Group Project CS335

Individual Contributions

Introduction - Sophia
Task 1: User Stories (10 in total) –
Patients-Sophia
Physiotherapist-Cathal
Receptionist-Aisling
Task 2: UML Diagrams - Aisling
Task 3: UI Mock-up - Sophia
Task 4: System Tests – Cathal
Conclusion-Aisling

Introduction

In this project we will be decided to tackle the world of sports and fitness, we took an approach from the side of healthcare to cater to athletes and retired individuals who may need these services as well.
Our project focuses on creating a Physiotherapy Management System which should create easy and smooth interactions between our 3 users (Receptionists, Clients and Physiotherapists). The system we have designed breaks down the stressful process of booking appointments, communication between doctors and patients and many more issues that occur within the healthcare and fitness field alike.
For therapist we have designed a tool that provides them with the ability to monitor patients remotely, assign exercise programs and manage appointments too. Patients can use this tool to book appointments on the go, track their progress in their program and book consultations with their preferred method of contact. For receptionist this tool provides them with the ability to book appointment easily, check-in patients and manages bills too.
The goal of this project is to create a calming experience for all users and for the platform to be accessible, user-friendly and modern. This platform supports rehabilitation, makes the everyday tasks of the clinic easier and helps with the engagement of patients and their treatment plans.
We hope that the use of technology streamlines the daily operations of the clinic and creates a smooth experience that aims to support athletes and others to recover in comfort with better communication and faster operations with all the different users involved.

Task 1: User Stories

1.1) Patients

Booking appointment

I want to book my appointments online with an easy to navigate user face without the need to call the reception every time and view available slots.

Tracking Exercises

I want to be able to track the recommended exercises given to me by my doctor and videos with demonstrations on how to execute them at home.

Notification

I would like reminders a day in advance for my next/ upcoming appointments along with reminders to do my exercises at the same time daily.

Online Consultation

I would like to be able to catch with my doctor online and get advice and feedback from my doctor from the comfort of my home.

1.2) Physiotherapist

Progression

As a physiotherapist, I want to be able to record and review the patients progress after each session so that I can monitor their improvement and adjust treatment plans accordingly.

Assign Programs

As a physiotherapist, I want to be able to assign home exercise programs and track their progression so that my patients can recover faster outside the clinic.

Manage Appointments

As a physiotherapist, I want to be able to view and modify my appointments for the week so that I can efficiently manage my workload and plan my day accordingly.

1.3) Receptionist

Booking An Appointment

In the role of the receptionist, I want to be able to manage bookings of patients over the phone or in person through the clinics accessible and up to date booking system.

Checking in Patient

In the role of the receptionist, I want to be able to easily access the daily schedule of the clinic, to arrive a patient for their appointment, confirming details, without delay. These systems also being accessible for the physiotherapists, keeping them up to date of when patients have arrived. The system should allow me to access the patient of the booked appointments documents, so that I can give any necessary forms to the patient to fill out as they wait. Keeping the clinic running smoothly and avoiding long wait times.

Handling Patients Billings/Payments

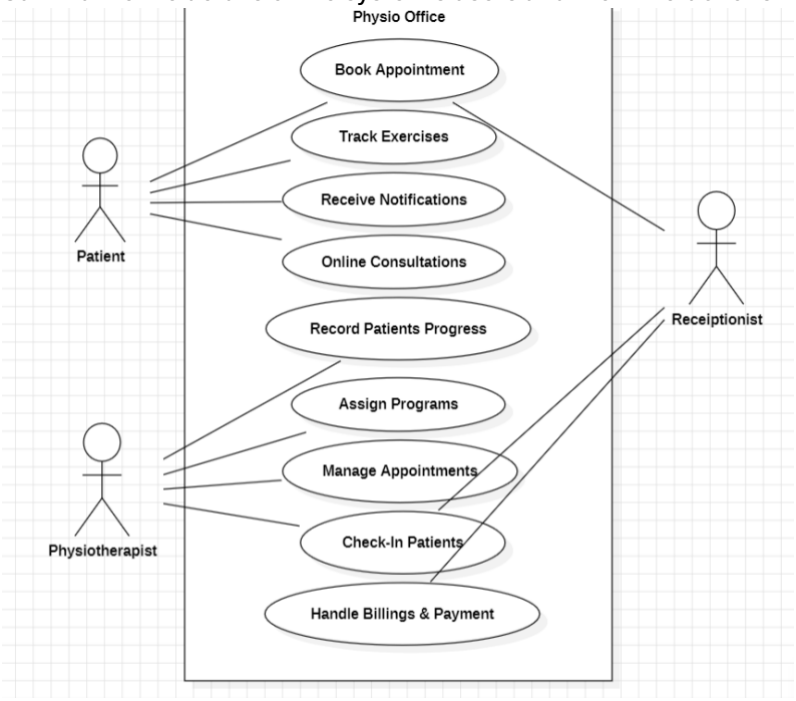
In the role of the receptionist, I want to be able to take payment from a patient once the appointment is over by retrieving a patient's billing details off the system. To then update the system to reflect the payment status of the patient.

Task 2: UML Diagrams

This is the section of our project where we have translated the ten user stories that we have created as a group to formal models and diagrams, that will help us with the testing at a later stage.

2.1) Use Case Diagram

Summarize the details of the system's users and their interactions with the system.

