NOT DISCOVERY

THE ONLY MEDICAL PLATFORM YOU CAN TRUST

PROUDLY SPONSORED BY “EASY SCRUM EASY GO”

Zahraa Akhalwaya - 1831974
Ryan Alexander - 1827474
Mahdiyah Manjra - 2140796
Deshan Murugan - 1612943
Xin Nian - 1760829
Kineta Padiachee - 1853416
Mellisha Reddy - 1833200
Bianco Van Der Ross - 1827456

TABLE OF CONTENTS

Software Design and System Architecture

Software Design

We were tasked with the development of a mobile application and website for viewing and managing patient data. The platform (in this context platform refers to the mobile or web application) has two users, doctors, and patients respectively. The platform is designed to help doctors see the medical history of their patients while patients can book an appointment with the doctor of their choice for any medical issues they may be experiencing. When a patient books an appointment with a particular doctor, the doctor will be able to accept or reject this appointment. If the doctor rejects an appointment the patient will be notified immediately, and he/ she can either reschedule the appointment or find another doctor on the platform. If the doctor accepts the appointment, the patient will be notified and once the appointment has taken place, the doctor can generate an appointment form. This appointment form will include the patients name, disease/ medical history, medication administered, date of the appointment, consultation notes and treatment costs, etc. These appointment forms get stored in the database along with patients' personal information. The patient will be able to see any prescribed medication or important notes from the appointment can book for a check-up if necessary.

System Architecture

Doctors will be able to log into the app from their smartphones or log into the website from their laptop / desktop and enter relevant information about their patients. If the doctor were to enter the incorrect user credentials, he/ she will be denied access to the system. A doctor who is not registered on the platform, will be able to register by entering their respective name, age, field of specialization (i.e., optometrist, dentist, surgeon, etc.), qualifications, years of experience, email address and password. Once logged in a doctor will be able to see their last appointment and any upcoming appointments on the home page of the platform. Doctors also have the ability to continually update the progress of a patient on the system by entering the latest medical data of their patients. This information is then saved on the system (i.e., in the database), and will be stored for the perusal of doctors for their future cases. For example, if a patient comes for a follow-up routine or check-up, doctors can immediately check up on their medical history and provide the necessary medical treatments.

Not Discovery is also designed to help patients find doctors to assist them with any medical issues they may be experiencing. Patients will be able to login with their respective email address and password. If the patient were to enter the incorrect user credentials, he/ she will be denied access to the system. A patient who is not registered, can register on the app by entering their respective name, age, identification number, place of residence (some address field), email address, field for pre-existing medical conditions and password. Once in the system patients will be able to view their previous appointments with a doctor, book for a new appointment and keep track of their recovery process if they are fighting a serious disease / illness.

Some of our feature include:

- Doctor login / registration
- Patient login / registration
- All user information is stored securely in the database
- Password hashing for extra security
- A welcome page for doctors where they can see notes from their last appointment
- A welcome page for patients where they can see the last appointment they booked with a doctor
- Doctors have the ability to generate an appointment form on the platform.
- Patients have the ability to booking an appointment with a doctor of their choice for a particular medical issue they may be experiencing
- Doctors have the ability to show they availability over a certain period and specify if they would like to consult with patients for one hour or half an hour
- Users can reset their password if necessary
- Settings page for the user's convenience
- Help page in case user needs extra assistance or online support

For more please see our GitHub:

https://github.com/1853416/SD-Semester2

For more details and to track our progress, please see:

https://tree.taiga.io/project/kineta-mobile-patient-tracker/timeline

Logic View

State Diagram

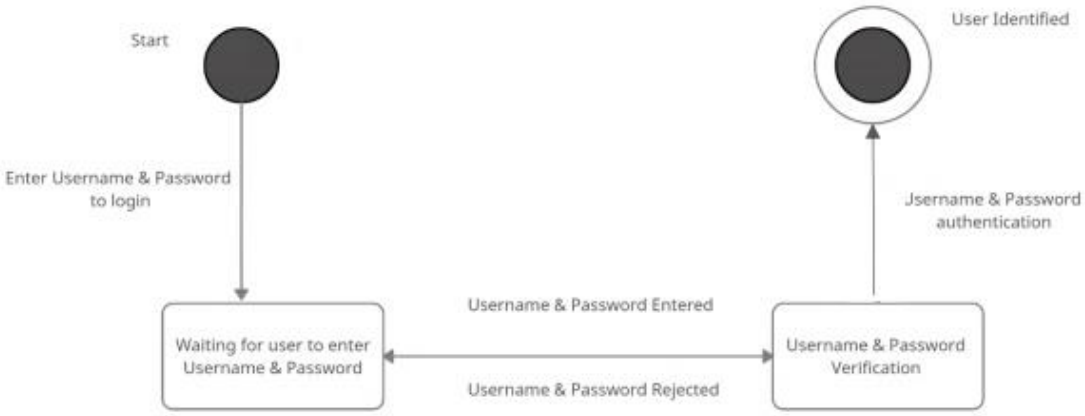


Figure – A state diagram for user login

This diagram is applicable to both patients and doctors. This diagram shows the login process a registered user will go through before being given access to Not Discovery. The user will be required to enter their username (email address) and password. These login credentials will then be verified by our system, if either of the details are incorrect the user will be denied access to the system. However, if the user has entered the correct username and password, he /she will be given access to the system and will be redirected to the respective home page depending on whether they are registered as a doctor or a patient.

