. State Machine Diagram for Appointment Database:

After logging in, the user can sort or search for specific slots in "Search/Sort State" from the existing appointment slots in the Appointment Database. If the user selects a specific slot then the system leads to a state called "Appointment Booked" where the appointment booking process will begin, and the system will exit the state if the hospital confirms the appointment booking. The next state is "Database Updated" where the appointment database gets updated with the recent changes. This state will be

revisited if any user decides to cancel an appointment. The user will get to cancel the appointment in the "Canceling Appointment" state. After the successful cancellation the system will move to the "Database Updated" where the appointment database will be updated again.

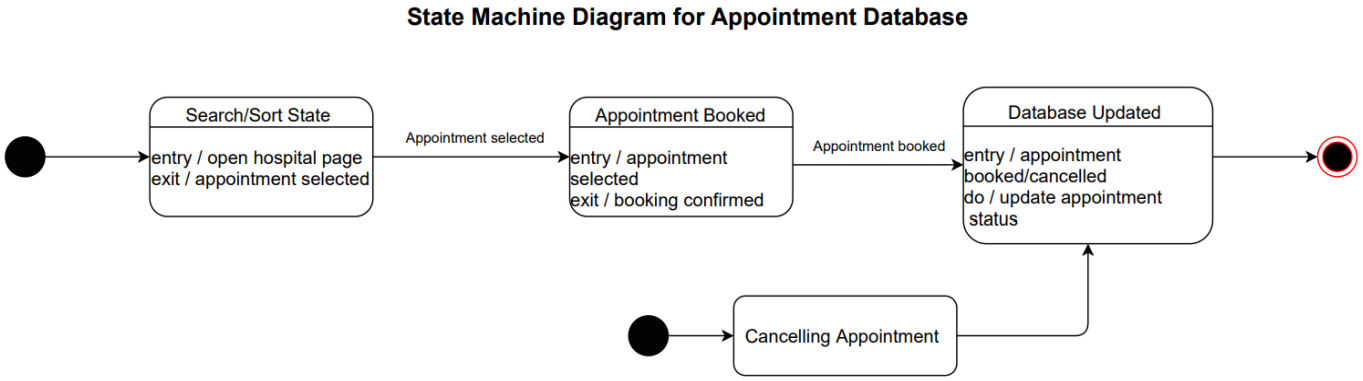


Figure 8: State Machine Diagram for Appointment Database

5.4.3. State Machine Diagram for Appointment Management System:

After searching for their desired slot in the "Select slot" state the user will be directed to the next state of the Appointment Management System after checking from the appointment database. If the preferred searched slot is available then the next state will be "Appointment Selected". A registration form needs to be filled to go to the next step. If any payment is needed, another form needs to be filled out with some user details after which the system will move on to the next state called "Verification". This state will check if the appointment is verified by the system. If the appointment is confirmed then in the next state, Appointment Booked, everything will be updated to the appointment database. Finally, by sending a confirmation text to the user the state in this scenario comes to an end. After checking in the "Verification" state if the appointment gets denied then the system notifies the user in the "Appointment Not Booked" state. If no preferred slots are found by the user in the "Select slot" state, then the user can request a queue in the next state, named "On Queue". The system will only leave the state if any appointment is cancelled. The system will go to the state named "Appointment Checking State". After looping through all the available slots, if the preferred slot is found then the system goes to the "Notification State" where the system notifies the user. And if any preferred appointment is not found then the user stays in the "On Queue" state.