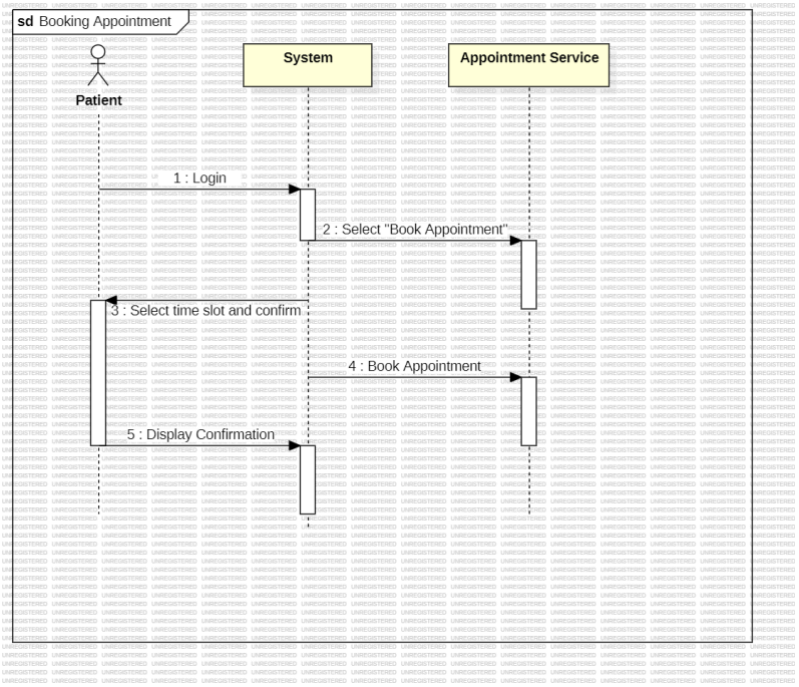


In figure 2.1, we can see a clearly the roles of each of the users involved in the case study of the physiotherapist's office. Both patient and Physio having the same number of tasks and the receptionist with one less.

Figure 2.1

2.2) Sequence Diagrams

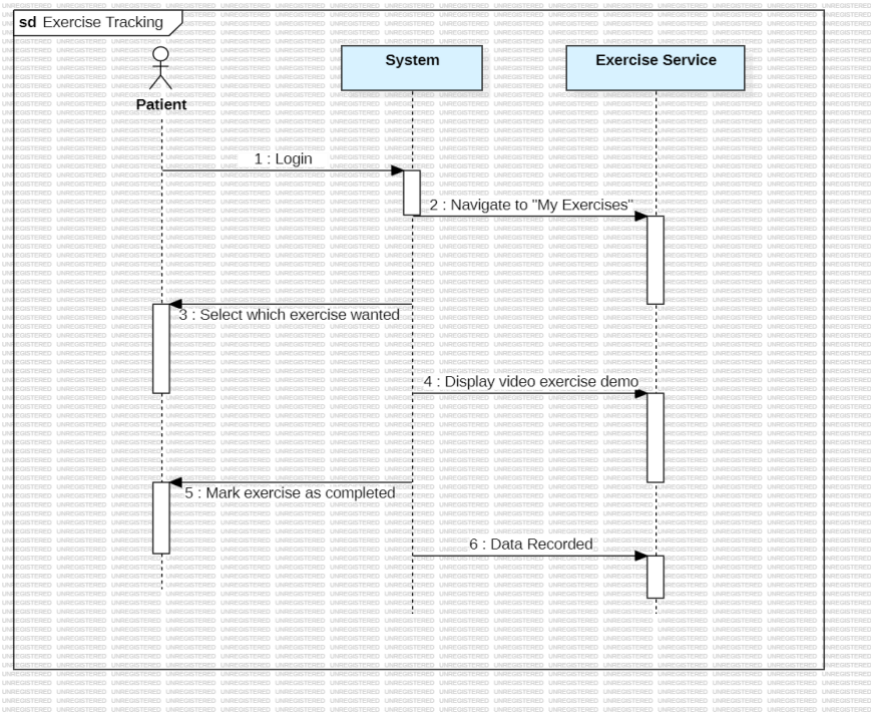
Booking an appointment



In figure 2.2, outlines the patient using the booking interface that communications with the appointment services to allow the patient to book in an appointment themselves at the time that suits them best from an array of availability.

Figure 2.2

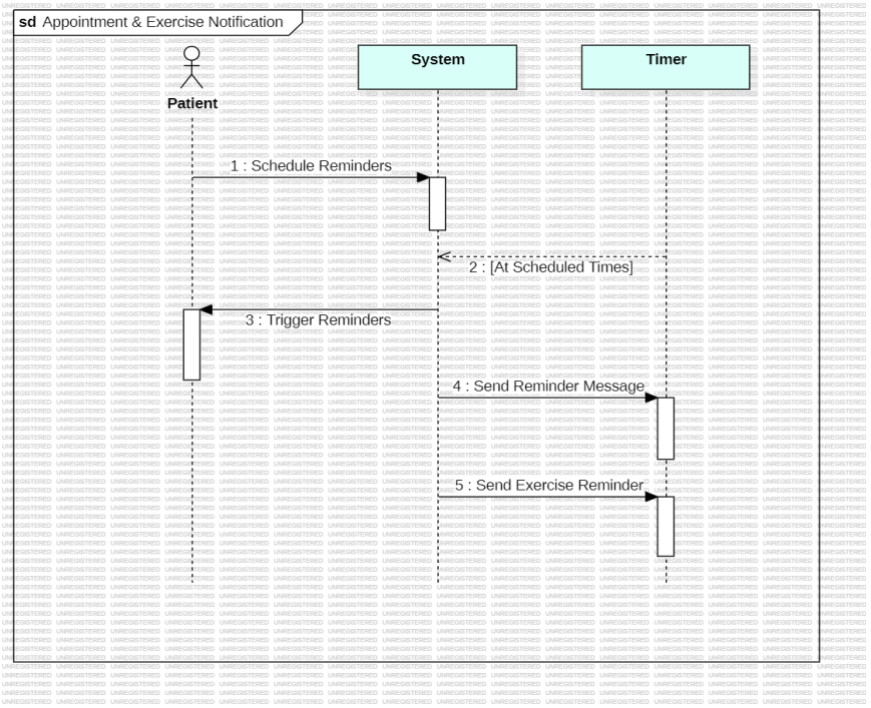
Tracking Exercises



In figure 2.3, shows a Patient logging in, selecting an exercise from "My Exercises," viewing a demo video via the Exercise Service, and marking the exercise as completed, after which the completion data is recorded.

