User Guide for SFWRENG 4G06A

Team #25, RapidCare
Pranav Kalsi
Gurleen Rahi
Inreet Kaur
Moamen Ahmed

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Revision History

Date	Version	Notes
04-11-2024	1.0	Initial Version
27-03-2025	1.1	Updates based on user feedback

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1 Introduction

1.1 Purpose

This document serves as the user guide for RapidCare, an Electronic Healthcare Record system designed to streamline patient record management and medical operations. RapidCare addresses the growing shortage of family doctors in Ontario and the resulting strain on emergency rooms by reducing documentation overhead, thus allowing healthcare professionals to focus more on patient care.

1.2 Scope

The guide covers installation, setup, and usage of both client and server components of RapidCare. It details the process of patient documentation, voice dictation for medical notes, automated diagnosis and medicine suggestions, and healthcare network management.

1.3 Overview

The system consists of:

- Frontend ReactJS.
- Python microservices.
- Firebase for db and auth.

RapidCare is built to tackle documentation overhead, which currently consumes a significant portion of healthcare professionals' time. By using dictation and AI-assisted documentation, the system aims to reduce paperwork time, increase patient throughput, and improve overall care quality.

2 Installation

To set up the system, follow these steps:

2.1 Frontend Setup

1. Navigate to the frontend directory.
2. Install dependencies with legacy peer dependencies support:

```
npm install --legacy-peer-deps
```

3. Start the React application:

```
npm start
```

2.2 Backend Services Setup

For each Python service in the project:

1. Navigate to the service directory.
2. Install required Python packages:

```
pip install -r requirements.txt
```

3. Start the service:

```
python app.py
```

2.3 Environment Configuration

1. Create a new file named `.env` in the project root directory (`src`).
2. Add the OpenAI API key configuration:

```
OPENAI_API_KEY=<your-key>
```

3 Usage

3.1 Client Interface

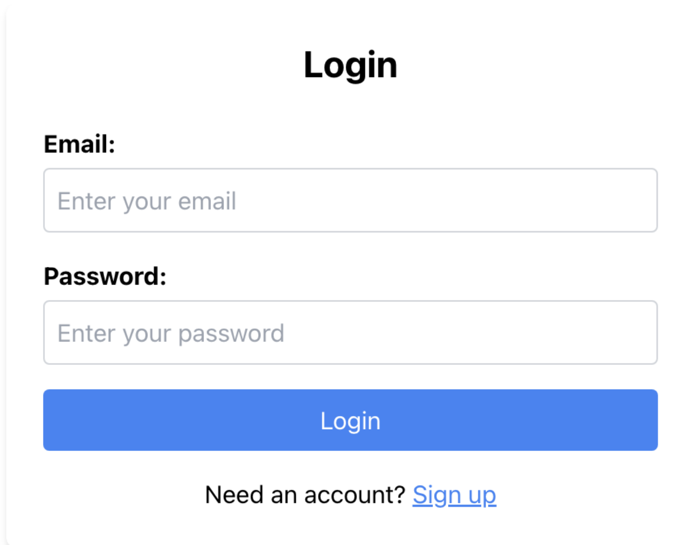

Figure 1: Login Screen Interface

3.1.1 Logging In

- Enter admin/admin-provided credentials.
- Click the ”Login” button to access your dashboard.
- Based on your role, you will be directed to the appropriate interface.

The system will redirect you to different interfaces based on your selected role:

- **Admin**: Directs to the administration dashboard with system-wide management tools.
- **Healthcare Professionals**: Directs to the healthcare professional dashboard with recent stats and list of upcoming appointments.

