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CEMA-SE-INTERN-TASK

Health Service/Program Management system

27th April 2025





TASK

The task required a short program that simulates a basic health information system for managing clients and health programs/services which allow a doctor (system user) to create a health program, register a new client in the system, enroll a client in one or more programs, search for a client from a list of registered clients, view a client's profile, including the programs they are enrolled in and expose the client profile via an API, so that other systems can retrieve this information.





FIGMA DESIGN & PROTOTYPE

[click here for the figma design](#)





SOLUTION

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Frontend: React.js

- Built a dynamic, single-page application (SPA) using React for a seamless, user-friendly interface.
- Features responsive design with intuitive navigation (LandingPage, HomePage, ConsultationPage, ProgramsPage).





SOLUTION

Backend: Python with Flask

- Developed a RESTful API using Flask and Flask-RESTful to handle data operations.
- Managed routes for clients, consultations, and programs, enabling real-time data fetching (e.g., program search, consultation form).
- Integrated Flask-SQLAlchemy for efficient database management with SQLite (scalable to PostgreSQL).





SOLUTION

- Security: Flask-JWT-Extended
 - Implemented JWT-based authentication to secure post-login pages (HomePage, ConsultationPage, ProgramsPage).
 - Protected client data with token-based access, ensuring privacy and compliance.





SOLUTION

- Key Benefits:
- Streamlined healthcare operations (client management, consultation tracking, program enrollment).
- Scalable architecture supporting future enhancements (e.g., ClientProfile, role-based access).





CHALLENGES

- A lot of time spent in Debugging
- Failure of Deployed back-end in render to communicate with the front-end deployed in Netlify .





FUTURE IMPROVEMENTS

- Deployment to a live server
- Role based access e.g(admin, doctors, nurses etc)
- Control of sign ups by admin to prevent any individual signing up and interfere with patient data security and integrity as well as privacy.





VISUALS

The screenshot shows a web-based medical consultation application. At the top, there is a navigation bar with a menu icon on the left and three tabs: 'CLIENTS', 'PROGRAMS', and 'CONSULTATION' on the right. Below the navigation bar, on the left, is a sidebar titled 'Consultation Queue' containing two entries: 'Bob Johnson' (Age: 45) and 'Frank Miller' (Age: 63), both listed as 'Waiting'. The main content area is titled 'Consultation for Bob Johnson'. It contains several input fields and sections:

- NAME:** Bob Johnson
- AGE:** 45
- VITALS:** (Text input field placeholder: e.g., BP: 120/80, Temp: 36.5°C, HR: 72 bpm)
- ALLERGIES:** (Text input field placeholder: e.g., Penicillin, Peanuts)
- CURRENT SYMPTOMS:** (Text input field placeholder: e.g., Cough, Fever, Fatigue)
- MEDICAL HISTORY:** (Text input field placeholder: e.g., Hypertension, Diabetes)





VISUALS

The screenshot shows a web application interface for managing health programs. At the top, there is a navigation bar with a menu icon, three tabs labeled 'CLIENTS', 'PROGRAMS', and 'CONSULTATION', and a search icon. Below the navigation bar, the title 'HEALTH PROGRAMS' is displayed, along with a search input field containing 'Search programs (e.g., TB Cl)' and a magnifying glass icon. A prominent teal-colored button labeled 'ADD PROGRAM' is located just below the title. The main content area lists five program entries, each with a small edit and delete icon (pencil and trash can) to the right:

- Weight Loss Program**
Created on 4/27/2025 by aron3@gmail.com
A 12-week program focused on healthy weight loss.
- Diabetes Management**
Created on 4/27/2025 by aron3@gmail.com
A program to help manage diabetes through diet and exercise.
- TB Clinic**
Created on 4/27/2025 by aron3@gmail.com
A program for tuberculosis treatment and follow-up.
- Cardiac Care**
Created on 4/27/2025 by aron3@gmail.com
A program for heart health and recovery.
- Mental Health Support**
Created on 4/27/2025 by aron3@gmail.com
A program offering counseling and stress management.