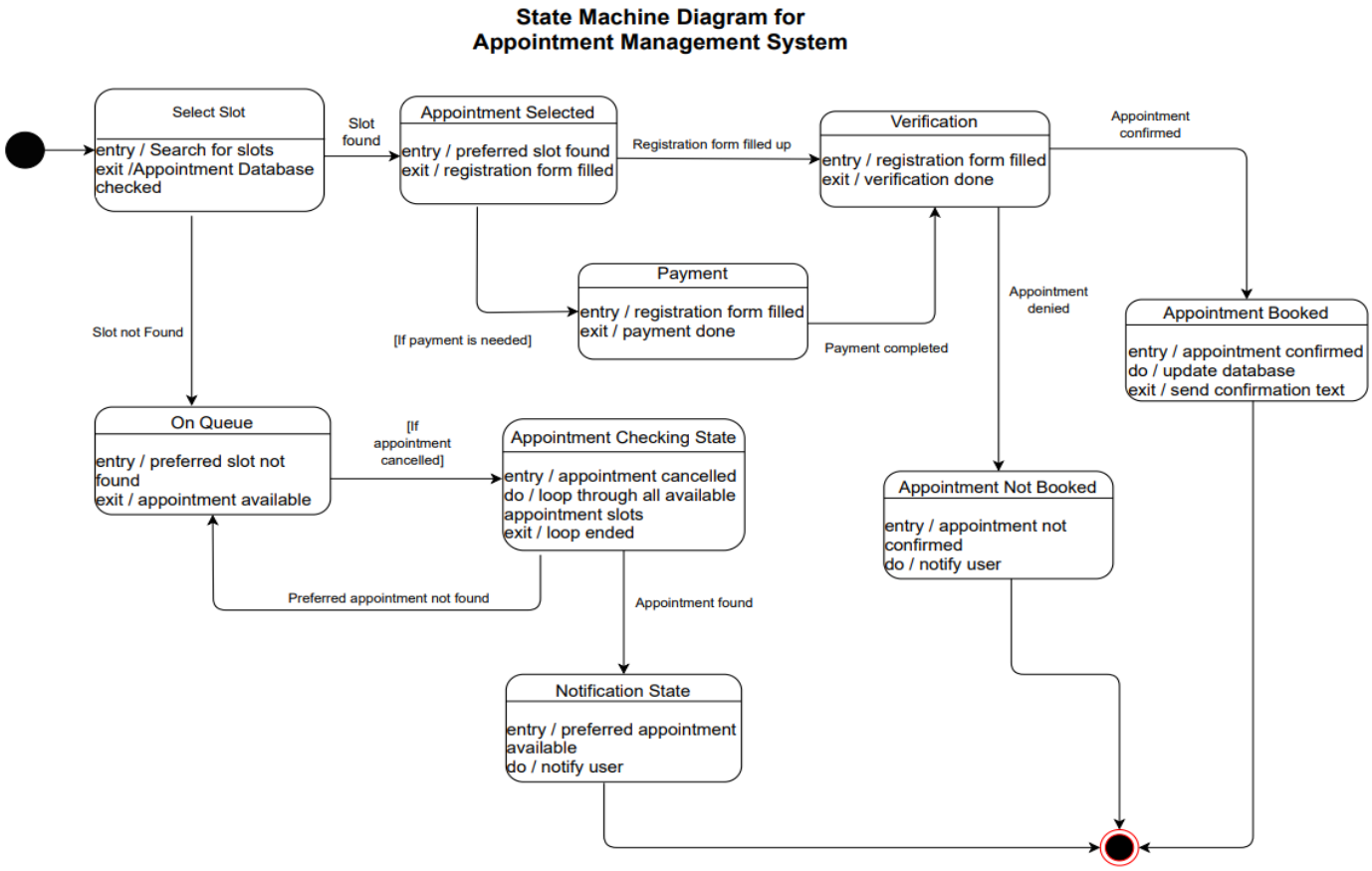


Figure 9: State Machine Diagram for Appointment Management System

5.5. Data Flow Diagram

A data flow diagram (DFD) is a diagram that represents the data flow in a system and the processes that take place in the system to transfer data.

5.5.1. Data Flow Diagram (Level 0)

In the following DFD(level 0), the customer provides login information to the vaccine availability system and the system gives each customer his username and password. Then the customer has to select a preferred hospital and vaccine. The system provides a list of available hospitals and vaccines. An appointment request is sent by the customer, in response to which the system shows available appointment slots, from which the customer selects his/her preferred slot. After that, the system provides the registration form and if any help is needed by the customer, the system provides helplines or contact information of the volunteer. Payment is done by the customer if needed and a confirmation text is sent to the customer by the system. On the contrary, if a queue

request or an appointment cancellation is made by the customer, the system sends a notification for available slots to the customer.

The diagram also shows that the hospitals provide login information to the vaccine availability system and the system provides username and password to it. Whenever an update is made, the hospital gives the updated information to the system. Also, when a customer selects a preferred appointment slot, he/she has to fill up a registration form. The system sends this form to the hospital in order to confirm the registration. This confirmation is sent to the system.

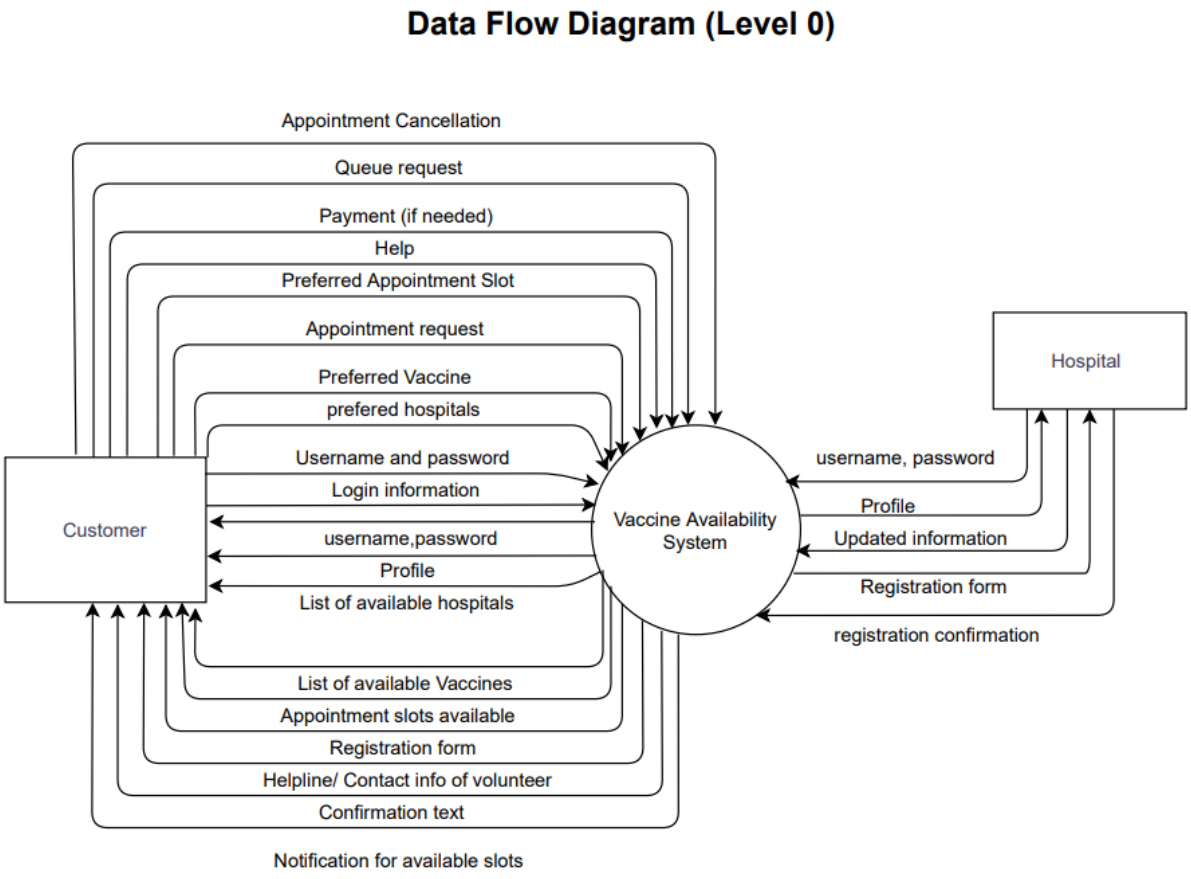


Figure 10: Data Flow Diagram (Level 0)

5.5.2. Data Flow Diagram (Level 1)

The Signup diagram shows that the customer provides login information to the Signup process, which then sets a username and password and saves them in the Account database and also provides the credentials to the customer.

The Login diagram shows that during the login, the user enters the username and password into the system and after cross-checking the credentials in the Account database, the Login process returns the user's profile.

In the Fetch list of hospitals diagram, the customer selects a preferred hospital and this data is sent to the hospital database, which then provides the list of preferred available hospitals to the customer accordingly. Similarly the customer gets the list of available vaccines by interacting with the vaccine database through the Fetch list of vaccines process.

In the See Appointment Slots diagram, the customer requests for an appointment and the list of available appointment slots is fetched from the appointment database by the See Appointment Slots process.

In the Fetch Registration Form diagram, the customer selects a preferred appointment slot and then fills up the registration form provided by the Fetch Registration Form process, which then sends the form to the hospital for confirmation.

In case any help is needed by the customer, the contact details of the volunteers or health experts are extracted from the admin database and provided to the customer by the See Helpline Number process.