Figure 2.3

Appointment and Exercise Notification

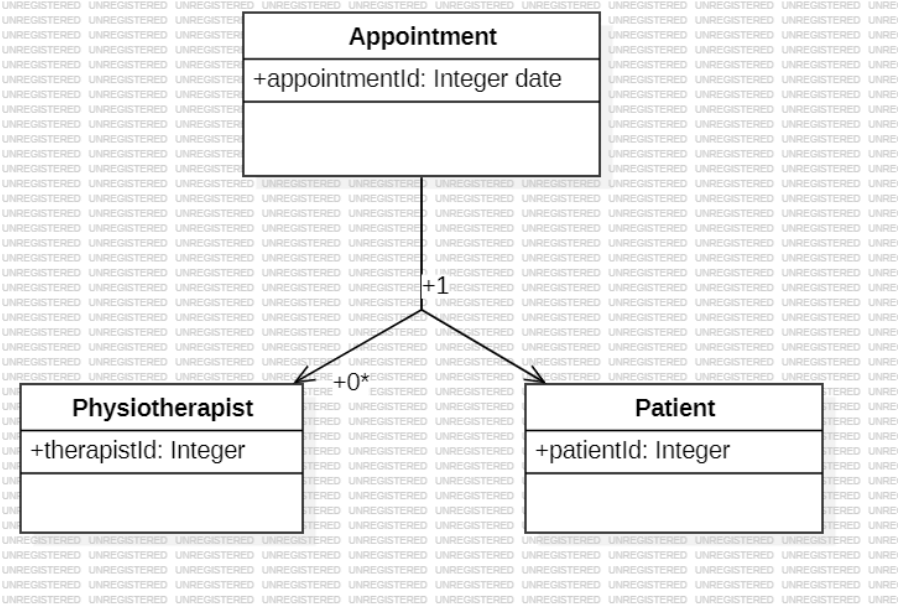


In figure 2.4, shows how a Patient schedules reminders, the System uses a Timer to trigger them at the right time, and then sends both appointment and exercise reminder messages back to the patient.

Figure 2.4

2.3) Class Diagrams

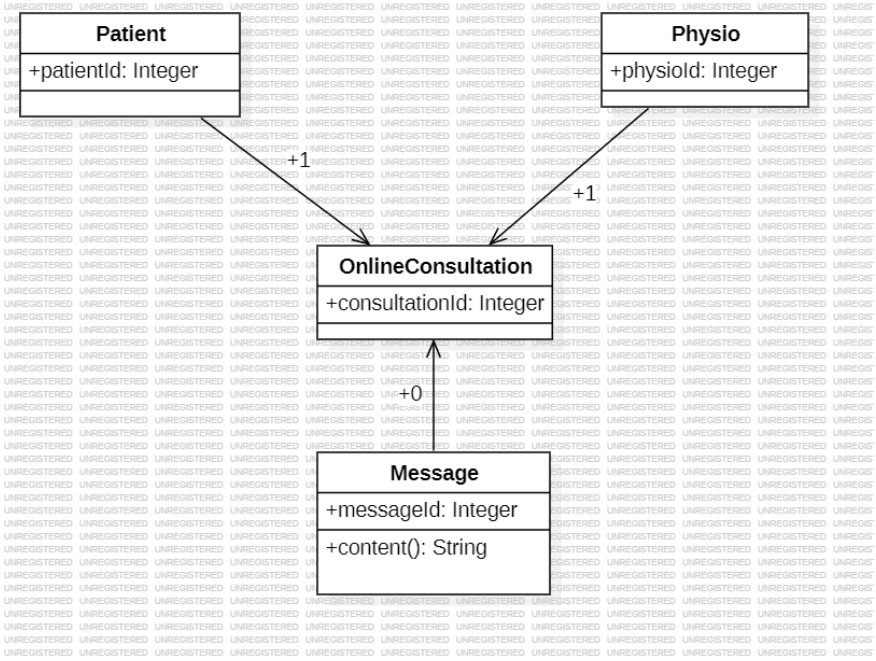
Manage appointments



In figure 2.5, where an Appointment must involve exactly one Patient and may optionally involve a Physiotherapist. Each entity is identified by a unique ID.