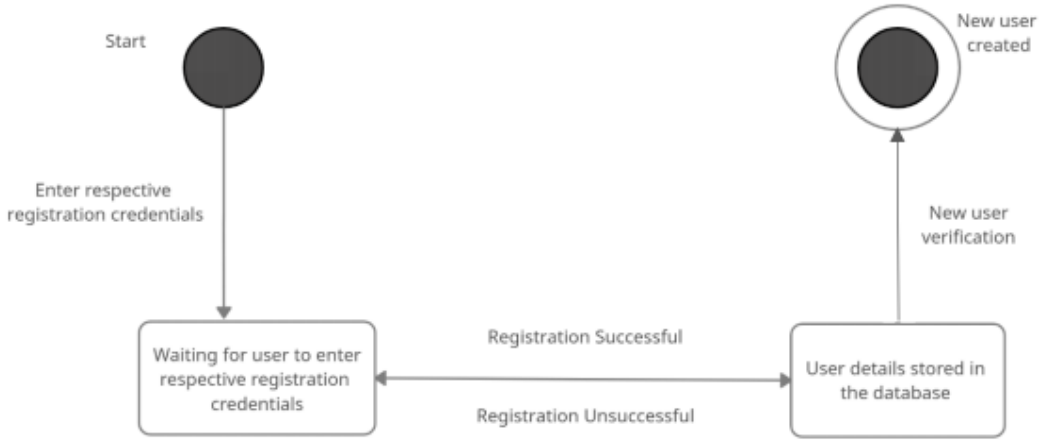


Figure – A state diagram for user registration

This diagram is applicable to both patients and doctors. The figure above shows a state diagram for a new user registering with our system. This process is necessary and must be completed correctly before a user can use on our system. Patient registration should include, patients full name, age, identification number, place of residence (some address field), email address, field for pre-existing medical conditions and password. Doctor registration should include doctors full name, age, field of specialization (i.e., optometrist, dentist, surgeon, etc.), qualifications, years of experience, email address and password. If the registration is successful, then the user will be saved on the database, and they will be allowed to start using the system. However, if the registration process is unsuccessful due to duplicate usernames, incorrect passwords, or incorrect credentials the user will have to double check the registration form or try to register again.

Class Diagram

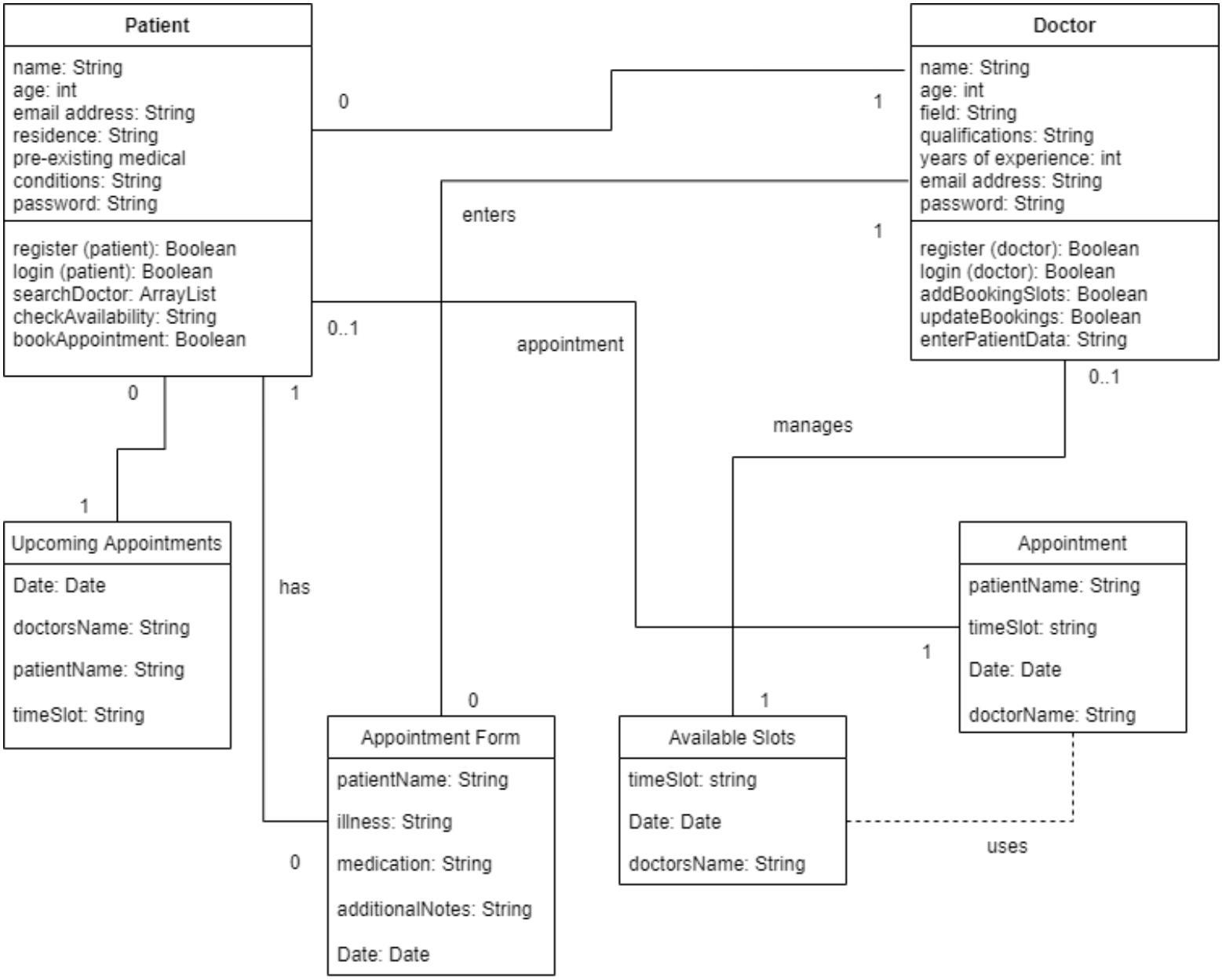


Figure – A class diagram for Not Discovery

The diagram above shows a class diagram for the Not Discovery System. In this diagram we can see the backend structure (i.e., the database) and we can see how the different tables are linked together. For example, we can see how a patient can be linked to a doctor and vice versa. We can also see how doctors can update their available time slots and how all this information is then made available for patients to see. Patients can book an appointment with a doctor and this appointment data is provided by the doctor's availability. Doctors can also create appointment forms once they have seen a patient, and this can be used to keep track of a patient's medical progress.