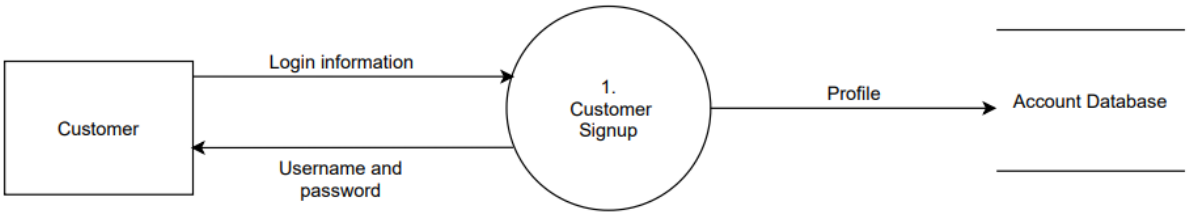
If payment is needed, customer's data is fetched from the account database by the "Pay and send the text message" process and a confirmation text is sent to the customer if the appointment is approved.

When the customer cannot find his/her preferred slot, a queue request is made by the customer. The Found Empty Slots process fetches the list of available empty slots from the appointment database when an appointment is canceled and checks whether the customer's preferred slot is now available. If it is then it sends a notification to that customer.

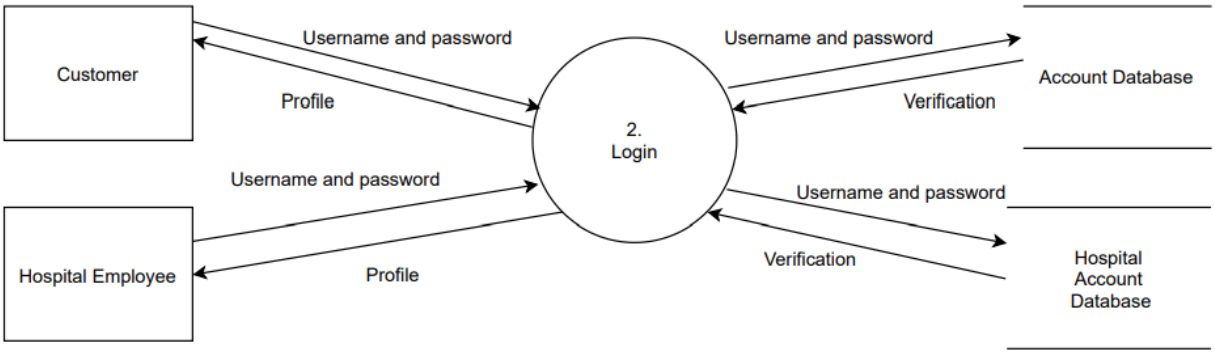
The Update Appointment Slots diagram shows that when the hospital confirms a customer's appointment registration, the Update Appointment Slots process sends the updated appointment status to the Appointment database. If a customer cancels an appointment, the Update Appointment Slots process again updates the appointment slot status in the appointment database.

Data Flow Diagram (Level 1)

