

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)**

A.P. SHAH INSTITUTE OF TECHNOLOGY
G.B. ROAD, KASARVADAVALI, THANE (WEST) - 400 615
UNIVERSITY OF MUMBAI
ACADEMIC YEAR 2024 - 2025

Team Members: Prathamesh Mhatre (22106026)
Raj Nikam (22106027)
Ritik Pandey (22106054)
Tejashri Maske (22106051)

Guide: Dr. Jaya Gupta

Dental Clinic Management System

~open source platform for steadily managing patients for dentists.

Dental Clinic Management System

- Traditional methods rely on manual record-keeping, which is prone to errors, time-consuming, and difficult to manage efficiently.
- Reduces manual errors in patient records, billing, and scheduling.
- Saves time by automating administrative tasks and improving efficiency.
- Enhances patient experience with seamless appointment booking and treatment tracking.
- Improves staff coordination by managing doctor availability and workload effectively.
- Provides data-driven insights for better decision-making and clinic growth.

Problem Statement:

To streamline patient records, appointments, billing, and staff coordination in dental clinics by replacing inefficient manual processes with a digital solution.

Objectives:

- To develop a centralized system for managing patient records and appointments efficiently.
- To automate billing, payments for accuracy and convenience.
- To enhance staff coordination by optimizing doctor schedules and clinic workflows.
- To generate insightful reports for data-driven decision-making and clinic growth.

Literature Survey:

Sr No.	Authors	Title	Abstract	Limitations
1.	Ho, S. B., Chew, E. Y., & Tan, C. H. (2024) Journal of Informatics and Web Engineering	Streamlining Dental Clinic Management for Effective Digitisation Productivity and Usability.	<ul style="list-style-type: none">Dental Clinic Management System proposal.Manages appointments and patient records.Enhances efficiency with admin oversight.	<ul style="list-style-type: none">Clinics rely on paper records.Adoption challenges persist.Security concerns with patient data.
2.	Zawawi, N. I. A., & IBRAHIM, T. D. R. (2023) Applied Information Technology And Computer Science	Development of Temangan Dental Clinic Management System	<ul style="list-style-type: none">System for managing appointments and records.Handles staff scheduling.Uses SDLC methodology.	<ul style="list-style-type: none">Limited scalability for multiple clinics.Email notifications may be ineffective

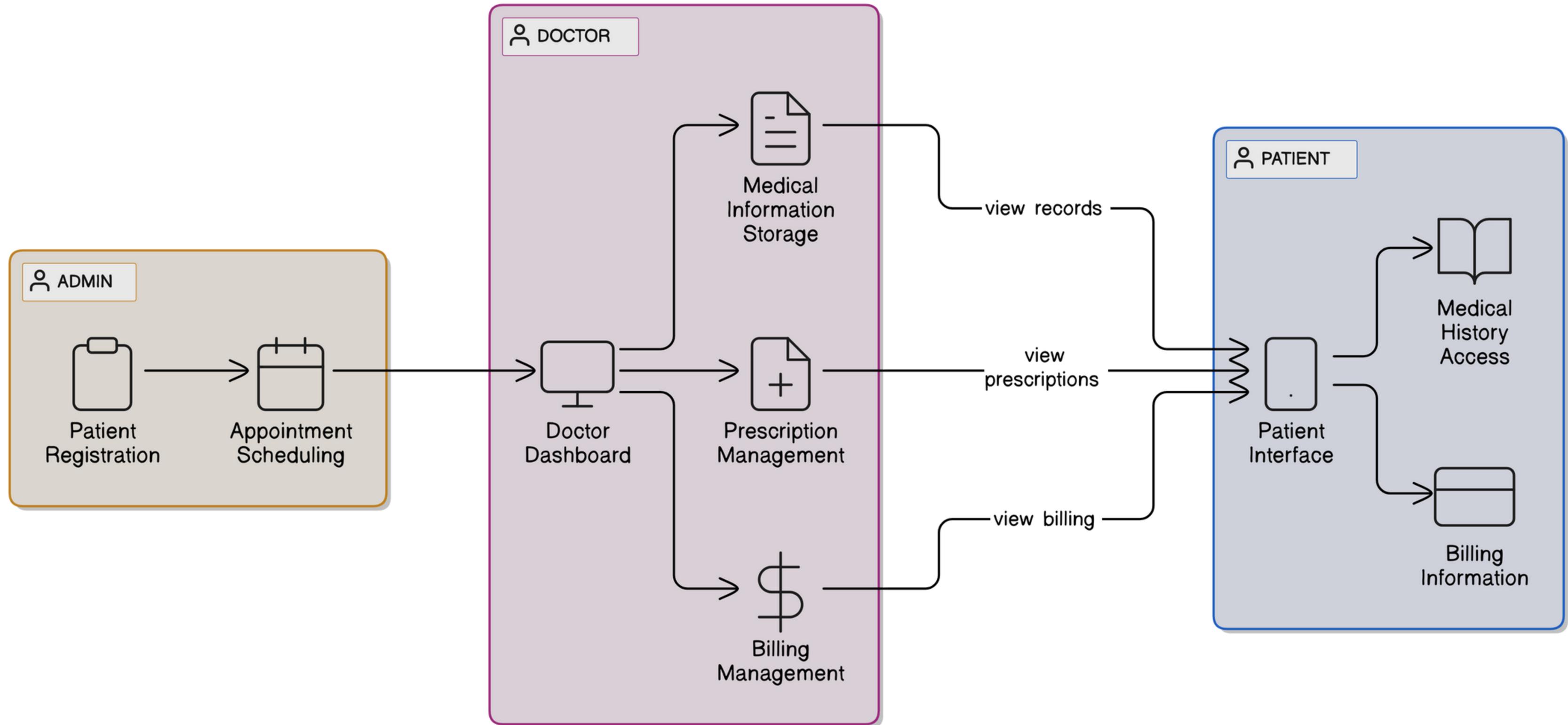
Literature Survey:

Sr No.	Authors	Title	Abstract	Limitations
3.	Abdullah, S. N. A., & Bakar, N. A. A. A. (2021) in the Graduate Digital Invention Innovation and Design.	NG Dental Clinic Appointment Management System (AMS)	<ul style="list-style-type: none">• Online appointment booking platform.• Real-time availability for patients.• Clinic performance management.	<ul style="list-style-type: none">• Interviews and surveys used initially.• Gaps in capturing all user needs.• Usability improvements needed.
4.	Dhanore, P., Shaik, A., & Ramtekkar, P. (2016) in the International Journal of Science, Engineering and Computer Technology	Dental Clinic Management System – A New Approach	<ul style="list-style-type: none">• Visual Studio-based online system.• Manages profiles, records, and billing.• Tracks treatment details.	<ul style="list-style-type: none">• Outdated technology stack.• No modern cloud integration.• Lacks mobile-friendly solutions.

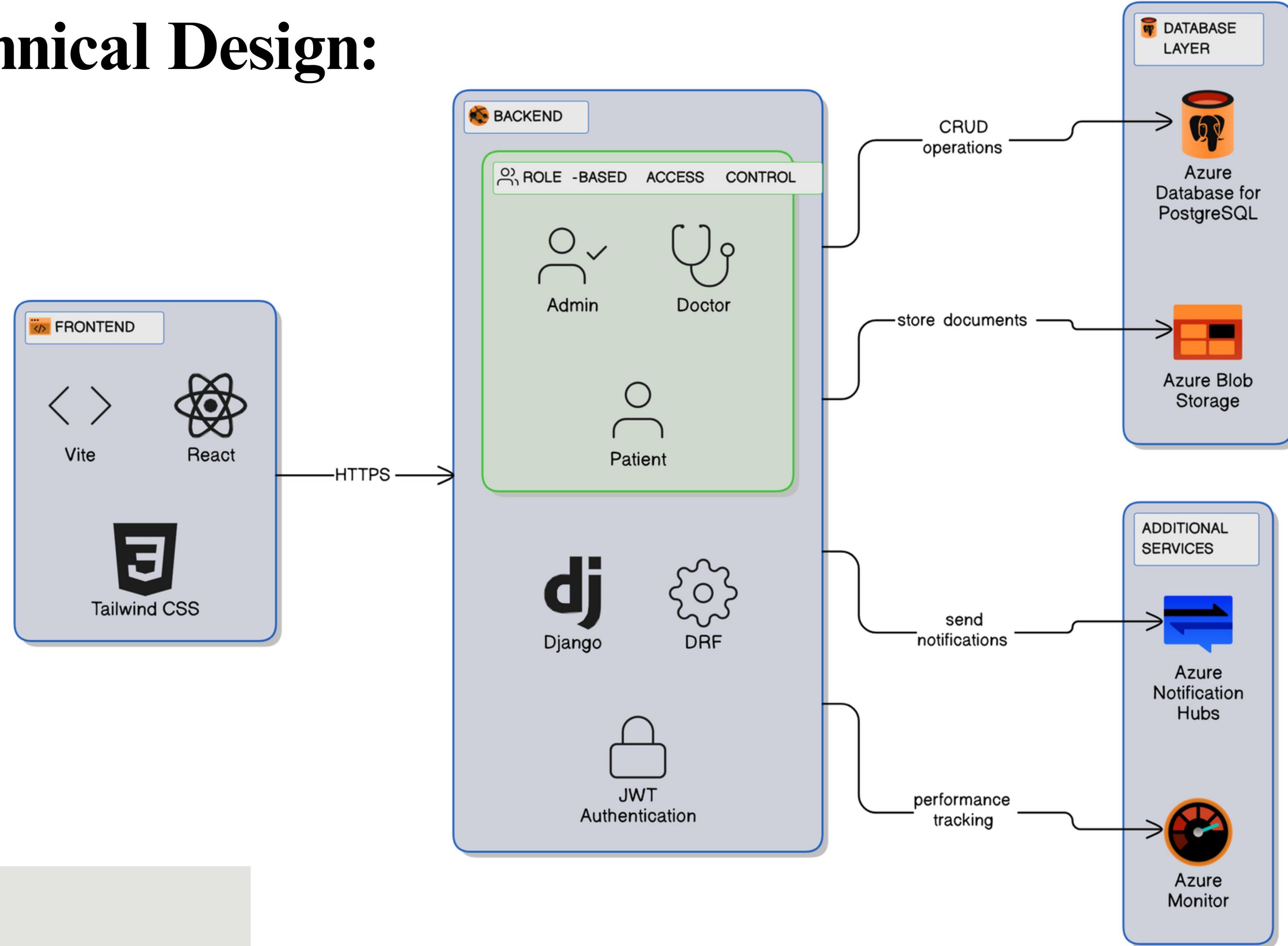
Literature Survey:

Sr No.	Authors	Title	Abstract	Limitations
5.	Razer Jr, A., Canja, C. R. P., & Cerna, J. D. C. (2022).	A Design Of Web-based Dental Information Management System With Sms Notification And Decision Support System For Idagdag Tooth Care Clinic	<ul style="list-style-type: none">• Web-based system with SMS notifications.• Decision support for disease detection.• Positive usability results with Waterfall SDLC.	<ul style="list-style-type: none">• No dental chart, payroll, or inventory.• Limited scalability beyond clinic.
6.	Syafitri, N., & Sancoko, S. D. (2023). International Journal of Computer Applications.	Dental Clinic Management System – A New Approach	<ul style="list-style-type: none">• Mobile app for doctors and patients.• Reservations and health info provided.• Developed with Dart, PHP, Flutter, Laravel.	<ul style="list-style-type: none">• No integration with healthcare systems.• Limited scalability beyond clinics.