Figure 2.5

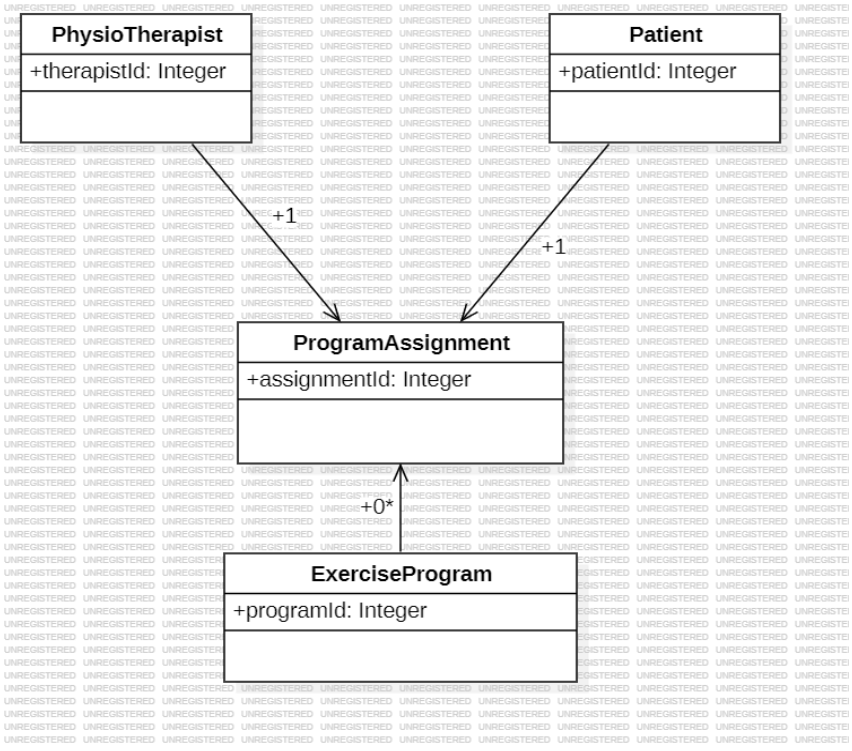
Online Consultation



In figure 2.6, represents how a patient and a physiotherapist engage in an online consultation, which can include multiple messages exchanged during the session.

Figure 2.6

Assign Programs



In figure 2.7, shows how a physiotherapist assigns an exercise program to a patient through a program assignment, linking therapy tasks to individual patients.

Figure 2.7

Progress

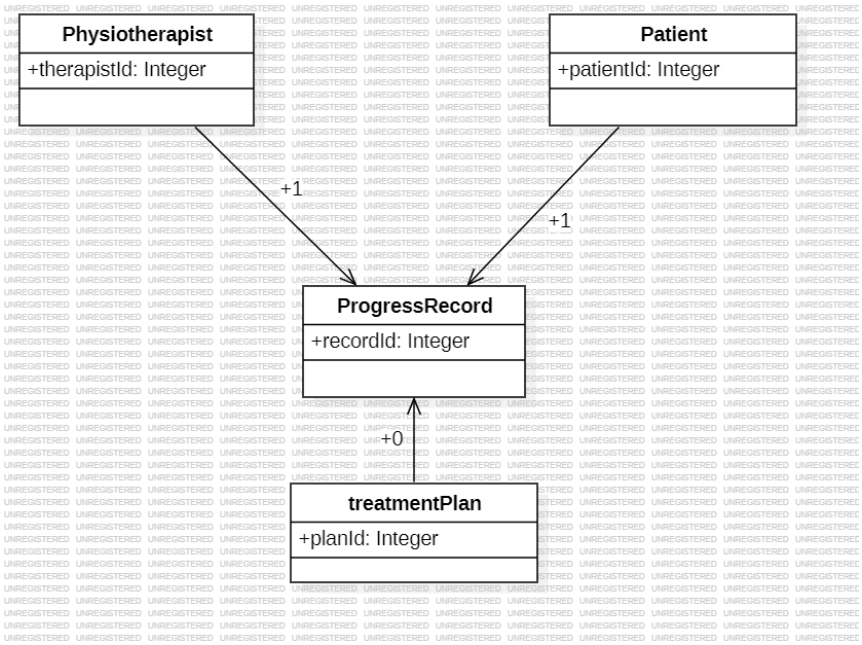
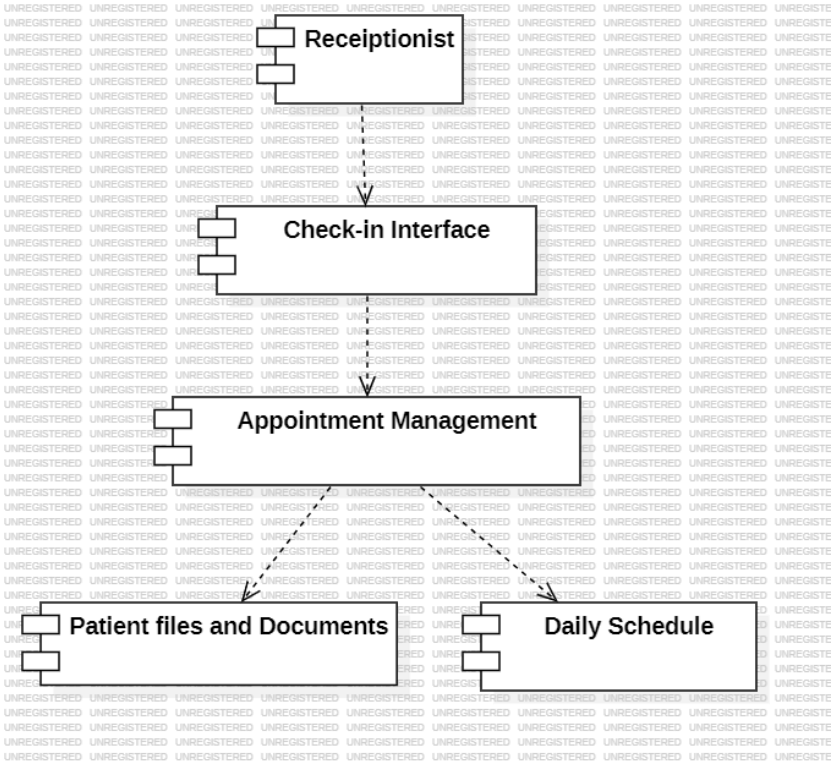


Figure 2.8

In figure 2.8, shows a class diagram of how a physiotherapist and a patient are linked through a progress record, which can optionally reference a treatment plan for tracking ongoing therapy.