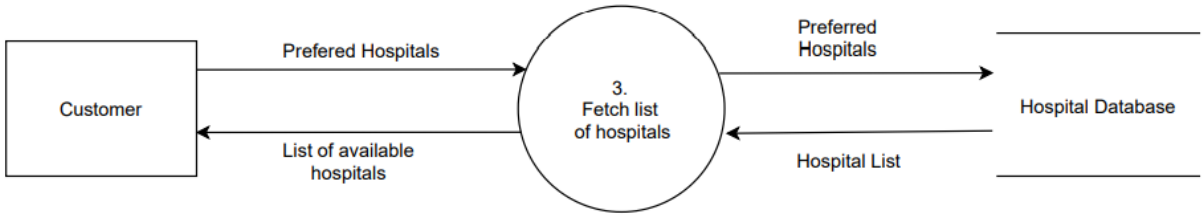
DFD Level 1 of Customer Signup



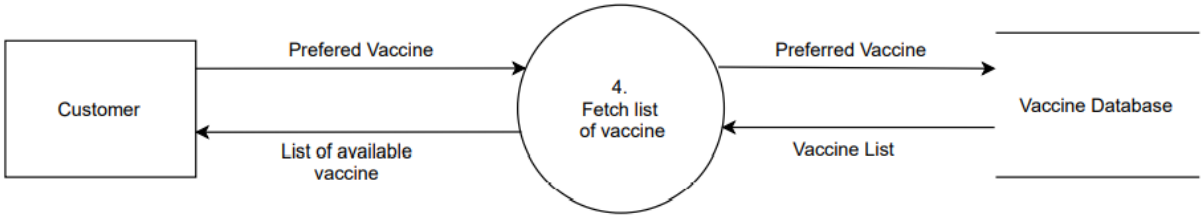
DFD Level 1 of Login



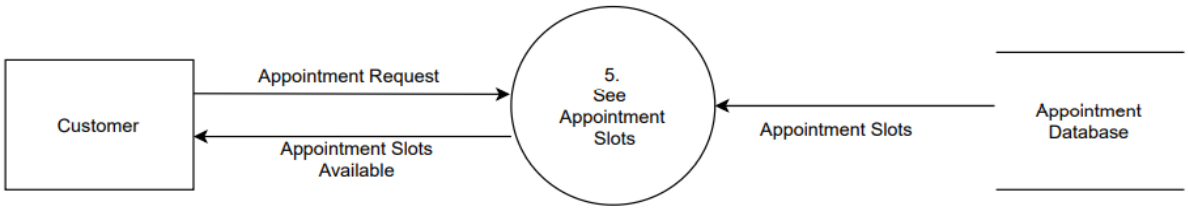
DFD Level 1 of Fetch list of hospitals



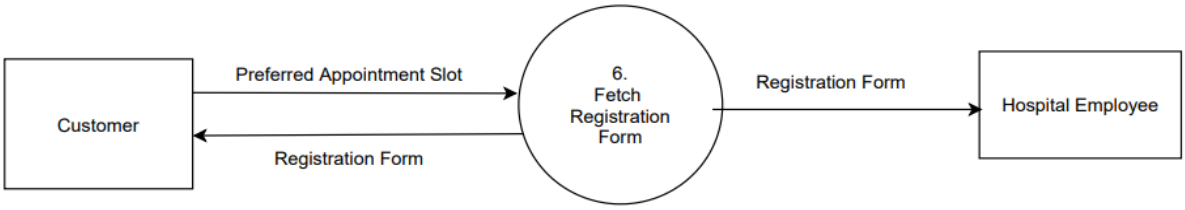
DFD Level 1 of Fetch list of vaccine



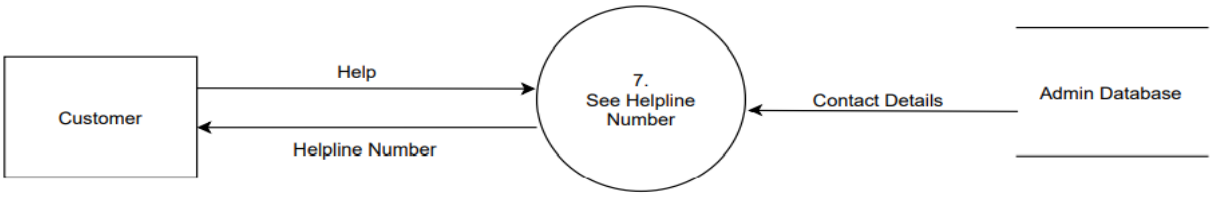
DFD Level 1 of See Appointment Slots



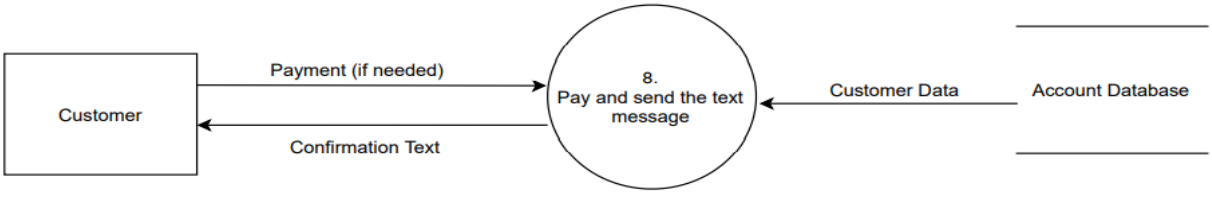
DFD Level 1 of Fetch Registration Form



DFD Level 1 of See Helpline Number



DFD Level 1 of Payment and send the text message



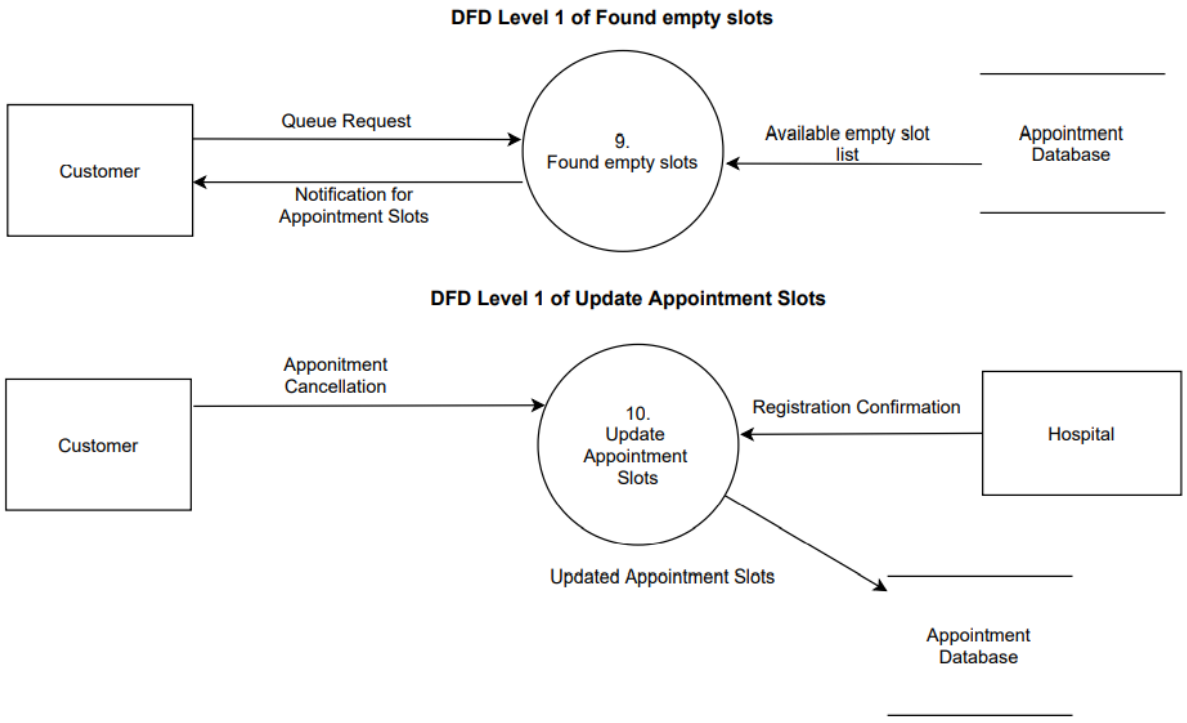


Figure 11: Data Flow Diagram (Level 1)

5.6. Window Navigation Diagram:

The Window Navigation Diagrams of this system display the basic structure of the interface which is presented down below. This system, like every other system, will start with a landing page where there will be a Login button which leads to a login form or a sign-up button which leads to a Sign-up form.

5.6.1. Window Navigation Diagram for Login and Logout:

After clicking the login button in the landing page, the system takes the user to the Login Form. After filling out the form and then clicking the submit button, if all the information filled out by the user is valid it takes the user to a window called homepage. If the information is invalid then a window with Invalid Credentials text will show up. In this window there is a button named “Retry”. After clicking the button it will take the user back to the login form. There are two hyperlinks named “Forgot Password” and “Forgot Username”. If the user clicks “Forgot Password” hyperlink, it takes the user to a form which recovers a password. In this form there is a button that needs to be clicked after filling it out which will lead the user to the Login Form again. If the user clicks “Reset Password” the system will take the user to a “Recover Username” form after filling which the user needs to click the “Username reset” button. After clicking the

button the user will get the login form again. There is a button called “Logout” after clicking that button the user will be taken back to the landing page.