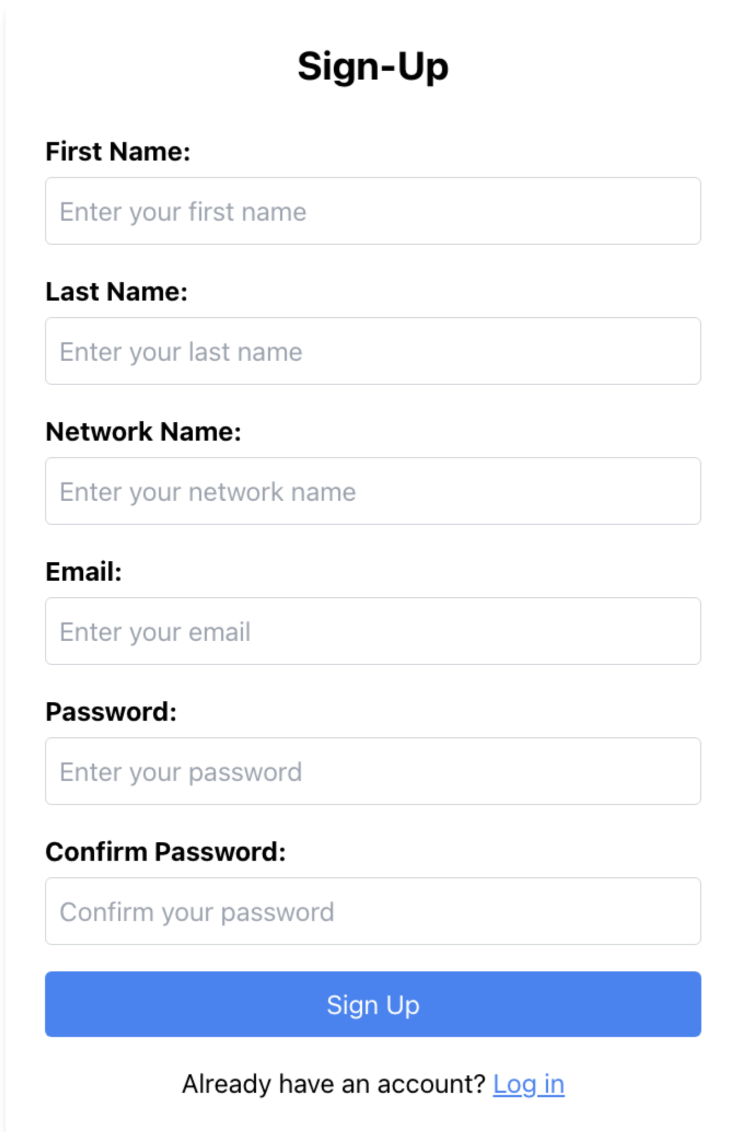

Figure 2: Admin Registration Interface

3.1.2 Admin Registration

- Complete the sign-up form with required admin information.

- Include network administrator credentials.
- Click "Sign Up" for administrative access.
- You will be redirected to the login page, where you can log in with your credentials.

3.1.3 Administration Dashboard

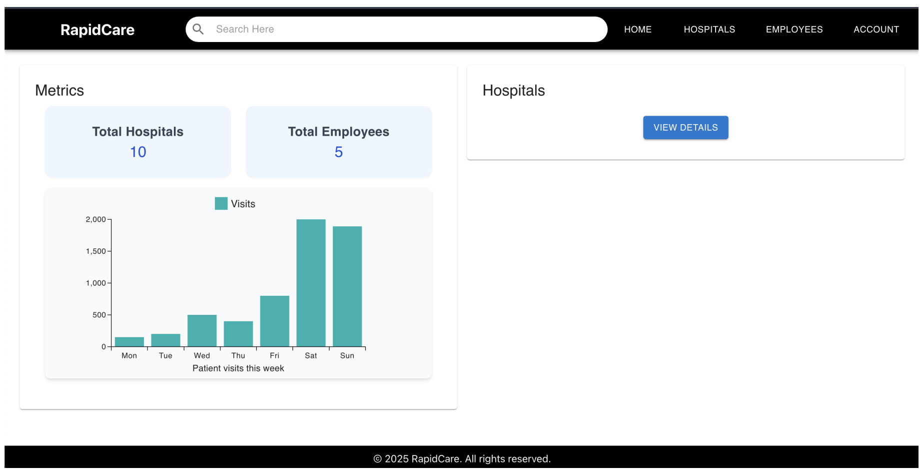

Figure 3: Administrator Main Dashboard Interface

The Administration Dashboard provides a comprehensive overview of network management and statistics, including:

- Account management tools.
- Employee management tools.
- Hospital management tools.