2.4) Architecture Diagram

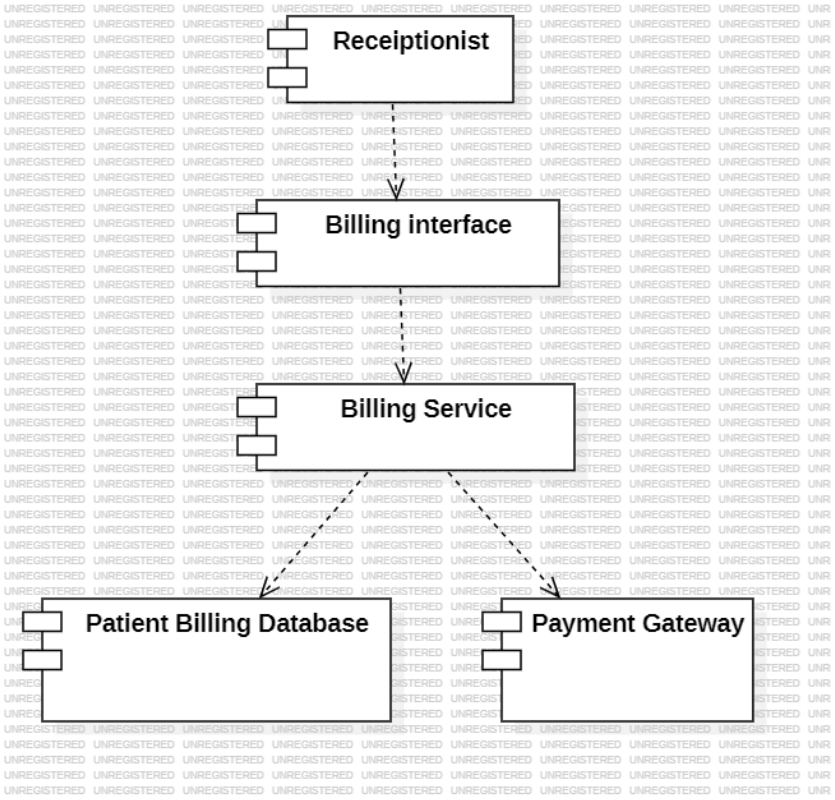
Check-in a Patient



In figure 2.9, shows how the receptionist accesses the check-in interface to update appointment statuses, retrieve patient documents, and maintain the clinic's daily schedule in real-time.

Figure 2.9

Billing services



In figure 2.10, shows how the receptionist processes payments through a billing interface that connects to the billing service, patient billing database, and external payment gateways.

Figure 2.10

Task 3: MoveWell UI Mock-up

3.1) Overall Interface

Overall Interface

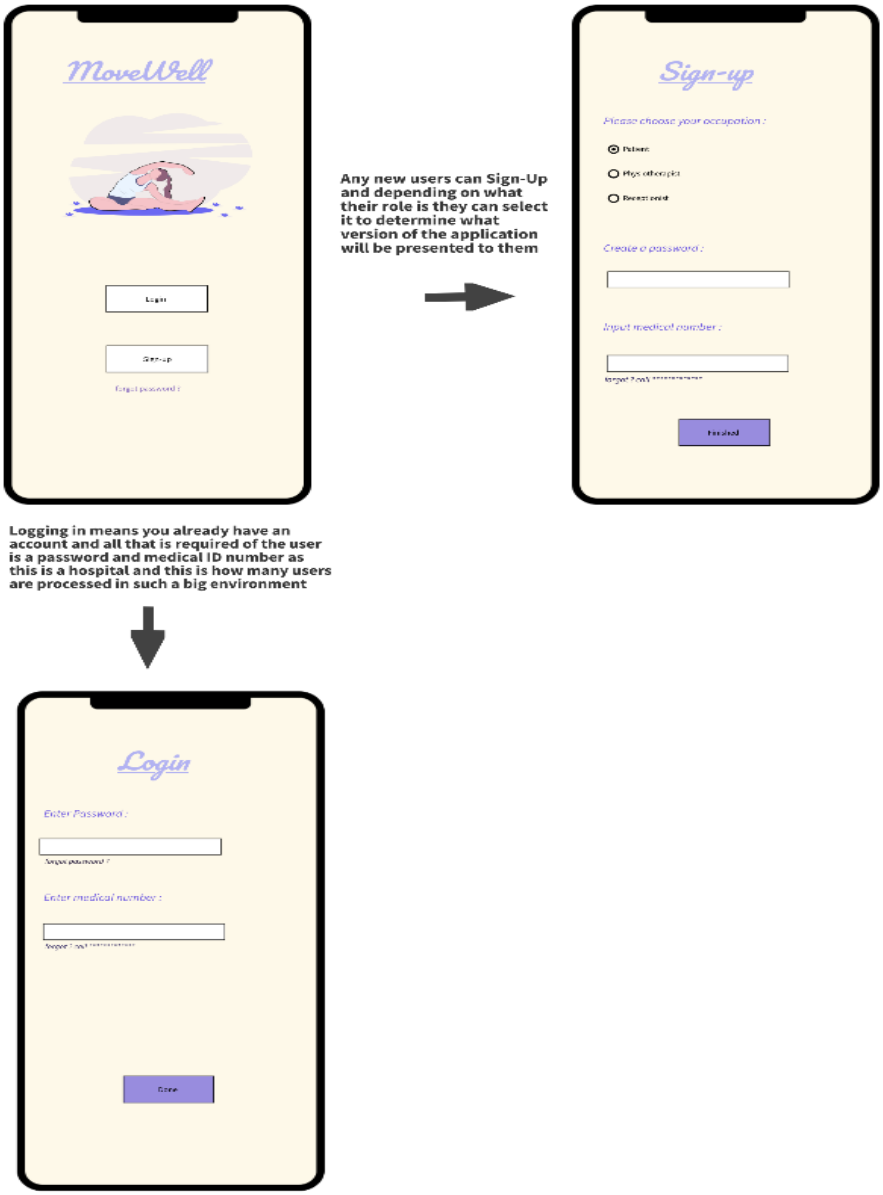


Figure 3.1

In the interface of this mock-up users can choose what role they take in the hospital which ultimately deicides what version of the app they end up on.
The information needed to sign up is also minimal and doesn't require a lot of time making it a smooth and quick process.
Even though users don't need to input information like email and phone number they can still recover their information by clicking forgot password which will prompt the receptionist to send the information needed to renew or if they forget their medical id number there is a number linked for them to call.