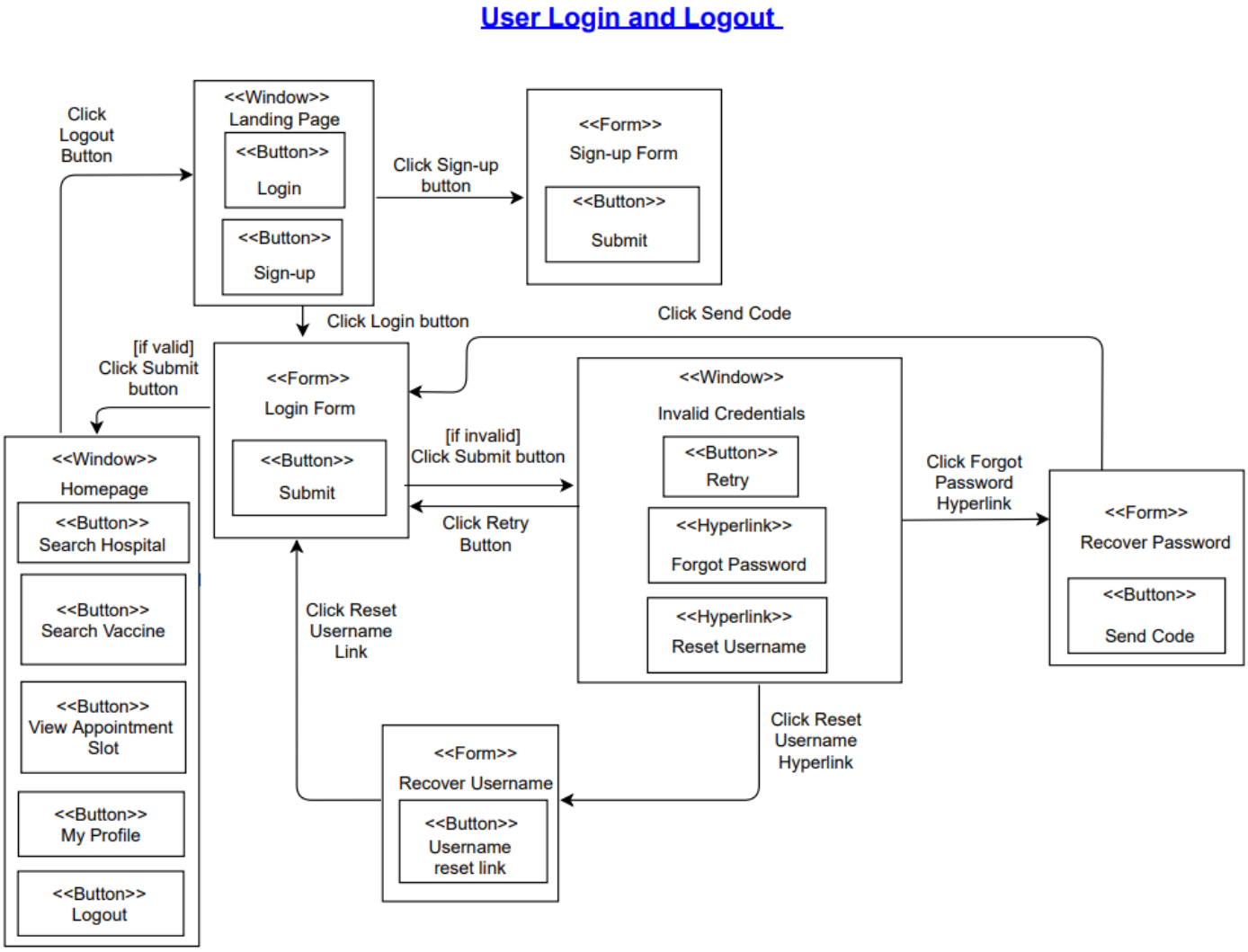


Figure 12: Windows Navigation Diagram of User Login and Logout

5.6.2. Window Navigation Diagram for User Sign-Up Page:

To Sign-up there is a sign-up button in the landing page after clicking the button it takes the user to a “Sign-up” form. The user needs to fill out the form to register for an account. If the information filled out by the user is valid then after clicking the “Submit” button the user will be taken to the “Homepage” Window. If the information is invalid then after clicking the “Submit” button the user will be taken to the “Sign-up” Form again.

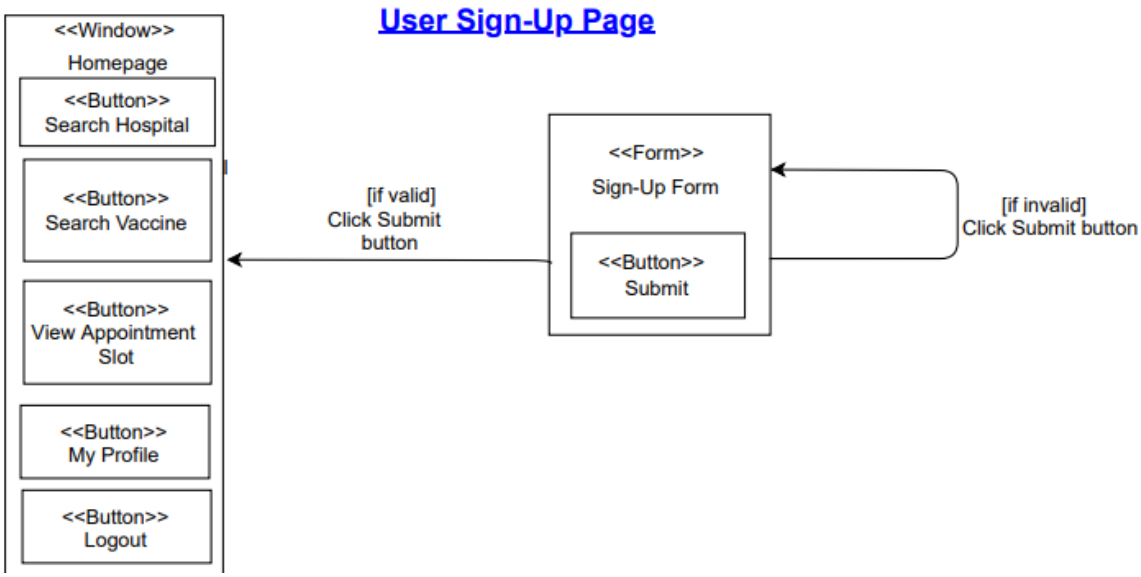


Figure 13: Windows Navigation Diagram of User Sign-Up Page

5.6.3. Window Navigation Diagram for Search Appointment Slots:

Two of the buttons in the homepage window are “Search Vaccine” and “Search Hospital”. If the user clicks the “Search Vaccine” button it will take the user to a form where the user can type the name of the preferred vaccine and click the “Find Vaccine” button. Clicking the “Find Vaccine” button will take the user to a Hyperlink Report. If the user wants to know about the information of any specific vaccine, he/she can click on that very vaccine which will lead the user to another window named “Vaccine Information”. Similarly, the user can find any hospital he/she prefers by clicking the “Search Hospital” button.