3.1.4 Healthcare Professional Dashboard

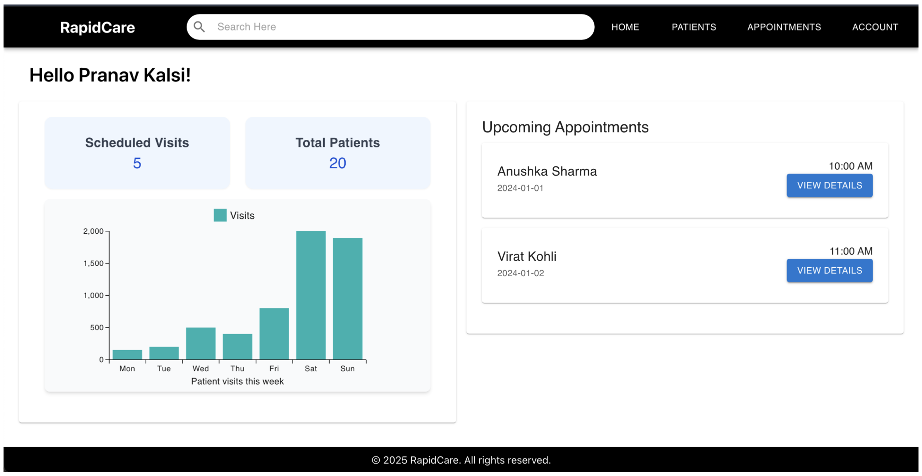

Figure 4: Healthcare Professional Dashboard Interface

The Healthcare Professional Dashboard provides an intuitive interface for managing patient care, including:

- Daily appointment schedule overview.
- Patient visit statistics and trends.
- Quick access to patient records.
- Appointment management tools.
- Account management tools.

3.1.5 Patient Management

Action	Steps
View Patients	Navigate to the "Patients" tab on the navbar.

Add Patient	Navigate to the "Patients" tab on the navbar. Click "+ Add Patient". Complete the form and hit the "Create Patient" button to create a new record.
View Records	Search for a patient record and click on the "View Record" button.
Edit Information	Search for a patient record and click on the "View Record" button. Click on the "Edit" button for a particular tab. The edit modal will open up. Make changes and hit the "Save" button.
Remove Patient	Search for a patient record and click on the "Delete Profile" button. Confirm deletion when prompted.

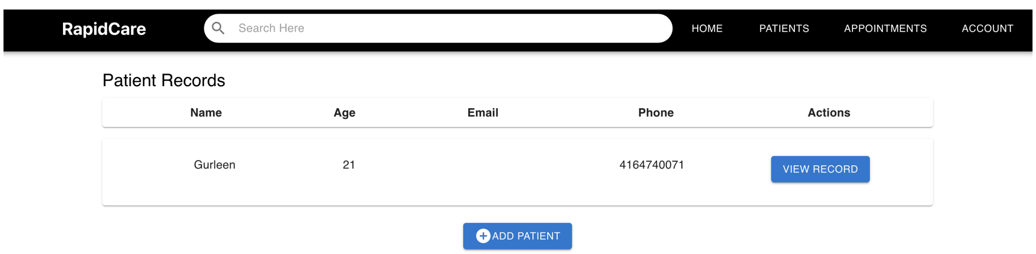

Figure 5: Patient List

3.1.6 Patient Record Tabs

Once inside a patient's record, you will find several tabs on the left sidebar. Each tab serves a specific purpose in organizing and managing patient data:

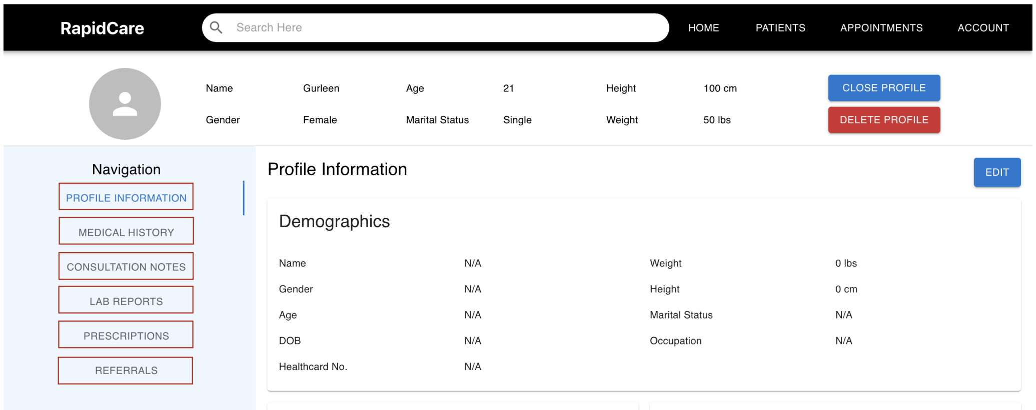

Figure 6: Patient Record Tabs

- **Profile Information** – Displays the patient's personal details (e.g., name, age, contact info). Click "Edit" to update any field.
- **Medical History** – Shows medical history, allergies, family history, and current medication. Editable via the "Edit" button.
- **Consultation Notes** – Used to add SOAP notes for each consultation. Click "Add New" to open the voice-enabled SOAP note interface.
- **Lab Reports** – Upload and view lab documents. Use the "Add New" button to upload a new report.
- **Prescriptions** – Manage prescription plans. Click "Add New" to generate a medication plan for the patient.
- **Referrals** – Create and view referrals to other services or specialists (e.g., blood test, ultrasound). Click "Add New" and select the referral type from the drop-down.

Each tab is designed to streamline the documentation process and ensure structured, accessible patient data.

3.2 Add a SOAP Note

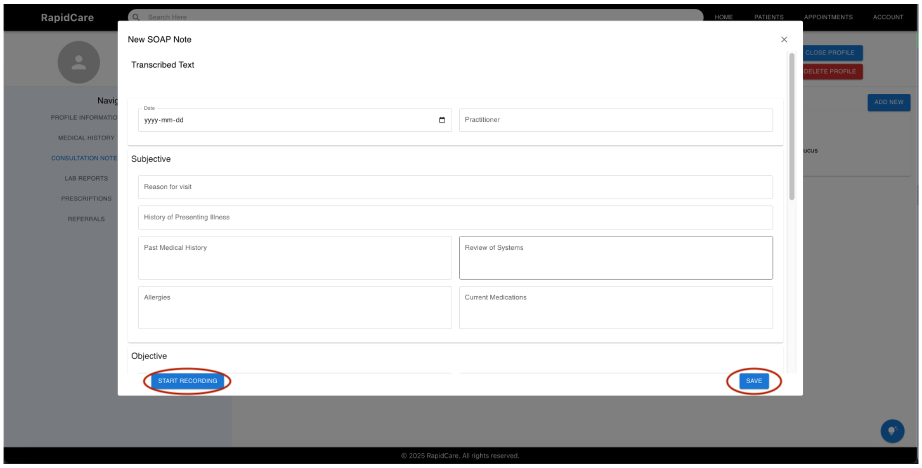

Figure 7: SOAP Note

RapidCare provides an end-to-end smart documentation flow under the **Consultation Notes** tab, allowing healthcare professionals to streamline SOAP note creation with AI-powered tools. Here's how the process works:

1. Log in as a healthcare professional and navigate to the **Patients** tab on the navigation bar.

2. Search for and select the patient by clicking **View Record**.

3. Inside the patient's record, open the **Consultation Notes** tab from the sidebar.

4. Click **Add New** to initiate a SOAP note. A structured pop-up will appear.

5. Press **Start Recording** to begin capturing the patient-provider conversation.

6. After the consultation, click **Stop Recording**. The voice-to-text microservice transcribes the recorded audio in real time.