3.2) Receptionist UI

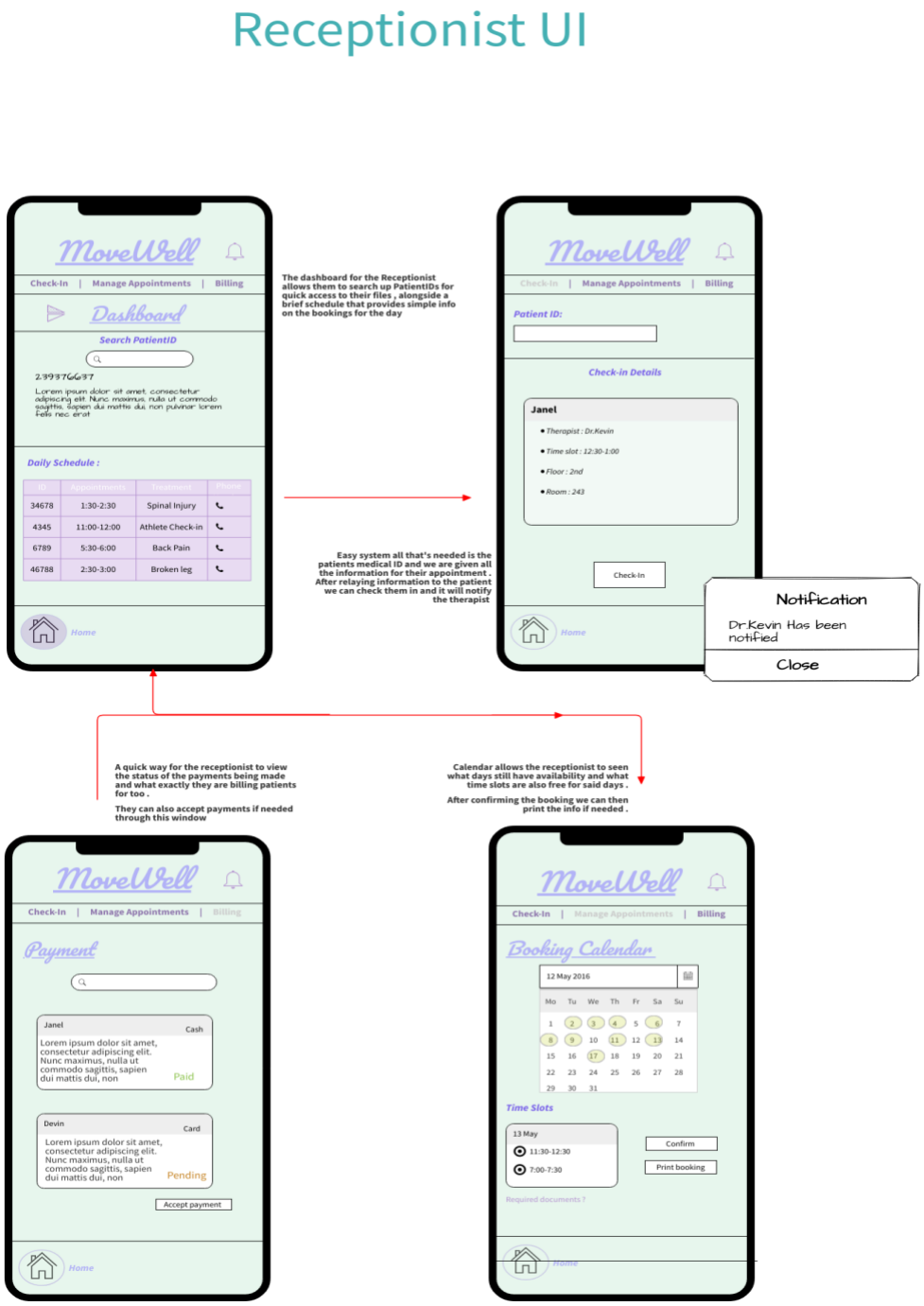


Figure 3.2

Key Features:

- **Dashboard:** This feature allows the receptionist to search up patientID easily for access to patient information and a briefing of the patients coming in that day too
- **Check-in System:** Updates in real time and provides information for patients stay with minimal information needed.
- **Appointment Management: Shows** days and times that still have availability to help patients create new bookings. Also has an option to print out booking information for patients if needed.

- **Billing and payments**: Displays patients billing information (what services were used etc.), method of payment and whether they have completed payments or not. If the patient is pending payment the receptionist will have the option to accept payment too

Design focus: Quick and easy, real-time updates for smooth and simple operations.