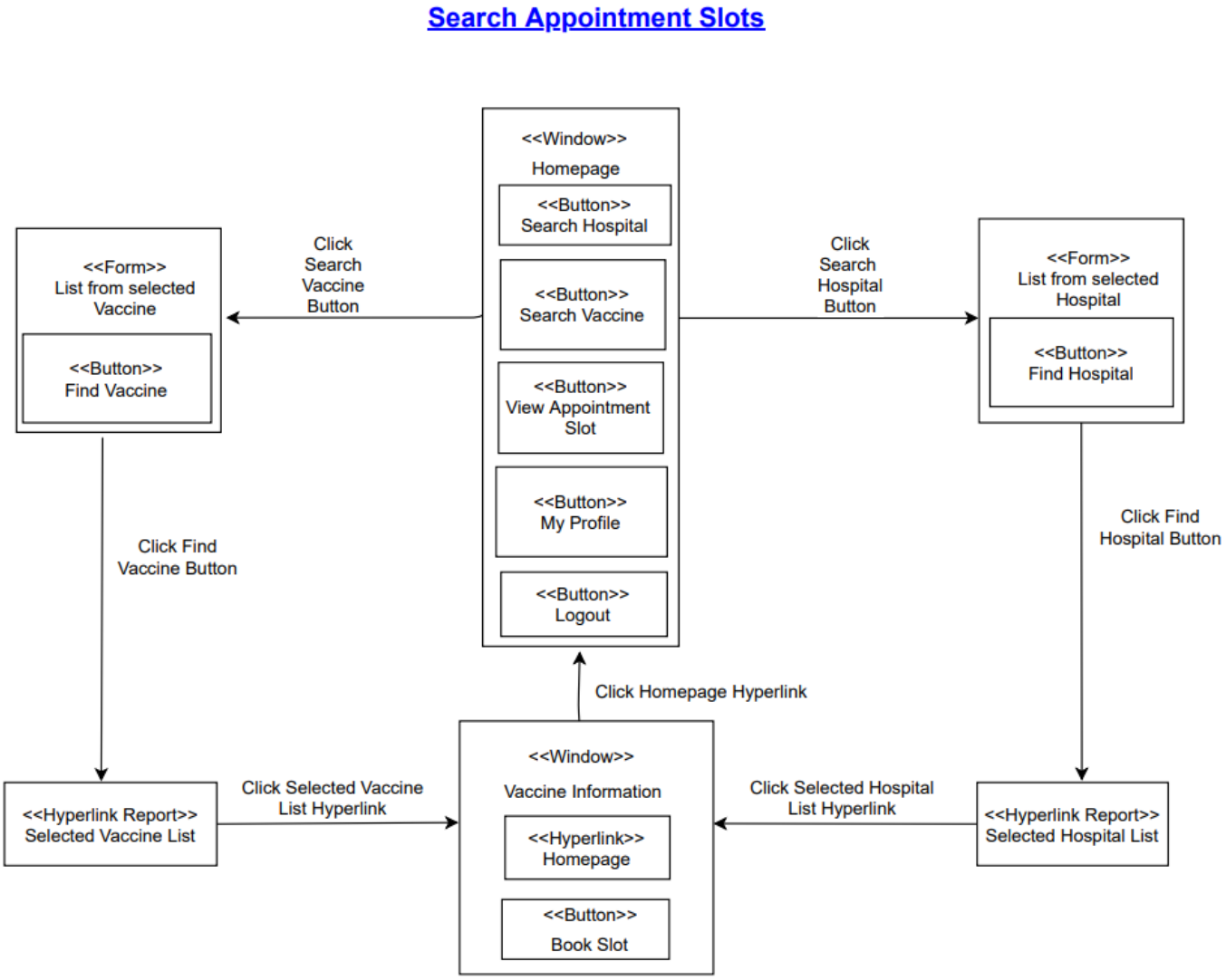


Figure 14: Windows Navigation Diagram of Search Appointment Slots

5.6.4. Window Navigation Diagram for View Appointment Slots:

One of the buttons in the homepage window is called “View Appointment Slots”. After clicking the button the user goes to a window called “View Appointment Slots”. In this window, there are four buttons and out of these four buttons, three buttons are for Sorting the list. These three buttons are- “Sort by nearest location”,”Sort Alphabetically”,”Sort by Popularity”. If the user tries to sort the list of available slots by the nearest location or alphabetically or by popularity the user needs to click the required button. After clicking the button the user gets the sorted list in a hyperlink report. If the user clicks on a preferred slot then the system will lead the user to a window called “Vaccine Information” which shows all the information related to the slot. The fourth

button in the “View Appointment Slots” is the “Request Queue” button. If the user does not find any preferred slot then he/she is recommended to fill the “Request Queue” form by clicking the “Request Queue” button. If the information filled by the user in the form is valid then after clicking the “Submit” button it takes the user back to the homepage window. If the information is invalid then the system will take the user back to the Queue.