Development View

Component Diagram

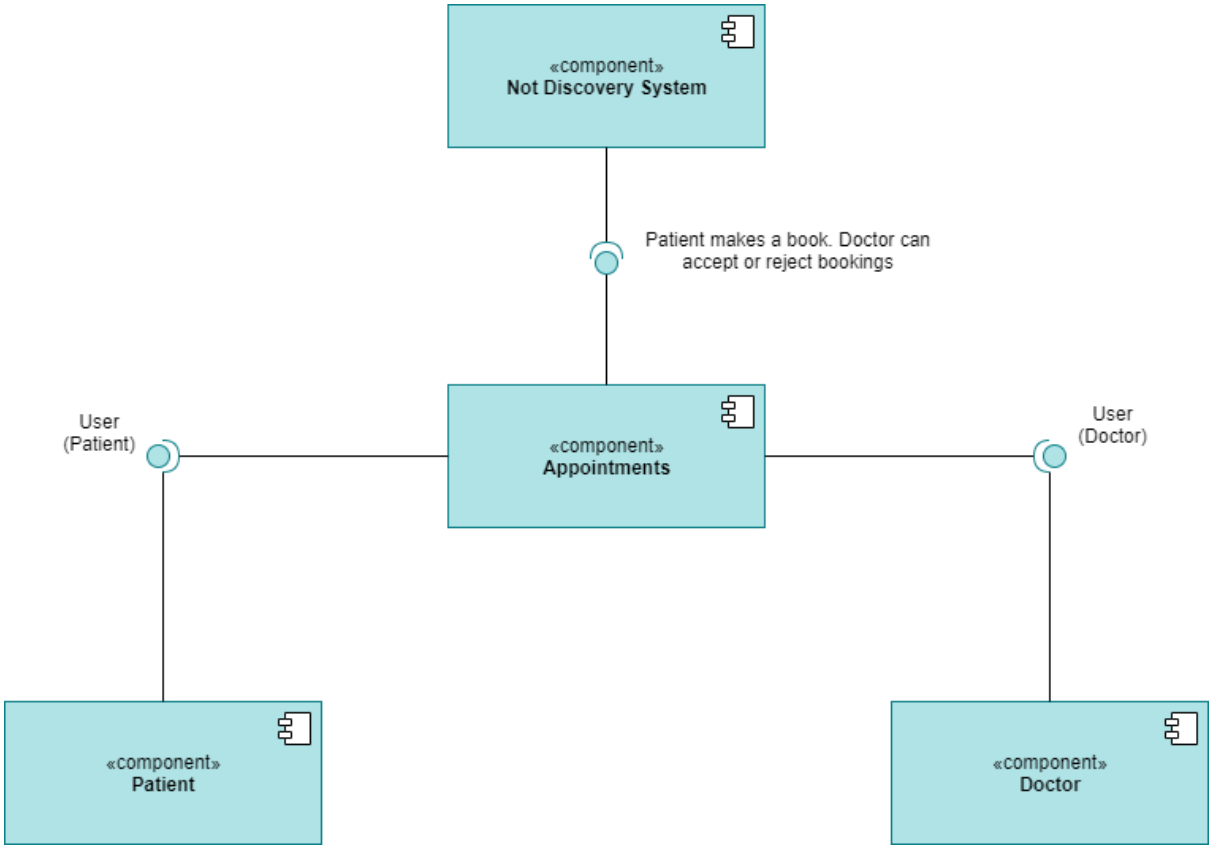


Figure – A component diagram for Not Discovery

The figure above shows a component diagram for the Not Discovery system, and it particularly focuses on the appointment bookings aspect of the website. The appointments require an interface, provided by the Not Discovery component. The patient component requires an interface, provided by the appointment component. Similarly, the doctor component requires, and interface provided by the appointment's component. Here we can see that when a patient makes an appointment with a particular doctor, he/ she is notified and has the ability to accept or reject the patients request for a consultation. Once a patient has made an appointment, he/ she will be redirected to the home page where they can see upcoming appointments, similarly on the doctor's side.