In the bottom left corner of the screenshot, there is a green text box containing the URL 'localhost:5173/programs'.



VISUALS

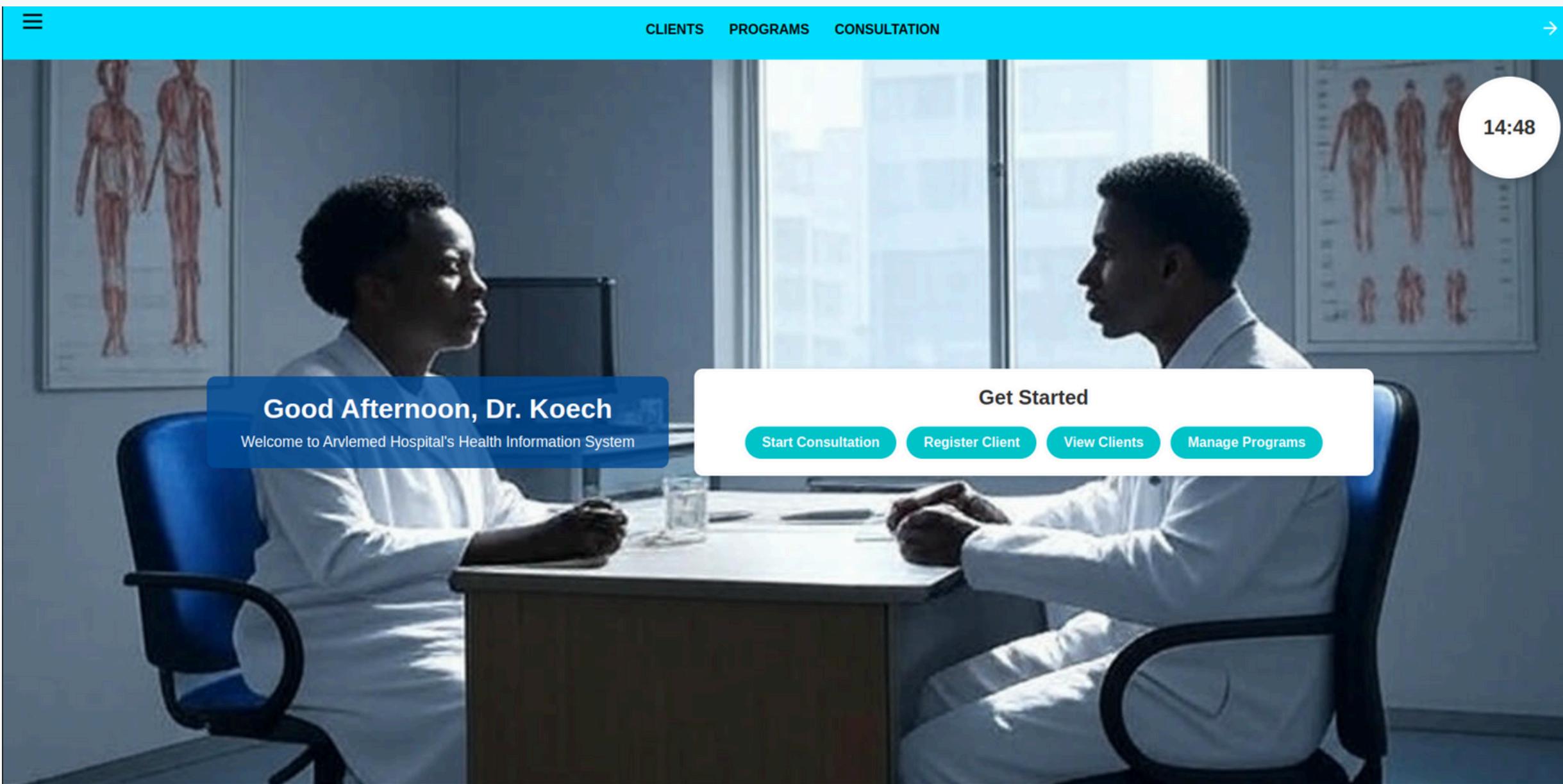
The screenshot shows a web-based application interface for managing clients. At the top, there is a navigation bar with a menu icon, three tabs labeled 'CLIENTS', 'PROGRAMS', and 'CONSULTATION', and a search bar with placeholder text 'Search by name...' and a magnifying glass icon. To the right of the search bar is a teal-colored button labeled 'ADD CLIENT' with a white arrow. Below the navigation bar, the title 'CLIENTS LIST' is displayed, along with a welcome message 'Welcome, aron3@gmail.com'. A search input field is also present here. The main content area contains a table with six rows, each representing a client. Each row includes a small circular profile icon with initials, the client's name, their age, status, consultation count, enrollment count, and program participation, followed by three small icons for edit, delete, and view. The clients listed are Alice Smith, Bob Johnson, Clara Davis, David Wilson, Emma Brown, and Frank Miller. At the bottom left of the main content area, there is a URL placeholder 'localhost:5173/clients'.