3.3) Physiotherapist UI

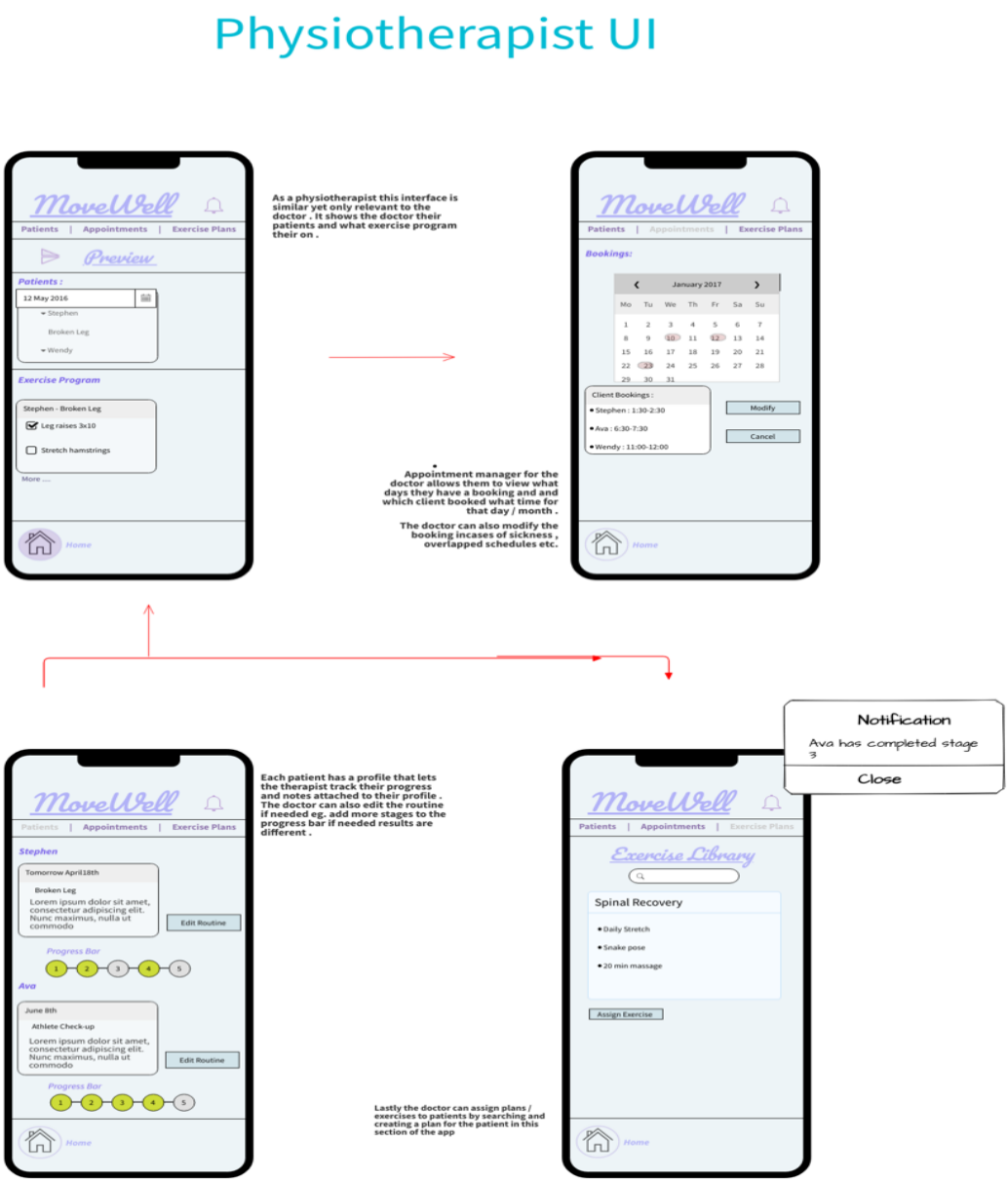


Figure 3.3

Key Features:

- **Preview Page:** Allows the physiotherapist a simplified view into the patients scheduled for that day and the programs that said patients are on
- **Tracking patients' progress:** Store information on the patient's treatment and allows for real time tracking of their progress.

- **Assigning Exercises remotely:** Doctors can easily assign patients to exercise programs using an online library.
- **Managing Appointments: Allows** doctor to view the bookings for that month/day and what times patients are coming in for. They can also modify bookings here if needed.
- **Check-in Notifications:** Alerts doctor on patients progresses and when they have checked in for a session.

Design focus: Data visibility, gulf of evaluation and role efficiency.