Process View

Activity Diagram

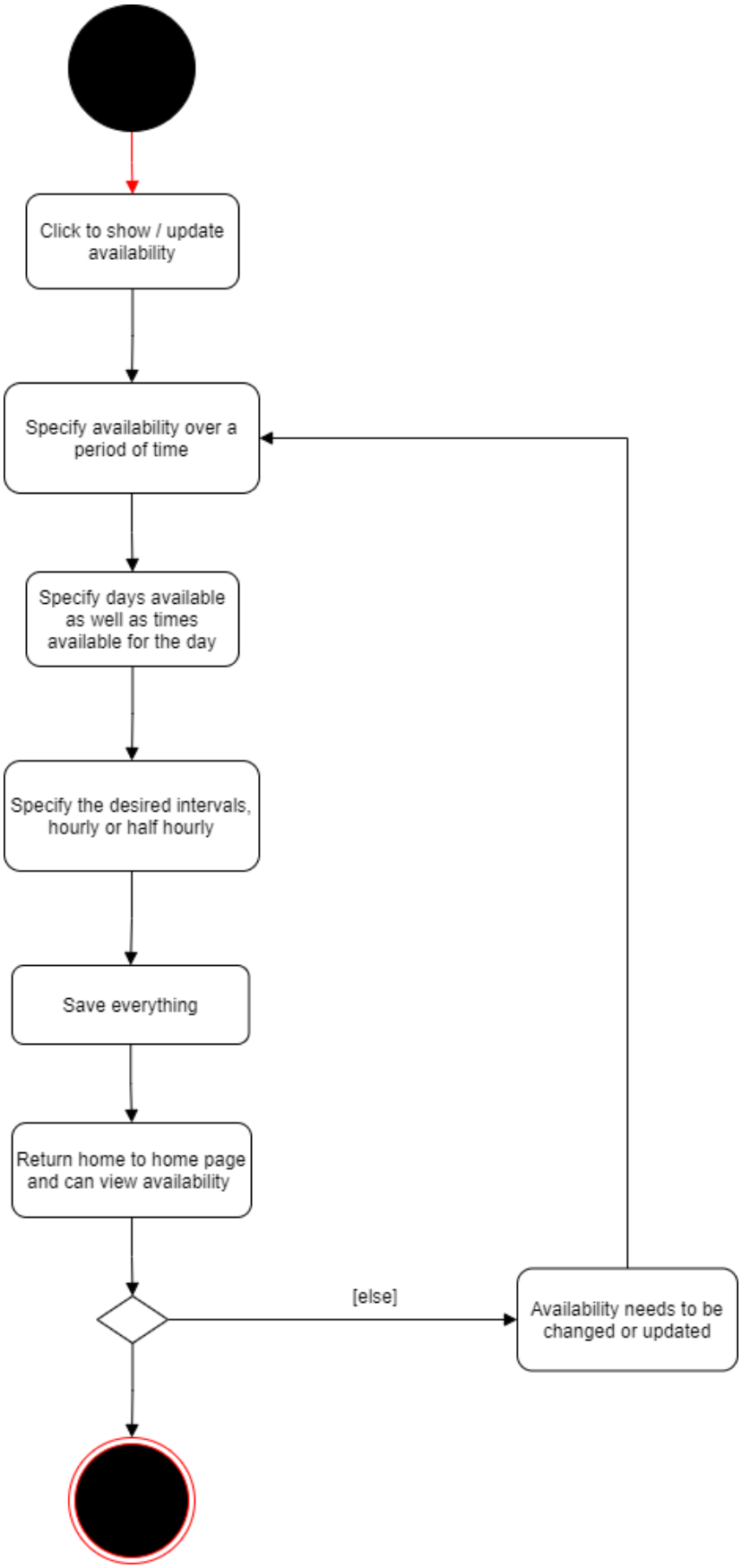


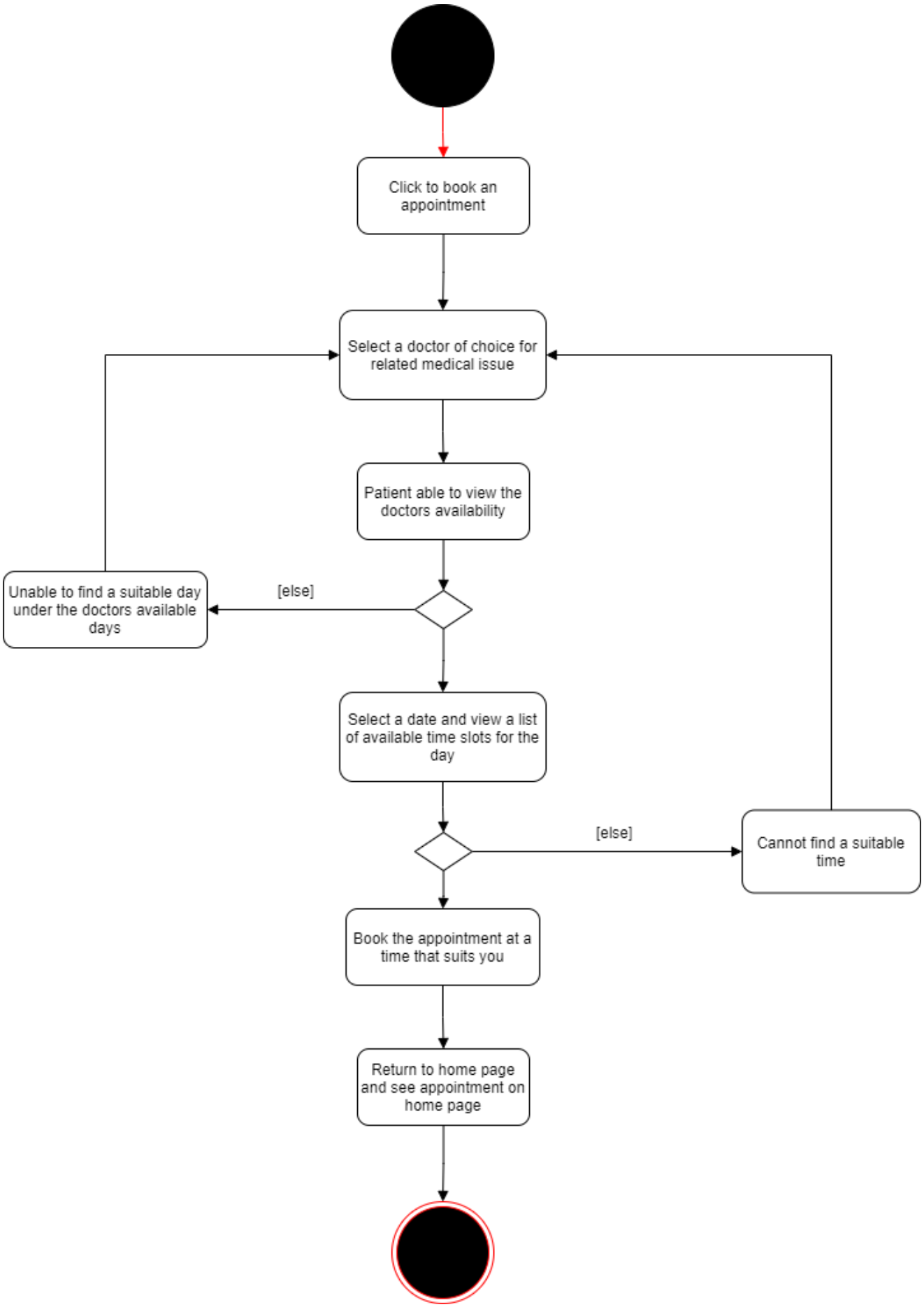
Figure – An activity diagram for Not Discovery Doctors

The diagram above shows an activity diagram for Not Discovery doctors. When a doctor logs into the website / app, he or she can click on the books tab on the home page. Here the doctor will be able to specify their availability over a certain period of time. Once the doctor specifies their available days, the time slots for these days should also be specified. Once the time slots have been specified, the doctor should then indicate if they would like to see patients in hourly intervals or half-hour intervals. After all the required information has been saved the doctor will be taken back to the home page and can view their availability. If the doctor is unhappy with anything he/she can go back into the doctor's availability and update the necessary information.

Please turn over to see the next diagram

Figure – An activity diagram for Not Discovery Patients

The diagram above shows an activity diagram for the Not Discovery System. When a patient logs into the website / app, he or she can click the book an appointment tab on the home page. Here the patient will be able to select a doctor of their choice for any medical issues and view they doctors availability. Here the patient can see on which days that the doctor is available, and if none of these days are suitable the patient can go a back and find a different doctor. If the patient is happy with a particular day, he or she can select that day and a list of available times will appear. If the patient is not happy with any of these time, he/ she can select a different day or go back and select a different doctor. If the patient is happy with a particular day and time, he/ she can then book an appointment with the doctor. Once this has been done, the patient will be redirected to the home page and will be able to see when their appointment is scheduled for.