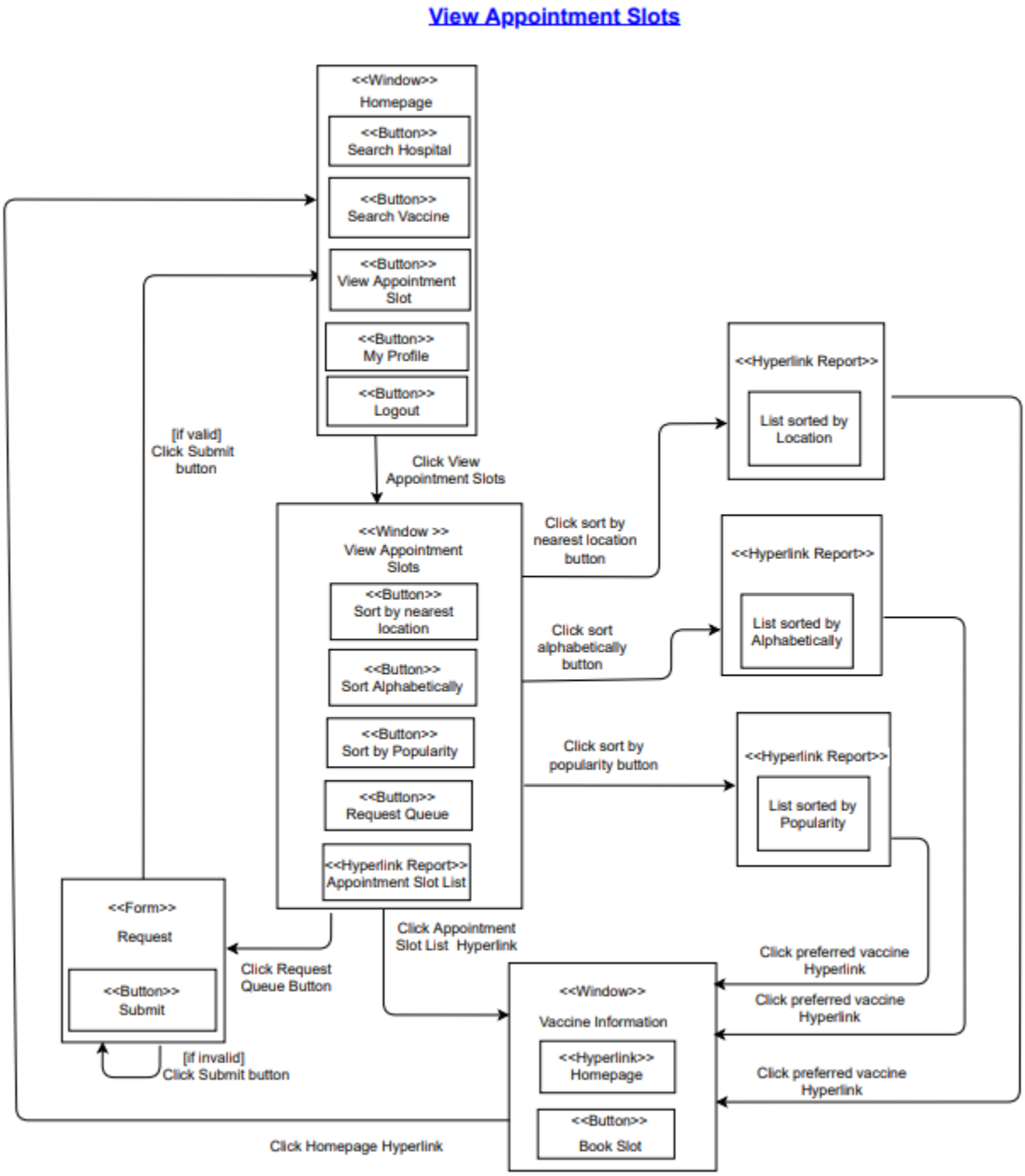


Figure 15: Windows Navigation Diagram of View Appointment Slots

5.6.5. Window Navigation Diagram for Booking Appointment:

In the Vaccine Information window there is a button named “Book slot” . This button should be clicked when a user wants to book a slot. After clicking the button, the user needs to fill out a registration form called after which the user needs to click the “Book slot” button. If any payment is needed the user will be taken to a window called “Payment Procedure” . The user can select between online payment or offline payment. For offline payment, the user needs to click the “Play offline” hyperlink which will lead the user to a window called “Confirmation Receipt”,this receipt will be helpful for the user later. For online payment, the user needs to click the “Play online” hyperlink. After clicking this hyperlink, the user will be led to a form named “Online Payment”. After filling out the form the user will have to click the “Pay” button after which the client will be taken to the “Confirmation Receipt” window. If any payment is not needed, the user will be directly taken to the “Confirmation Receipt” window. In the Confirmation Receipt window there is one hyperlink “Homepage” which will lead the user to the homepage window. In the Vaccine Information also there is a hyperlink “Homepage” which will take the user to the homepage window.

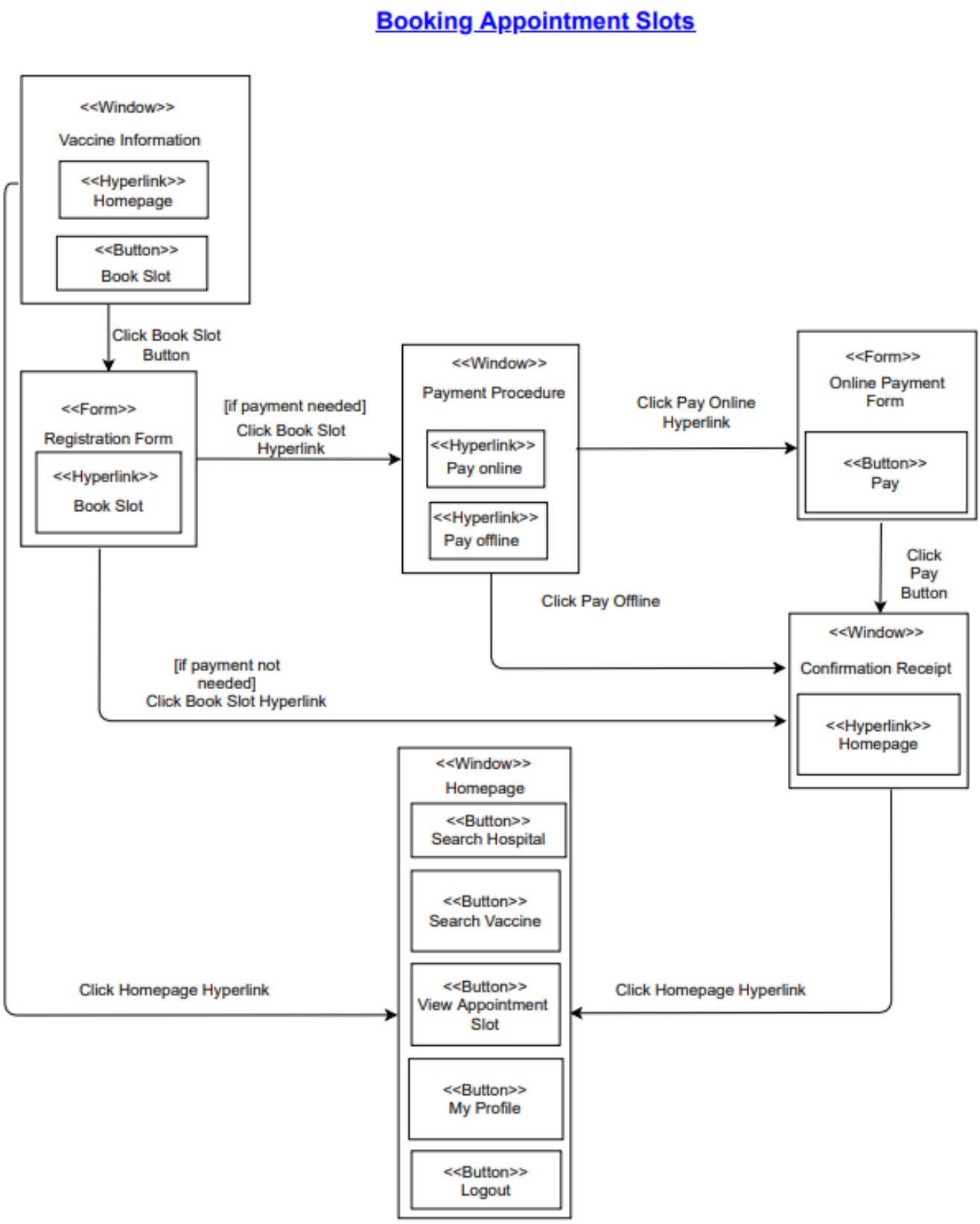


Figure 16: Windows Navigation Diagram for Booking Appointments.