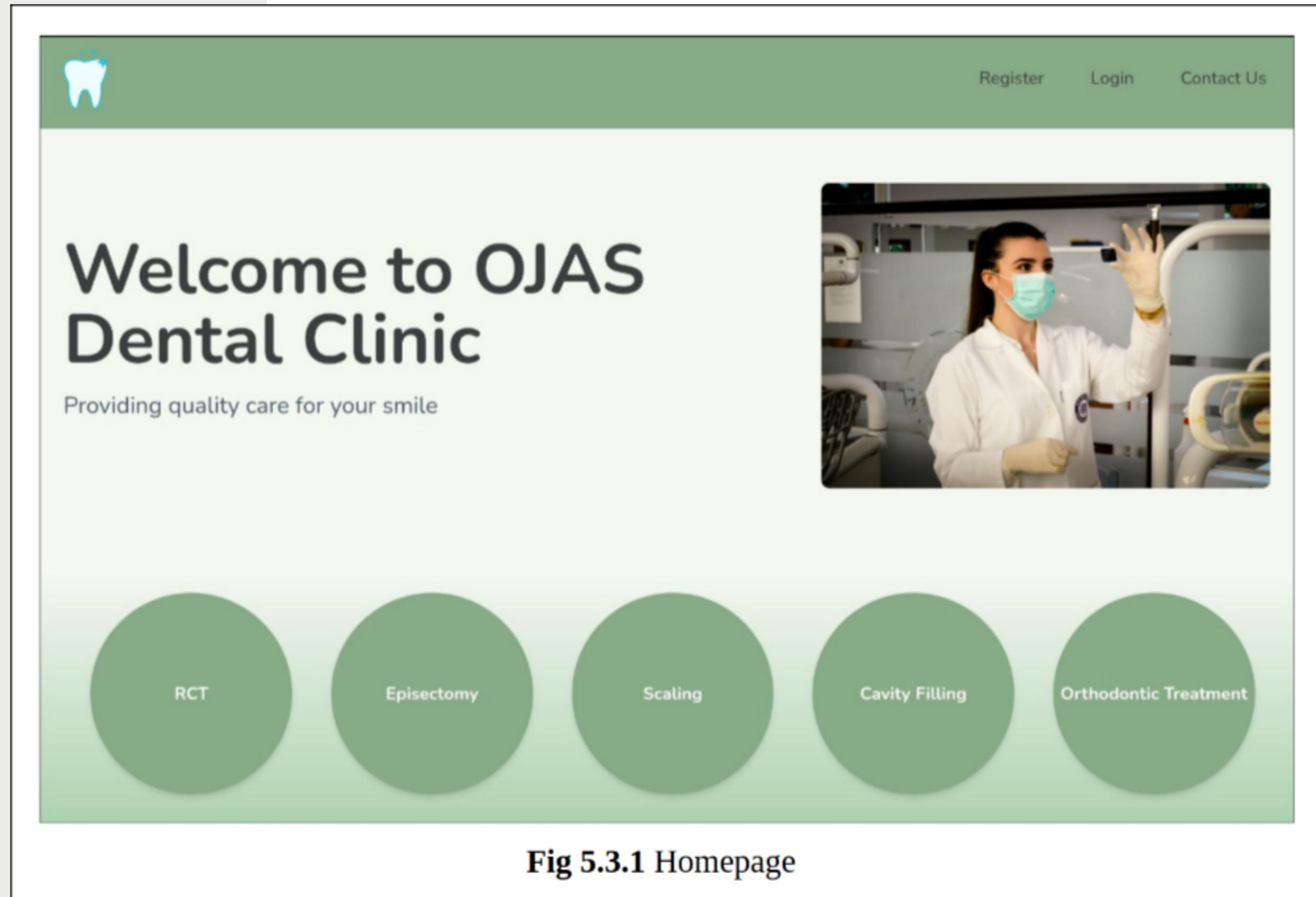
System Design:



Technical Design:



Implementation:



The image shows the homepage of the OJAS Dental Clinic website. At the top, there is a green header bar with a white tooth icon on the left, and 'Register', 'Login', and 'Contact Us' links on the right. Below the header, the main title 'Welcome to OJAS Dental Clinic' is displayed in large, bold, dark gray font, followed by the subtitle 'Providing quality care for your smile' in a smaller, regular dark gray font. To the right of the text is a photograph of a female dental professional wearing a white lab coat, a green surgical mask, and gloves, standing in a dental office. Below the title and subtitle are five green circular icons, each containing a white text label: 'RCT', 'Episectomy', 'Scaling', 'Cavity Filling', and 'Orthodontic Treatment'. The background of the page is white.

**Welcome to OJAS
Dental Clinic**

Providing quality care for your smile

Register Login Contact Us

RCT Episectomy Scaling Cavity Filling Orthodontic Treatment

Fig 5.3.1 Homepage

Implementation:

Patient Dashboard

Patients List

Name	Phone Number	Age	Complaint	Time
Prathamesh	7888888888	28	daant me dard	14:26
Mhatre	7899999999	N/A	Daat mai dard	14:09

Fig 5.3.2 Patient Appointment Dashboard

Implementation:

Date: 03/18/2025

Patient: Prathamesh

Complaint: daant me dard

About Patient Treatment Prescription

Patient: Prathamesh

Past Illnesses: Add past illnesses

Allergies: Add allergies

Smokes? Yes No

Consumes Alcohol? Yes No

Eats Tobacco? Yes No

Fig 5.3.3 Doctor Daily Treatment [1/3]

Implementation:

Date: 03/18/2025

Patient: Prathamesh

Complaint: daant me dard

About Patient Treatment Prescription

18 17 16 15 14 13 12 11 21 22 23 24 25 26

48 47 46 45 44 43 42 41 31 32 33 34 35 36

18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28

48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38

Selected button(s): None

Confirm Selection

Fig 5.3.4 Doctor Daily Treatment [2/3]

Implementation:

Date: 03/18/2025

Patient: Prathamesh

Complaint: daant me dard

About Patient Treatment Prescription

Add Prescription

Medicines

- Sensiclave 625
- Ordent
- Zerodol SP
- Injection - Voveron painkiller
- Metrogill 400
- Capsule Rabemac DSR

Pastes

- Vantage
- Senquel F
- Thermokind F
- Mouthwashes - CLoveHexPlus
- Bitaden Gargle

Gels

- MetroHEX
- Annabelle

Save Prescription

Fig 5.3.5 Doctor Daily Treatment [3/3]

Implementation:

Prescriptions

Add Prescription

Enter name
Gel

Add Prescription

Prescriptions List

Name	Type	Actions
Vantage	Toothpaste	<button>Edit</button> <button>Delete</button>
Senquel F	Toothpaste	<button>Edit</button> <button>Delete</button>
Thermokind F	Toothpaste	<button>Edit</button> <button>Delete</button>
NEwNew	Toothpaste	<button>Edit</button> <button>Delete</button>
Nasha	Toothpaste	<button>Edit</button> <button>Delete</button>
CloveHexPlus	Mouthwash	<button>Edit</button> <button>Delete</button>
Bitadine Gargle	Mouthwash	<button>Edit</button> <button>Delete</button>
Voveron	Injection	<button>Edit</button> <button>Delete</button>

Fig 5.3.6 Prescription Management Page

Implementation:

Treatments			
Treatments List			
Name	Price	Actions	
Mobile/Form Extraction	₹1000	Edit	Delete
Episectomy	₹1000	Edit	Delete
Temporary Filling	₹1000	Edit	Delete
GIC Filling	₹1000	Edit	Delete
Composite (Light Cure) Filling	₹1000	Edit	Delete
Silver Filling	₹1000	Edit	Delete
Nickel Chrome Metal Cap	₹1000	Edit	Delete
Ceramic Cap	₹1000	Edit	Delete
VitaCeramic Cap	₹1000	Edit	Delete
Cadcam Cap	₹1000	Edit	Delete
Zirconia Crown Cap	₹1000	Edit	Delete
Removable Orthodontics	₹1000	Edit	Delete

Fig 5.3.7 Treatment Management Page

Implementation:

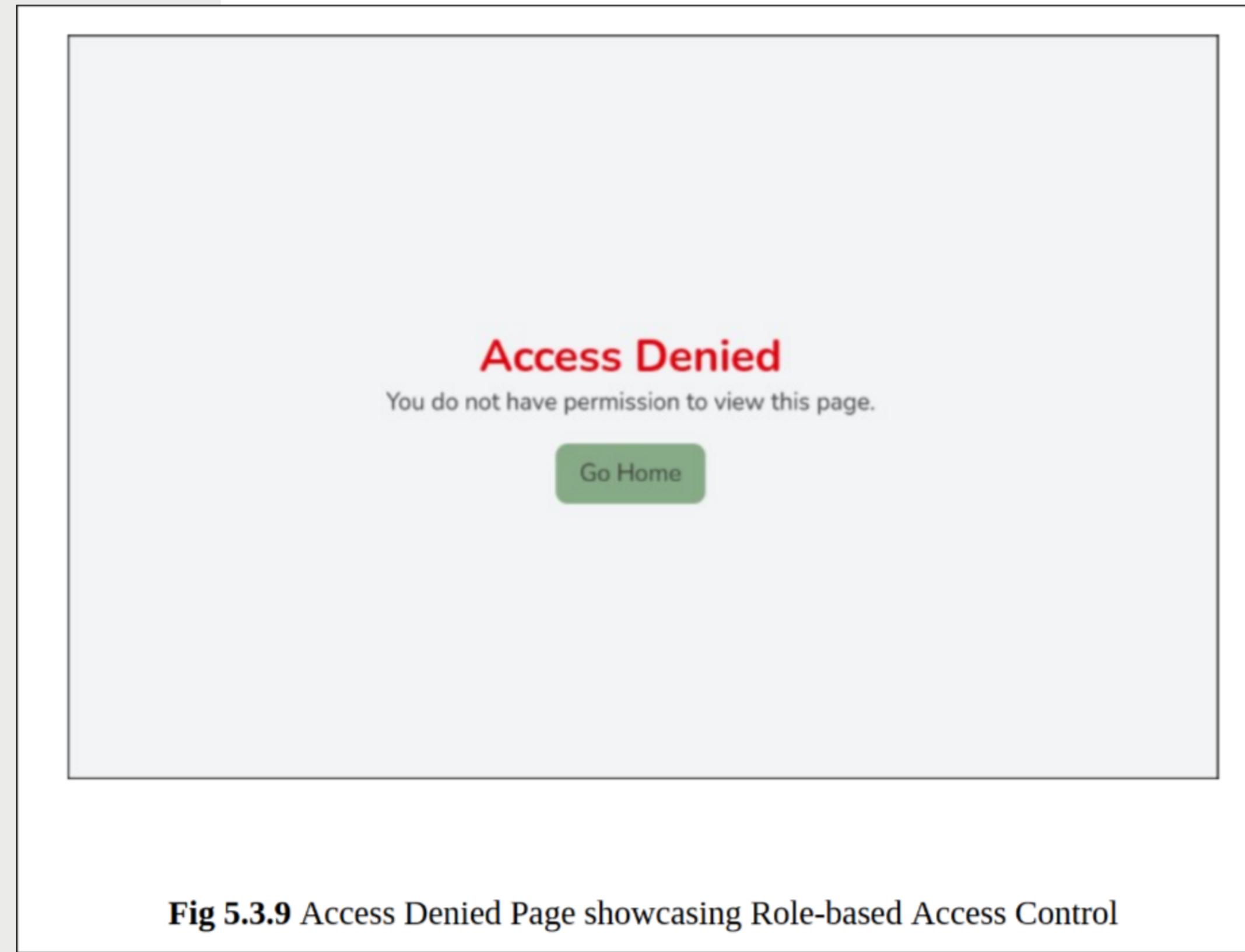
Search Patients

Results:

#	Name	Date of Birth	Phone Number	Gender	Address
1	Prathamesh	1997-12-31	7888888888	Male	Mhatre Family

Fig 5.3.8 Query Database Page

Implementation:



References:

- [1] Ho, S. B., Chew, E. Y., & Tan, C. H. (2024). Streamlining Dental Clinic Management for Effective Digitisation Productivity and Usability. *Journal of Informatics and Web Engineering*, 3(2), 70-85.
<https://doi.org/10.33093/jiwe.2023.3.2.5>
- [2] Zawawi, N. I. A., & IBRAHIM, T. D. R. (2023). Development of Temangan Dental Clinic Management System. *Applied Information Technology And Computer Science*, 4(1), 842-862.
<https://doi.org/10.30880/aitcs.2023.04.01.048>
- [3] Syafitri, N., & Sancoko, S. D. (2023). Mobile-based Dental Clinic Application as an Optimal Reservation Control System. *International Journal of Computer Applications*, 185(33), 1-8.
- [4] Razer Jr, A., Canja, C. R. P., & Cerna, J. D. C. (2022). A Design Of Web-based Dental Information Management System With Sms Notification And Decision Support System For Idagdag Tooth Care Clinic.
- [5] Abdullah, S. N. A., & Bakar, N. A. A. A. (2021). NG DENTAL CLINIC APPOINTMENT MANAGEMENT SYSTEM (AMS). *Graduate Digital Invention Innovation and Design* 2021, 217.
- [6] Dhanore, P., Shaik, A., & Ramtekkar, P. (2016). Dental Clinic Management System-A New Approach. *International Journal of Science, Engineering and Computer Technology*, 6(5), 176.
<https://ijcset.net/docs/Volumes/volume6issue5/ijcset2016060507.pdf>