Click to book an appointment
Select a doctor of choice for related medical issue
Patient able to view the doctors availability
[else]
Unable to find a suitable day under the doctors available days
Select a date and view a list of available time slots for the day
[else]
Cannot find a suitable time
Book the appointment at a time that suits you
Return to home page and see appointment on home page

Sequence Diagram

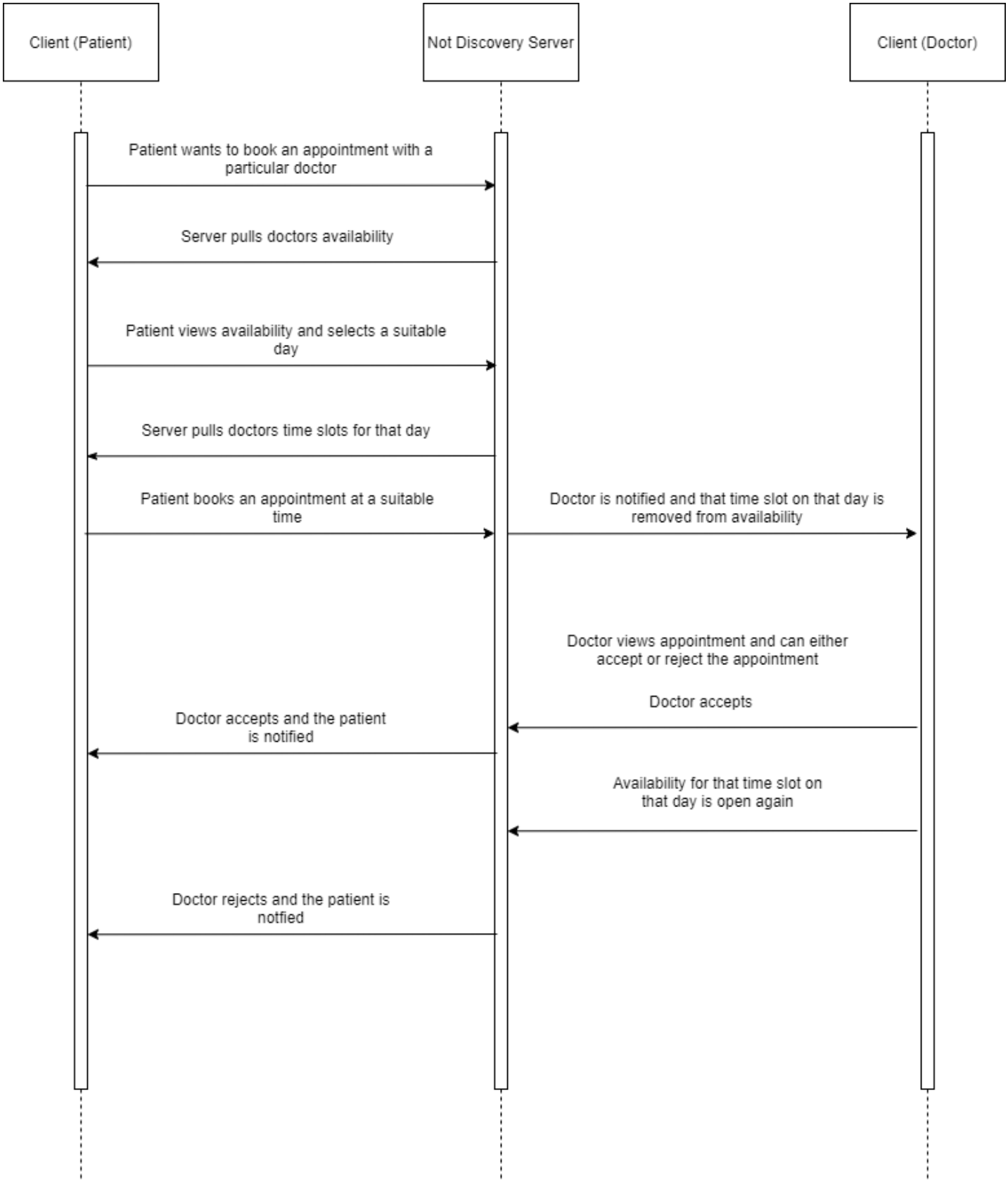


Figure – A sequence diagram for Not Discovery

This figure shows a sequence diagram for the Not Discovery System. This diagram shows how the different components / objects in a system interact in a sequential order (i.e., it describes how & in what order the objects in the system function). Here we can clearly see three objects interaction (the client (a patient), the Not Discovery server, and the second client (a doctor)). When a patient clicks to book an appointment with a certain doctor, the server pulls the information on that doctor's availability. The patient can then click on a suitable day, and the server will pull information on the time slots the doctor has for that day. Once the patient has found a suitable time and books an appointment, the server will notify the doctor and remove this time slot from the availability (to avoid double booking). The doctor can either accept or reject to see the patient. If the doctor accepts then the patient will be notified. However, if the doctor rejects, then the patient will be notified and the availability for that slot will become available once again.