Initials	Name	Age	Status	Consultations	Enrollments	Programs	Actions
AS	Alice Smith	34	Active	1	2	Weight Loss Program, Cardiac Care	
BJ	Bob Johnson	45	Waiting	1	1	Diabetes Management	
CD	Clara Davis	28	Active	1	2	Weight Loss Program, Mental Health Support	
DW	David Wilson	52	Inactive	1	1	TB Clinic	
EB	Emma Brown	19	Active	1	1	Diabetes Management	
FM	Frank Miller	63	Waiting	1	1	Cardiac Care	

localhost:5173/clients

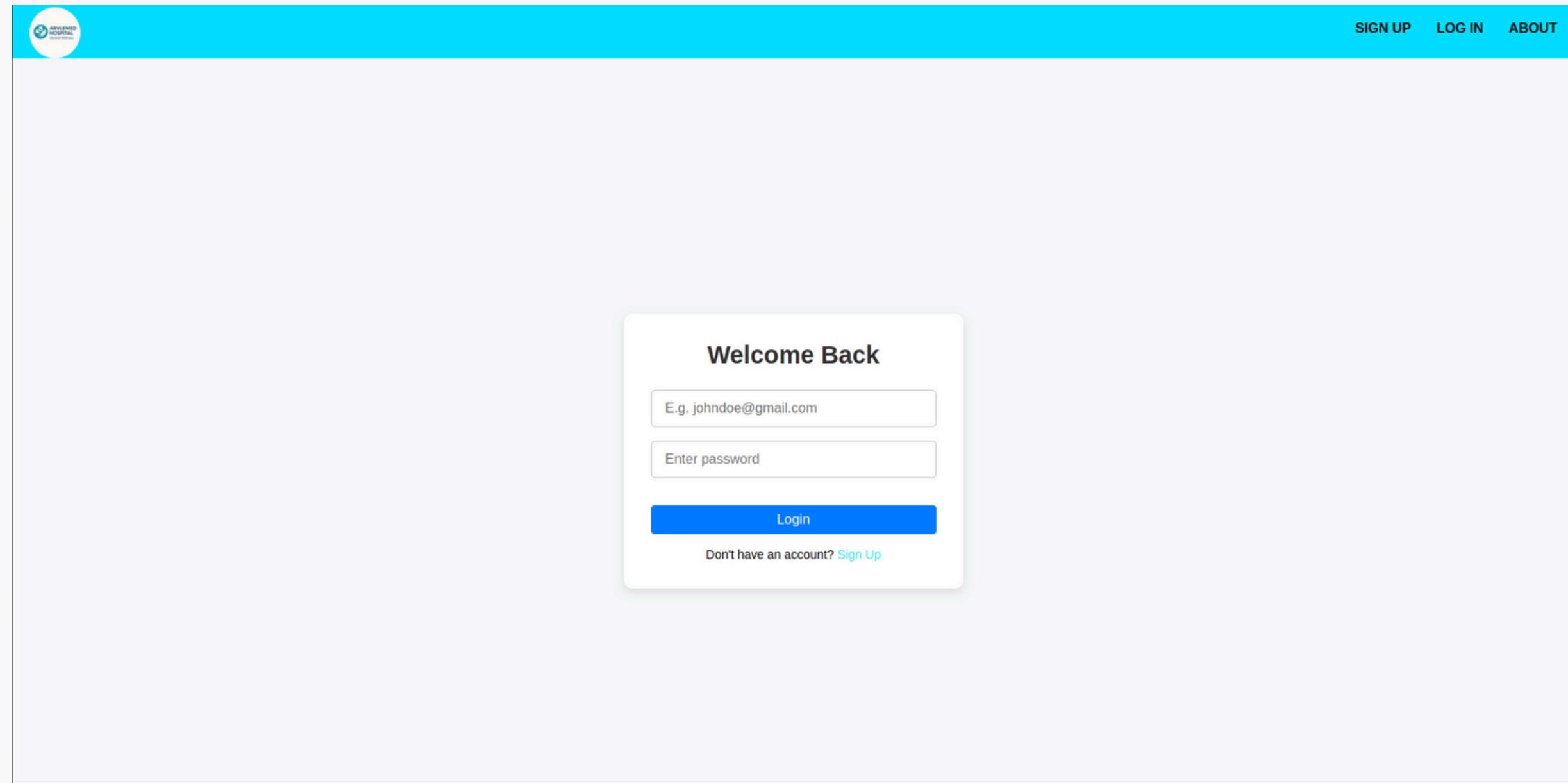


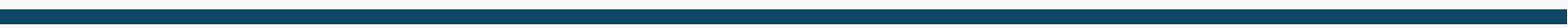
VISUALS





VISUALS





VISUALS

A screenshot of a web browser displaying a 'Create Account' form. The browser's address bar shows 'localhost:5173/signup'. The page has a light gray background with a central white rectangular form. At the top of the form is the title 'Create Account' in bold black font. Below the title are three input fields: the first for an email address ('E.g. johndoe@gmail.com'), the second for a password ('Enter password'), and the third for a confirmation password ('Confirm password'). At the bottom of the form is a large cyan-colored 'Sign Up' button. Below the 'Sign Up' button is a small link 'Already have an account? [Login](#)'. The browser's header features a blue bar with a circular logo on the left, and 'SIGN UP', 'LOG IN', and 'ABOUT' links on the right.





VISUALS

The screenshot shows a website for "Arvlemed Hospital". At the top, there is a navigation bar with a logo on the left and "SIGN UP", "LOG IN", and "ABOUT" links on the right. The main content area has a light gray background and features a large heading "About Arvlemed Hospital". Below the heading is a text box containing the following text:

Arvlemed Hospital is a state-of-the-art medical facility dedicated to providing exceptional healthcare services to our community. Founded with a mission to prioritize patient well-being, we offer a wide range of specialized treatments and compassionate care in a modern, welcoming environment.

Our team of highly skilled doctors, nurses, and staff is committed to delivering personalized medical care, ensuring every patient receives the attention and support they need. Equipped with advanced technology and innovative practices, Arvlemed Hospital excels in areas such as emergency care, surgical services, diagnostics, and preventive health programs.

At Arvlemed, we believe in holistic healing, fostering both physical and emotional wellness. Our patient-centered approach, combined with a focus on accessibility and inclusivity, makes us a trusted healthcare provider for families across the region. We are proud to serve and support our diverse community with integrity and excellence.

Our Health Information System

Arvlemed Hospital leverages a cutting-edge Health Information System to streamline patient care and program management. Key features include:

- Client Registration: Easily onboard new patients with comprehensive profiles.
- Health Programs: Manage specialized programs like TB, Malaria, and HIV care.
- Consultation Queue: Efficiently handle patient consultations with a prioritized queue.
- Client Search: Quickly find patient records for seamless care delivery.
- Secure API: Enable integration with other systems for enhanced interoperability.





THANK YOU!