5.6.6. Window Navigation Diagram for Canceling Appointment:

There will be a button named “My Profile” after clicking it the user will be directed to a window called “Profile Page”. In this window, there are two buttons: “My Appointment”, “Homepage”. The “”Homepage” button redirects the user to the “Homepage” window. The “My Appointment” button which will lead the user to a hyperlink report. If the user clicks on a specific appointment a window named “Appointment Information” will show up. In this window, there is a button named “Cancel Appointment” after clicking it will take the user to another window called “Confirmation Text” where there will be two hyperlinks named “Profile Page” and “Homepage”. Profile page hyperlink will lead the user to the “Profile Page” window. Similarly the “Homepage” hyperlink will lead the user to the Homepage window.

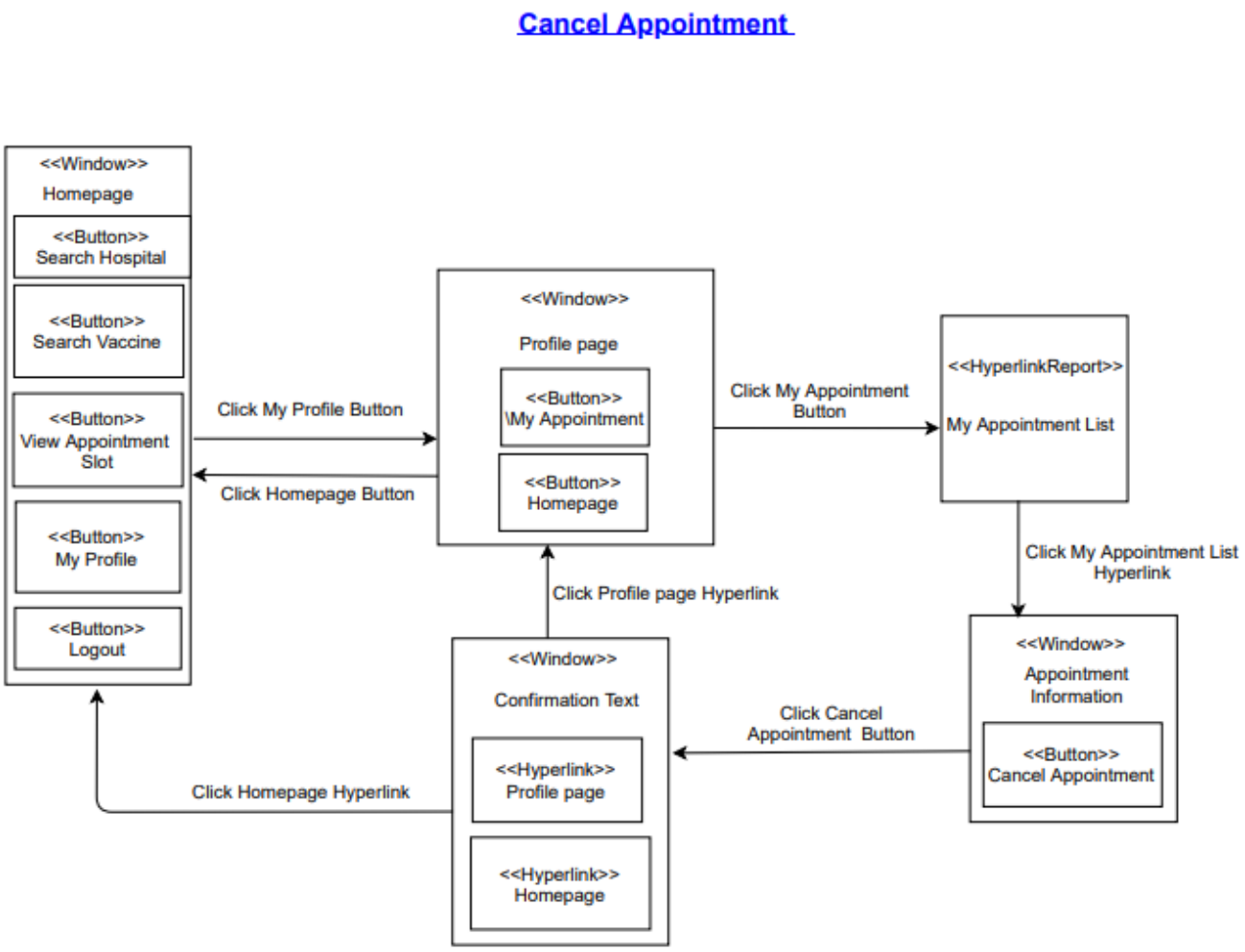


Figure 17: Windows Navigation Diagram for Canceling Appointments.

6. Conclusion

As people's lives are getting more and more dependent on technology and easily accessible systems, the Vaccine Availability System takes a step towards creating a technology based platform in the medical health sector. As the name suggests, the system makes it easier for the public to get trouble-free access to the vaccines in an organized manner. This system will benefit the people in finding necessary vaccines in hospitals all over the city effortlessly. In this system, there are features like-searching for a specific hospital or vaccine, booking a slot online, online payment. These properties make it possible for the users to find and book the preferred slots without the hassle of going out. To make the system more efficient and easy to use there are features such as- sorting the vaccines by nearest location, alphabetically, canceling appointments, making requests for a slot if the preferred slot is already booked. All these aspects of the system makes it user friendly, intuitive and more practical. Besides, the database of the system also holds records of all customers who have used the system to get vaccinated. These data can be used for statistical inferences and for further improvement of our medical and health sectors. This system could be a step towards digitizing the medical records of the general people in all hospitals and hence increase efficiency.