Physical View

Deployment Diagram

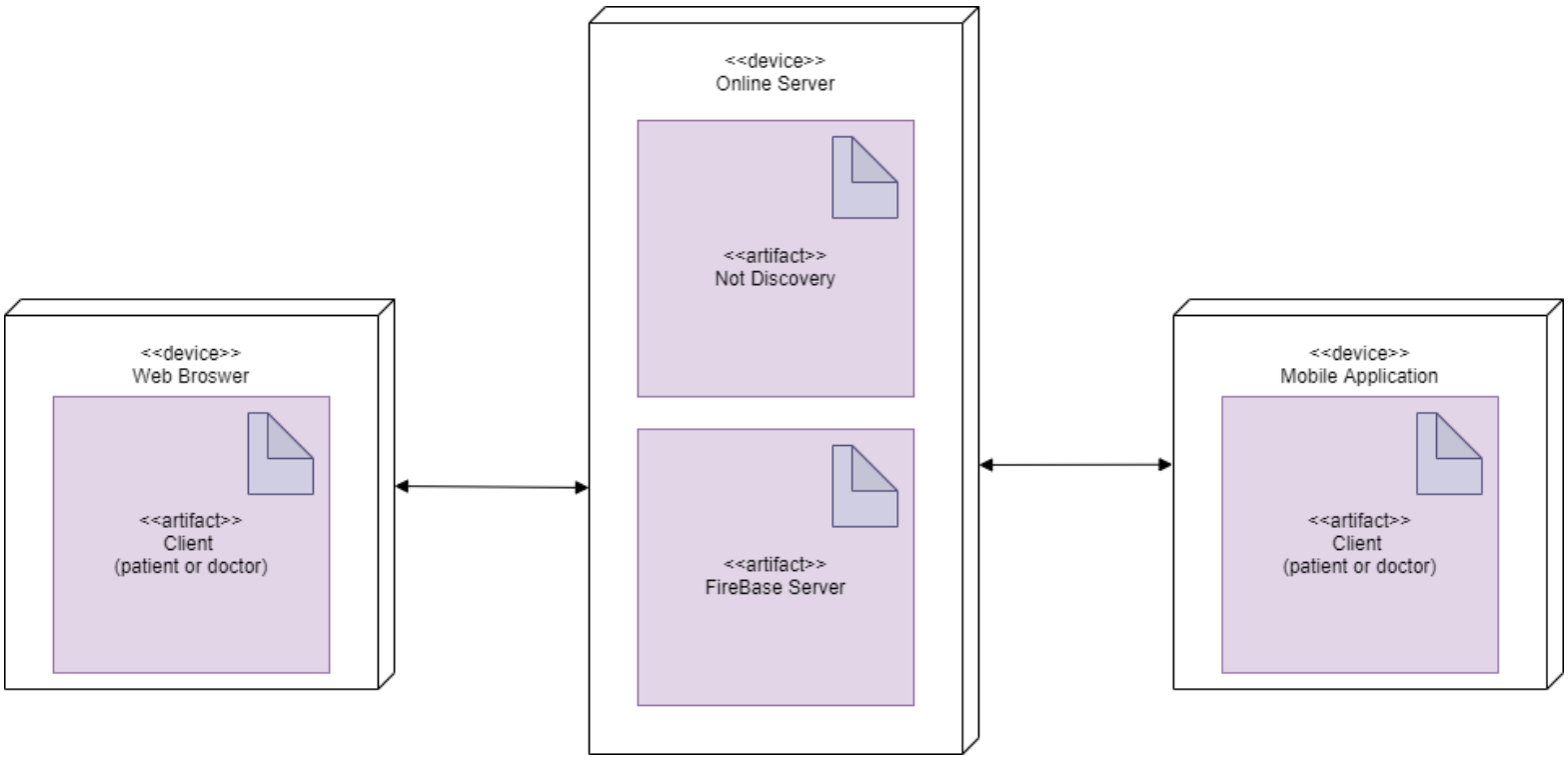


Figure – A deployment diagram for Not Discovery

This figure shows a deployment diagram for the Not Discovery system. This diagram shows the structural view used to model the physical aspects of the software system. Here we see three devices (the web browser, the online server, and the mobile application). In this diagram we also see that there are artifacts associated to each device. Client is associated with the web browser as well as the mobile application, Not Discovery and the Firebase Server are associated with the online server.