3.4) <u>Patient UI</u>

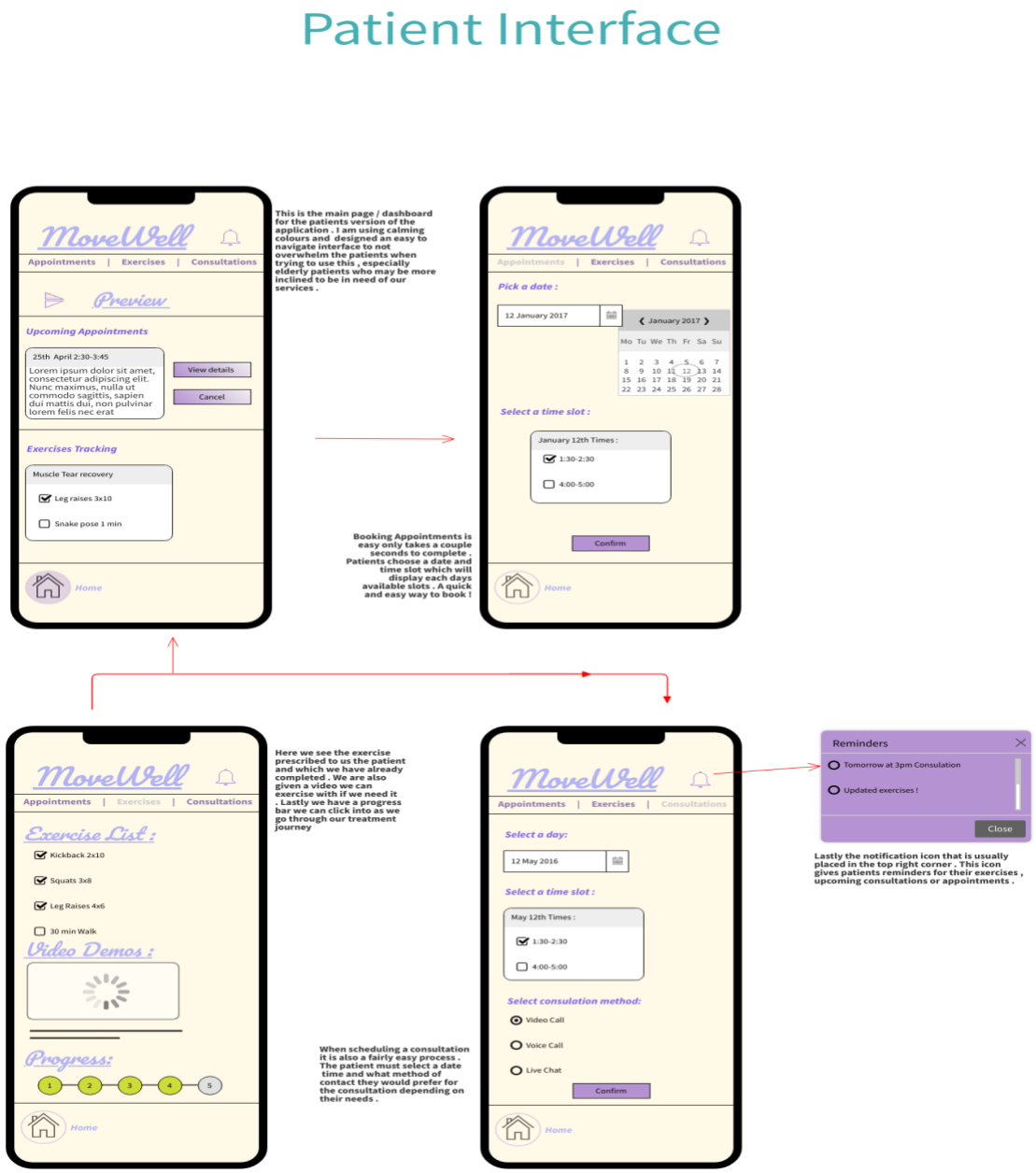


Figure 3.4

Key Features:

- **Easy to book appointments:** Select a date, free time slot, and confirm booking.

- **Exercise Tracker:** Displays prescribed routines, video demos and progress bar for treatment.
- **Customized Consultations:** Easy and quick access to pick what method of communication your consultation will be in
- **Notification**: Reminders about appointments and exercise etc.
- **Clean Layout:** Easy to navigate through the app and visually calming due to the colours used.

Design focus - Gulf of Execution, visual guidance, consistency.

Task 4: System Tests

4.1) Patient

Booking an appointment

Scenario	Test inputs	Expected outcomes
Booking an appointment through the system	• Login: example@gmail.com / password123 • Select "Appointments" • Select "Book appointment" • Select Monday 12th May 10:30 a.m.	• Receive confirmation: "Your appointment is booked for Monday 12th May at 10:30 a.m."

Tracking exercises

Scenario	Test inputs	Expected outcomes
Patient tracking and completing exercises	• Login: johndoe@gmail.com / password12345 • Select "Exercises" • Select "Hamstring Stretch Routine" video • Mark exercise as complete	• "Hamstring Stretch Routine" video is displayed • System records exercise as complete

Appointment and exercise notification

Scenario	Test inputs	Expected outcome
System sends reminders for appointments and assigned exercises	• Schedule reminder for appointment on Monday 12th May 10:30 a.m. • Schedule reminder for exercise at 6:00 pm	• System sends a timely reminder for each event. • Patient receives both reminders

Online consultation

Scenario	Test inputs	Expected outcome

Patient initiates an online consultation	• Login: example@gmail.com / password123 • Select “Consultations” • Select consultation method	• Online session starts successfully with the desired consultation method

4.2) <u>Physiotherapist</u>

Record Progression

Scenario	Test inputs	Expected outcome
Physiotherapist records patients’ progression	• Login as physiotherapist • Select “Patients” • Enter notes for desired patient	• Progress notes are saved correctly

Assign home exercise program

Scenario	Test inputs	Expected outcome
Physiotherapist assigns home exercises programs to patient	• Login • Select “Exercise Plans” • Select desired exercise plan and press “Assign Exercise” • Select patient	• The selected patient is assigned the selected exercise plan • Patient can view the assigned plan

Manage appointments

Scenario	Test inputs	Expected outcome
Physiotherapist manages appointments	• Login • Select “Appointments” • Select “Modify” and modify the time for an upcoming patient	• Appointment schedule changes • Changes are reflected for both patient and physiotherapist

4.3) <u>Receptionist</u>

Booking an appointment

Scenario	Test inputs	Expected outcome
Receptionist books appointment for patient	• Login as receptionist • Select “Manage Appointments” • Select a time and date	• Appointment is recorded in the calendar

	• Enter patient name and details	• Confirmation of booking is displayed and stored in system • Patient receives confirmation of booking

Checking in patient

Scenario	Test inputs	Expected outcome
Receptionist checks in patient for appointment	• Login • Select "Check-In" • Enter Patient ID and select "Check-In" button	• Patient is marked as "Arrived" • Physiotherapist receives notification to say the patient has arrived

Handling patients' payment

Scenario	Test inputs	Expected outcome
Receptionist handles the patients' payment/billing	• Login • Select "Billing" • Patient enters bank details/pays cash • Receptionist selects "Accept payment"	• Patients name and payment details appear on the interface • Payment status changes from "Pending" to "Paid"

Conclusion:

In conclusion, after completing our project of creating a physiotherapy 'MoveWell' management system we are delighted to announce that our system truly sets out for what we aimed to do. We have taken the stressful management tasks, of running a business, providing the services for the needs of the patients and made it a whole lot easier.

This result was brought to life by breaking down for each of our users what tools would be needed to allow for a fully functioning, smooth, experience. Combining these tools together to build our platform, making sure each potential stories had the resources it needs. All while keeping in mind the goal, we had set from the start of making sure everything is easy to use, relieving stress from the clinic and any patient who visits.

Our understanding of the work done day in, day out in physio clinic has grown while working on this project. Therefore, we wanted the importance of having the technology to do this kind of work at ease to grown with it. This is what 'MoveWell' is all about.