7. Simultaneously, the **Text Classification** microservice processes the transcription:

   - It identifies symptoms, conditions, and medical terminology.

- Extracts key medical entities and organizes them into structured SOAP sections.

8. The transcribed text is then passed to the **Diagnosis and Treatment Plan Service**, which:
    - Suggests possible diagnoses based on the symptoms mentioned.
    - Recommends a treatment plan, including medications and next steps.
9. The healthcare professional can review and modify any part of the classified text, diagnosis, or treatment plan.
10. Once satisfied, click **Save** to finalize and store the SOAP note in the patient's chart.

This automated workflow significantly reduces manual input, improves accuracy, and accelerates clinical documentation.

3.3 AI Assist Tool

The AI Assist feature empowers healthcare professionals to quickly gather relevant insights:

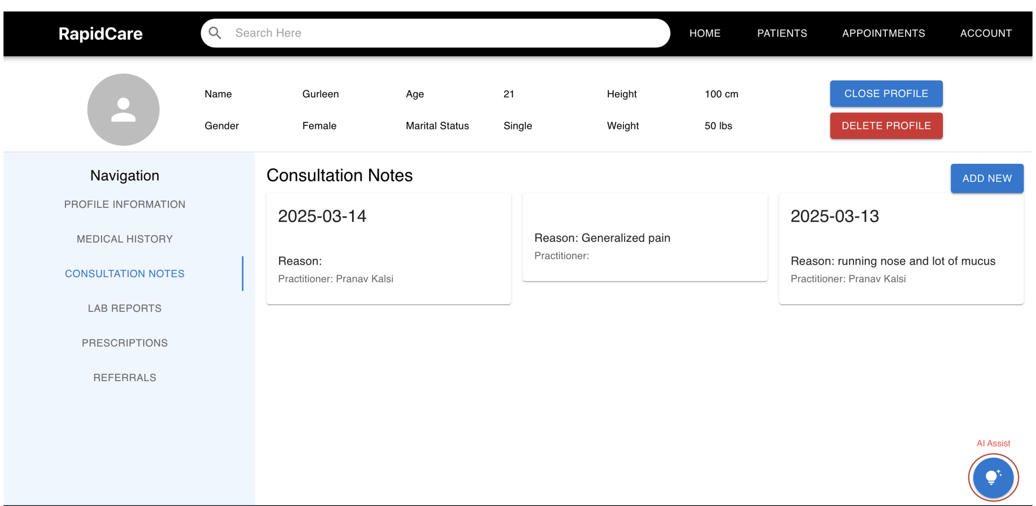

Figure 8: AI Assist Tool

1. View the patient's records to access their information.

2. Click the "AI Assist" button to initiate the query.
3. Ask any question related to the patient's data.
4. The AI will rapidly analyze the data and provide a concise response.
5. Review the AI-generated response and incorporate it into the clinical decision-making process.
6. Click the "X" button to exit the AI Assist panel.

AI Assist enhances the decision-making process by surfacing relevant insights without requiring manual review of lengthy records.

3.4 Managing Hospitals

For hospital administrators:

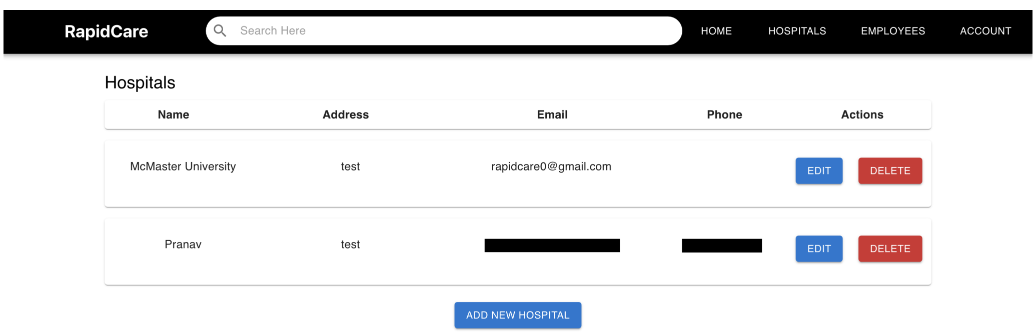

Figure 9: Hospital Management Interface

3.4.1 Adding a Hospital

1. Log in with administrator credentials.
2. Navigate to "Hospitals".
3. Click "Add New Hospital".
4. Complete all required fields.
5. Click "Save" to add the hospital.

3.4.2 Updating Hospital Information

1. Navigate to "Hospitals".
2. Select the hospital to update.
3. Click the "Edit" button.
4. Edit the necessary fields.
5. Click "Save" to save changes.

3.4.3 Removing a Hospital

1. Navigate to "Hospitals".
2. Select the hospital to remove.
3. Click the "Delete" button.
4. Confirm the deletion when prompted.

3.5 Managing Healthcare Professionals

For hospital administrators:

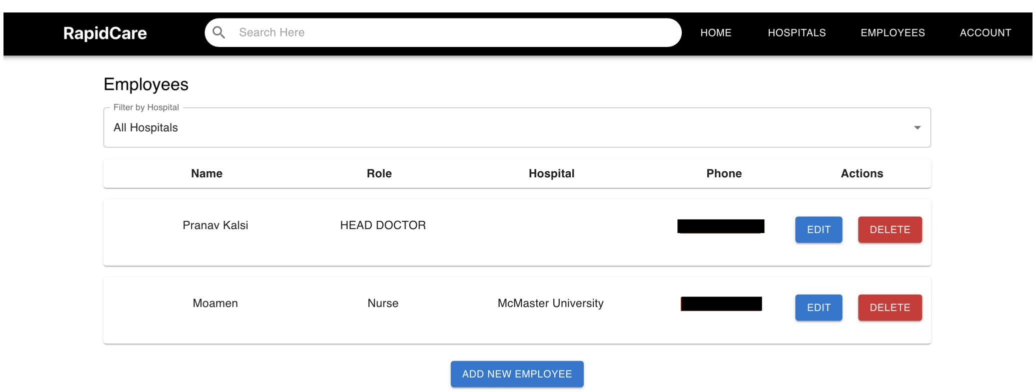

Figure 10: Employee Management Interface

3.5.1 Adding Healthcare Professionals

1. Navigate to "Employees".
2. Click "Add New Employee".
3. Complete all required fields.
4. Set up initial credentials.
5. Click "Save" to add the professional.

3.5.2 Filtering Employees by Hospital

1. Navigate to "Employees".
2. Click on the drop-down labeled "Filter by Hospital".
3. Select a hospital from the list.
4. The employee list will automatically update to display only employees associated with the selected hospital.
5. To reset the view, select "All Hospitals" from the drop-down.

3.5.3 Updating Employee Information

1. Navigate to "Employees".
2. Select the employee to modify.
3. Click the "Edit" button.
4. Edit the necessary information.
5. Click "Save" to save changes.

3.5.4 Removing an Employee

1. Navigate to "Employees".
2. Search for the employee.
3. Select the employee to remove.

4. Click the "Delete" button.
5. Confirm the deletion when prompted.

3.6 Manage Administrator Network Account

For hospital administrators:

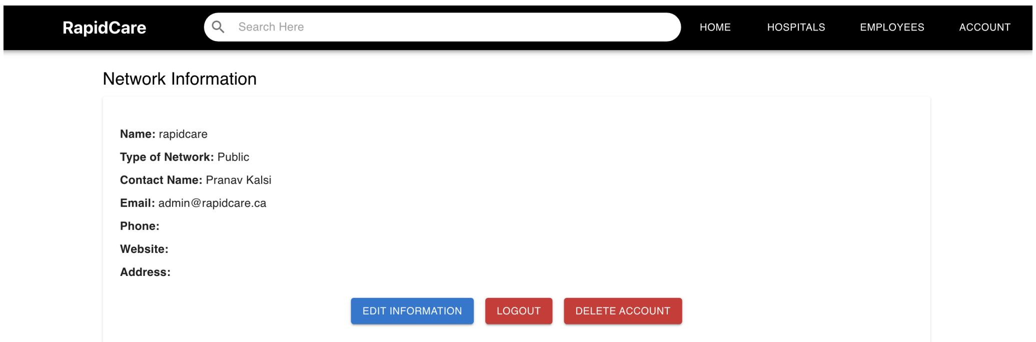

Figure 11: Administrator Account Management

3.6.1 Editing Account Information

1. Navigate to "Account".
2. Click the "Edit Information" button.
3. Modify any necessary details.
4. Click "Save" to apply changes.

3.6.2 Logging Out

1. Navigate to "Account".
2. Click the "Logout" button.

3.6.3 Deleting Your Account

1. Navigate to "Account".
2. Click the "Delete Account" button.
3. Confirm the deletion when prompted. This action is irreversible and will permanently remove your account from the system.

3.7 Manage Healthcare Professional Account

For healthcare professionals:

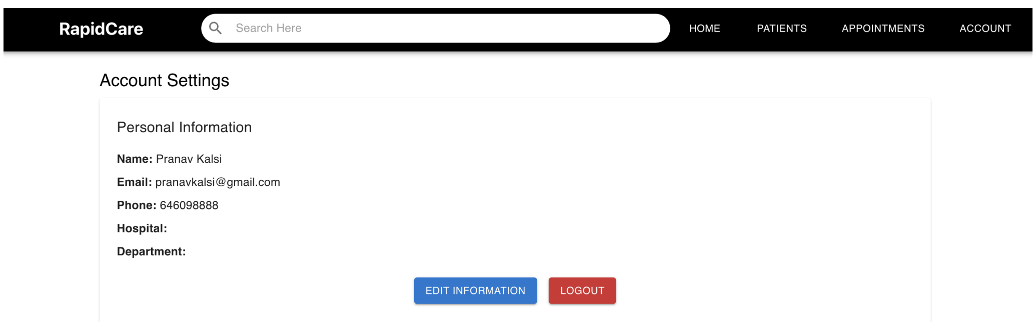

Figure 12: Employee Account Management

3.7.1 Editing Account Information

1. Navigate to "Account".
2. Click the "Edit Information" button.
3. Modify any necessary account details.
4. Click "Save" to apply changes.

3.7.2 Logging Out

1. Navigate to "Account".
2. Click the "Logout" button.

4 Troubleshooting

4.1 Common Issues

Symptom	Solution
Login failures	Verify credentials and check caps lock.
Slow performance	Clear browser cache and check network connection.
Server crashes	Check logs and verify Firebase connection.
Transcription errors	Speak clearly, reduce background noise, and review/edit transcriptions.

4.2 Error Messages

- **ERR_CONNECTION_REFUSED**: Server may be down or unreachable.
- **404 Not Found**: Verify URL or resource path.
- **503 Service Unavailable**: Check server status.
- **Authentication Failed**: Verify your credentials.

5 Maintenance

5.1 Backup Procedures

1. Run the `backup create` command.
2. Store backup files securely in an off-site location.
3. Verify backup integrity regularly by performing test restorations.
4. Maintain a backup schedule to ensure data safety.

5.2 Updates

- Check GitHub for new releases.
- Follow upgrade instructions.

- Test updates in a staging environment first.
- Schedule updates during off-peak hours to minimize disruption.

Acknowledgment

The RapidCare development team thanks all users for their feedback and support in improving the system. Our goal is to reduce documentation overhead for healthcare professionals, enabling them to focus more on patient care and less on paperwork. Your continued feedback helps us enhance the system for better healthcare delivery.