User Case Diagram

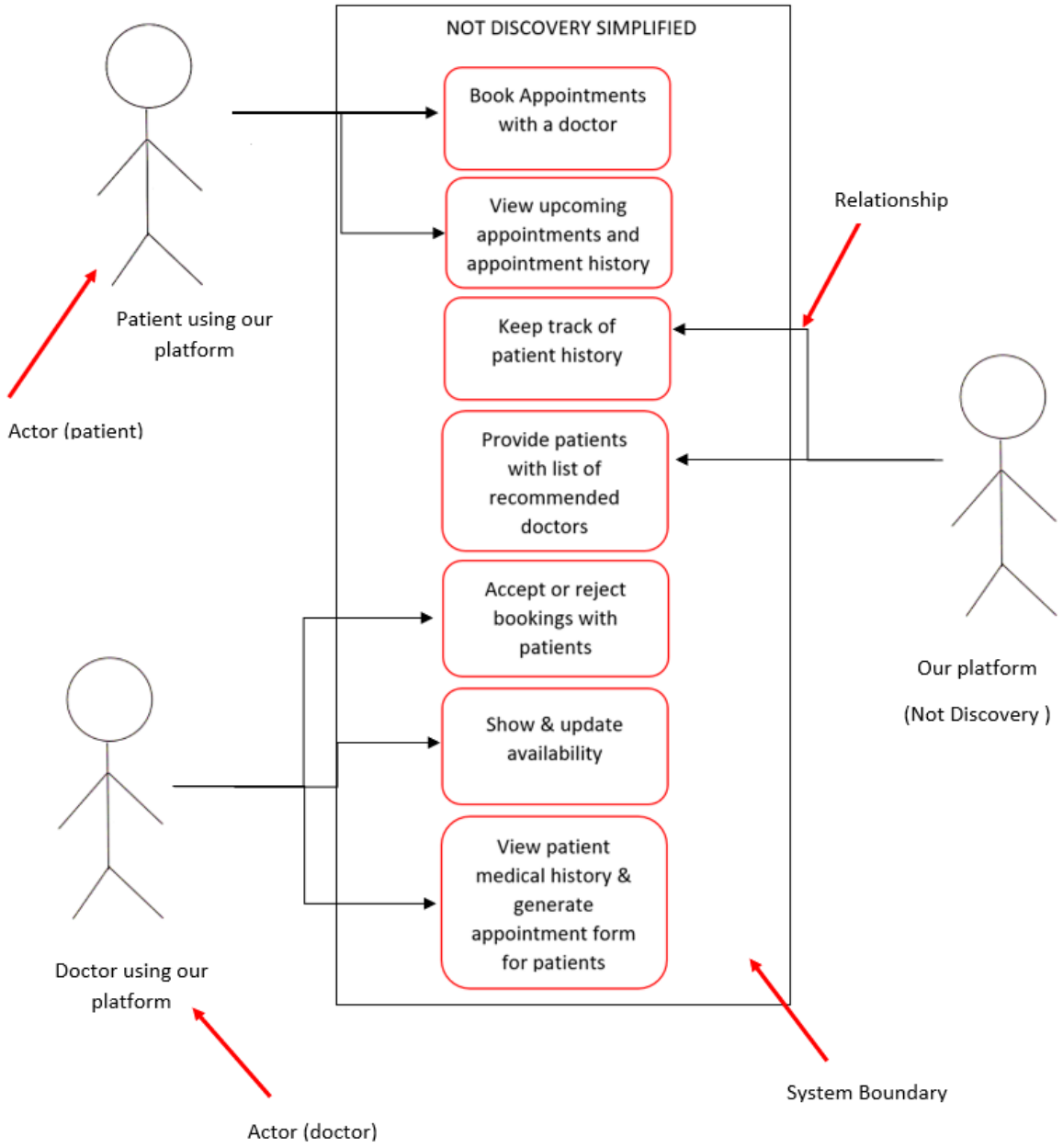


Figure - A user case diagram showing a simplified overview of Not Discovery

The figure above shows a user case diagram. In this diagram we can see the activities that a user (either a patient or doctor) using our system can perform. For a patient these activities include booking appointments, viewing appointment history, and viewing upcoming appointments. For a doctor these activities include accepting or rejecting appointments, showing availability, viewing patient history, and generating appointment forms after consulting with a patient. The diagram also shows the tasks and activities that the Not Discovery system can perform. These activities include keeping track of patient history and providing patients with a list of recommended doctors.

SPRINT 1

User Stories

1. User Login App
   As a user, I want to be able to login to the app with my email address / username and password so that I can use the app.

   This includes:
   - Creating the respective tables
   - Login with username and password
   - Incorrect username or password should deny access to the system
   - Password must be hashed for security purpose

2. User Login Website
   As a user, I want to be able to login to the website with my email address / username and password so that I can use the website.

   This includes:
   - Creating the respective tables
   - Login with username and password
   - Incorrect username or password should deny access to the system
   - Password must be hashed for security purpose

3. New User Registration App
   As a user, I want to be able to register with the app, so that I can use the app.

   This includes:
   - A registration for doctors and a registration for patients
   - Patients must provide their name, age, identification number, place of residence, email address, pre-existing conditions, and password
   - Doctors must provide their field of specialization, qualifications, years of experience, email address and password

4. New User Registration Website
   As a user, I want to be able to register on the website, so that I can use the website.

   This includes:
   - A registration for doctors and a registration for patients
   - Patients must provide their name, age, identification number, place of residence, email address, pre-existing conditions, and password
   - Doctors must provide their field of specialization, qualifications, years of experience, email address and password

5. Landing page / screen (one for the app and one for the website)
   As a user, after successfully logging-in I want to be directed to a "home" page so that I can start using the system for all my medical needs and appointments.

   - Note: The doctors landing page and patients User interface should not look the same. The patient should see his/ her last appointment with a doctor and a doctor should see his/her last appointment with a patient

6. Template form for a doctor to record information after / during a patient visit on App
   As a doctor, I want to be able to generate an appointment form for patients so that I can keep a record with all the important information from that appointment.

   This includes:
   - Name of patient
   - Date of visit
   - Notes from the appointment
   - Prescribed medication
   - Save button

7. Template form for a doctor to record information after / during a patient visit on Website
   As a doctor, I want to be able to generate an appointment form for patients so that I can keep a record with all the important information from that appointment.

   This includes:
   - Name of patient
   - Date of visit
   - Notes from the appointment
   - Prescribed medication
   - Save button

Acceptance Criteria

1. User Login App
   As a user, I want to be able to login to the app with my email address / username and password so that I can use the app.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I log onto the app with my respective email address / username, then I should be taken to the home screen off the app. When I type in the incorrect login details, then I should not be taken to the home screen of the app.
   - ✓ Given that I am a patient, when I log onto the app with my respective email address / username, then I should be taken to the home screen off the app. When I type in the incorrect login details, then I should not be taken to the home screen of the app.
   - ✓ Both the doctor and the patient will be required to login with their respective email address / username and password, if either of these credentials are incorrect the user will be denied access to the app.

2. User Login Website
   As a user, I want to be able to login to the website with my email address / username and password so that I can use the website.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I log onto the website with my respective email address / username, then I should be taken to the home page off the website. When I type in the incorrect login details, then I should not be taken to the home page of the website.
   - ✓ Given that I am a patient, when I log onto the website with my respective email address / username, then I should be taken to the home page off the website. When I type in the incorrect login details, then I should not be taken to the home page of the website.
   - ✓ Both the doctor and the patient will be required to login with their respective email address / username and password, if either of these credentials are incorrect the user will be denied access to the website.

3. New User Registration App
   As a user, I want to be able to register with the app, so that I can use the app.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I register on the app, then I should be able to fill out all the necessary information required before I can use the app.
   - ✓ Given that I am a patient, when I register on the app, then I should be able to fill out all the necessary information required before I can use the app.
   - ✓ Patient registration should include name, age, identification number, place of residence (some address field), email address, field for pre-existing medical conditions and password.
   - ✓ Doctor registration should include name, age, field of specialization (i.e., optometrist, dentist, surgeon, etc.), qualifications, years of experience, email address and password.

4. New User Registration Website
   As a user, I want to be able to register on the website, so that I can use the website.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I register on the website, then I should be able to fill out all the necessary information required before I can use the website.
   - ✓ Given that I am a patient, when I register on the website, then I should be able to fill out all the necessary information required before I can use the website.
   - ✓ Patient registration should include name, age, identification number, place of residence (some address field), email address, field for pre-existing medical conditions and password.
   - ✓ Doctor registration should include name, age, field of specialization (i.e., optometrist, dentist, surgeon, etc.), qualifications, years of experience, email address and password.

5. Landing page / screen (one for the app and one for the website)
   As a user, after successfully logging-in I want to be directed to a "home" page so that I can start using the system for all my medical needs and appointments.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I login successfully and see the home screen of the app, then I should be able to see my most recent patient form.
   - ✓ Given that I am a patient, when I login successfully and see the home screen of the app, then I should be able to see my most recent appointment with a doctor.
   - ✓ For now, this can be a template form / dummy form saved in the database.

- ✓ Details of the patient form should include patient name, date of visit, notes form the appointment and any prescribed medication.
- ✓ NOTE! Important to also save the relationships between patients and doctors in the database.

6. Template form for a doctor to record information after / during a patient visit on App
   As a doctor, I want to be able to generate an appointment form for patients so that I can keep a record with all the important information from that appointment.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I click to generate an appointment form, then I can record all the important information from that appointment.
   - ✓ For now, this can be a template form / dummy form saved in the database.
   - ✓ Details of the patient form should include patient name, date of visit, notes form the appointment and any prescribed medication as well as a save button so that the information can be stored in the database.
   - ✓ NOTE! Important to also save the relationships between patients and doctors in the database.

7. Template form for a doctor to record information after / during a patient visit on Website
   As a doctor, I want to be able to generate an appointment form for patients so that I can keep a record with all the important information from that appointment.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I click to generate an appointment form, then I can record all the important information from that appointment.
   - ✓ For now, this can be a template form / dummy form saved in the database.
   - ✓ Details of the patient form should include patient name, date of visit, notes form the appointment and any prescribed medication as well as a save button so that the information can be stored in the database.
   - ✓ NOTE! Important to also save the relationships between patients and doctors in the database.

SPRINT 2

User Stories

1. Bookings Form for Patient – App
   As a patient, I want to be able to make an appointment with a doctor of my choice so that a doctor can attend to all my medical needs / problems.

   This includes:
   - Creating the respective tables
   - Patient able to specify field of specialization they want the doctor to be in (e.g., dentist, surgeon, etc.)
   - Patient should see a calendar with highlighted days to show when the doctor is available for consultations (i.e., available to see patients)
   - When a patient clicks on an available date, a list of times should appear in either hourly or half hourly intervals.
   - Once a patient has booked an appointment, that specific slot should no longer be available on the doctor's side. Both the doctor and the patient should be notified.

2. Bookings Form for Patient – Website
   As a patient, I want to be able to make an appointment with a doctor of my choice so that a doctor can attend to all my medical needs / problems.

   This includes:
   - Creating the respective tables
   - Patient able to specify field of specialization they want the doctor to be in (e.g., dentist, surgeon, etc.)
   - Patient should see a calendar with highlighted days to show when the doctor is available for consultations (i.e., available to see patients)
   - When a patient clicks on an available date, a list of times should appear in either hourly or half hourly intervals.
   - Once a patient has booked an appointment, that specific slot should no longer be available on the doctor's side. Both the doctor and the patient should be notified.

3. Bookings / Availability for Doctors – App
   As a doctor, I want to be able to select my available days in a month so that I can see patients and help them to know when I am available for a consultation.

   This includes:
   - Storing information in respective tables
   - A doctor should be able to specify their availability to see patients in a month or they can select a date range so that patients know when they are available

- The doctor should then be able to specify the hours they are available for.
- The hours the doctor is available for should be specified by either half hour intervals or one-hour intervals
- Once this information has been saved (i.e., stored in the database) the patients should be able to see the doctor's availability.

4. Bookings / Availability for Doctors - Website
   As a doctor, I want to be able to select my available days in a month so that I can see patients and help them to know when I am available for a consultation.

   This includes:
   - Storing information in respective tables
   - A doctor should be able to specify their availability to see patients in a month or they can select a date range so that patients know when they are available
   - The doctor should then be able to specify the hours they are available for.
   - The hours the doctor is available for should be specified by either half hour intervals or one-hour intervals
   - Once this information has been saved (i.e., stored in the database) the patients should be able to see the doctor's availability.

Acceptance Criteria

1. Bookings Form for Patient – App
   As a patient, I want to be able to make an appointment with a doctor of my choice so that a doctor can attend to all my medical needs / problems.

   Acceptance Criteria:

   - ✓ Given that I am a patient, when I want to book for an appointment, then I should be able to enter a specific field (e.g., dentist, surgeon, etc.) and a list of relevant doctors should appear.
   - ✓ Given that I am a patient, when I select a certain doctor, then the doctors calendar should show up with available days (doctor is able to see a patient) in a month highlighted.
   - ✓ Given that I am a patient, when I click on an available date, then a list of corresponding time slots for the day (either in 1 hour or half an hour intervals) should appear.
   - ✓ Given that I am a patient, when I have booked an appointment, then the available slot should be removed from the doctor's calendar and the doctor should be notified.

2. Bookings Form for Patient – Website
   As a patient, I want to be able to make an appointment with a doctor of my choice so that a doctor can attend to all my medical needs / problems.

   Acceptance Criteria:

   - ✓ Given that I am a patient, when I want to book for an appointment, then I should be able to enter a specific field (e.g., dentist, surgeon, etc.) and a list of relevant doctors should appear.
   - ✓ Given that I am a patient, when I select a certain doctor, then the doctors calendar should show up with available days (doctor is able to see a patient) in a month highlighted.
   - ✓ Given that I am a patient, when I click on an available date, then a list of corresponding time slots for the day (either in 1 hour or half an hour intervals) should appear.
   - ✓ Given that I am a patient, when I have booked an appointment, then the available slot should be removed from the doctor's calendar and the doctor should be notified.

3. Bookings / Availability for Doctors – App
   As a doctor, I want to be able to select my available days in a month so that I can see patients and help them to know when I am available for a consultation.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I want to show my availability in a month, then I can select a date range to show when I am available.
   - ✓ Given that I am a doctor , when I specify the days, I am available in a week, then I should be able to specify the hours in a day that I am available.
   - ✓ Given that I am a doctor, when I specify the hours, I am available, then I should be able to specify if I am available in hourly or half hourly intervals.
   - ✓ Given that I am a doctor, when I specify my intervals and save everything, then my patients should be able to see my availability.

4. Bookings / Availability for Doctors - Website
   As a doctor, I want to be able to select my available days in a month so that I can see patients and help them to know when I am available for a consultation.

   Acceptance Criteria:

   - ✓ Given that I am a doctor, when I want to show my availability in a month, then I can select a date range to show when I am available.
   - ✓ Given that I am a doctor , when I specify the days, I am available in a week, then I should be able to specify the hours in a day that I am available.
   - ✓ Given that I am a doctor, when I specify the hours, I am available, then I should be able to specify if I am available in hourly or half hourly intervals.
   - ✓ Given that I am a doctor, when I specify my intervals and save everything, then my patients should be able to see my availability.