

# **WEB APPLICATION AND DEVELOPMENT (COMP6703001)**

## **BUSINESS REQUIREMENTS DOCUMENT**

**EVEN SEMESTER 2024/2025**



## **Dentalign Ticketing System**

### **Submitted by:**

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### **Submitted to:**

Mr. Ida Bagus Kerthyayana Manuaba S.T., Ph.D.

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# CHAPTER 1

## Project Overview

**Project Name:** Dentalign Ticketing System

**Document Author:** FARK.net

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- Alexander Legolas Myfia - 2702342174 - L4BC
- Rafael Angelo Christianto - 2702342773 - L4BC
- Kevin Jonathan - 2702342823 - L4BC

**Date:** 24 February, 2025

**Version:** v1.0

### 1.1. Purpose

Through the program that we desire to make, we want to streamline the process of handling support requests for Dentalign Dental Clinic. The Dentalign Ticketing System will serve three primary user groups, which are customers, staff, and administrators. We want customers and staff to be able to submit and track tickets related to various issues relating to the clinic. This allows the customers and staff to have their problems addressed. Administrators will be the individuals that will be in charge to oversee the system and manage ticket statuses.

### 1.2. Objectives

1. Ensure database reliability and consistency by making a proper database design.
2. Enable customers and staff to submit and track various ticket requests
  - a. For customers, they have the option to ask details about Dentalign, make complaints, etc.
  - b. For staff members, they can file reports of the workplace conditions in case needed, for instance, low number of supplies, etc.
3. Allow admins to view the tickets and make changes to each request

The admin login is able to view all the tickets created by both staff and customers.

They can edit the statuses of each ticket ensuring each problem is resolved.

### **1.3. Scope**

In-Scope:

- A separate login page for each role; admin, staff, and customer..
- Support ticket system allowing customers and staff to submit and manage various requests
- Each ticket has multiple statuses to keep track of its condition and to prevent clashes between each ticket.
- Dashboard allows customers and staff to check the different status of each ticket
- The admin dashboard can view the priority of each ticket and update the progress of submitted tickets.
- Provide multiple admin operations to address and update each ticket created by both staff and customers.
- Creating a responsive website with subtle smooth animations to enhance the user experience.

Out of Scope:

- Third-party payment gateway integration.
- Mobile application development.
- Multi-branch support

# **CHAPTER 2**

## **Business Requirements**

### **2.1. Functional Requirements**

1. The key features of our application will include the following:
  - Dashboard; be able to see the details of each ticket made from each role.  
Hence, there will be different login pages for each role that redirects them to different helpdesk ticketing system pages
  - Filter; To be able to filter tickets in different categories
  - Ticket requests; create tickets to address problems
2. The description of each ticket are as follows:
  - General details of the ticket, which includes number of ticket, date of creation, type of ticket request, ticket description, etc.
  - The different statuses of each ticket, which includes priority level, progress status, latest updates, etc.
3. The tickets that can be made for each role are shown below:
  - a) Staff
    - Equipment maintenance request
    - Supply replenishment
    - Requesting missing patient records
    - Compliance and safety: This can include workplace safety hazards.
    - Reports of patient accidents
  - b) Customer
    - Account recovery
    - Inquiries about dentalign
    - Technical issues of website
    - Billing/payment of appointments
    - Filing complaint of service
  - c) Admin
    - View all tickets created by both customers and staff to monitor ticket volume
    - Update ticket statuses to show resolution progress

The forms page of each type of ticket request can have different appearance according to what is being requested.

- Update priority level of tickets depending on scenarios
- Delete tickets if deemed unreasonable or not understandable
- Edit tickets

## **2.2. Non-Functional Requirements**

- Enable 2-step user verification to increase the security of the application
- The system should handle multiple concurrent users without lag
- The interface should be user friendly and be accessible on different devices with different screen sizes

## **CHAPTER 3**

### **Stakeholders**

- Official Website: <https://dentalign.id/>
- Business Owner: We know about Dentalign Dental Clinic through Kevin Jonathan's sister who is presently working at the clinic. The owner of the clinic is Dr. Melinda.
- Area: The clinic is situated at Kebayoran Baru, Jakarta Selatan, which is a short walk from the BINUS International JWC Campus. The specific address to the clinic is: Jl. Hang Lekir 2 No.6 9, RT.9/RW.6, Gunung, Kec. Kby. Baru, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12120.
- Existing Systems: Currently, their contacting system is only available through WhatsApp and Telegram, which can be seen from their website. Additionally, there are no designated pages for dashboards that provide a view of requested tickets and no designated pages for different types of ticket forms. This can cause some issues, including slow responses, inconsistencies, and clashing of schedules.
- End Users: Individuals who use the system to submit inquiries, complaints, or support requests. Also employees who use the system to report internal issues, such as maintenance and supply shortage.

# **CHAPTER 4**

## **Assumptions and Constraints**

### **4.1. Assumptions**

- The application is only available through the web.
- The system will be used primarily by Dentalign staff and its customers for support requests.
- The admin will be the one managing every ticket.
- The system only supports one Dentalign branch and will not accommodate multiple locations.

### **4.2 Constraints**

- Due to us having the final project presentation on June 12, 2025, we will have limited time, which is approximately around 3 months to work on the application.
- The system will only use free services and tools due to the team's lack of budget for paid software, hosting, or third-party integrations.

# **CHAPTER 5**

## **Risks and Mitigation Strategies**

<b>Risks</b>	<b>Impact</b>	<b>Mitigation Strategy</b>
Delayed content delivery	Medium	Use a project managing tool to create a proper project timeline
Browser compatibility issues	Medium	Test the website in different browsers and sure it has a responsive design
Data loss or corruption	High	Implement automated data backups and have a backup database server.
Database inconsistency	High	Design a well-design database system and normalize it well.

# **CHAPTER 6**

## **Success Criteria**

**User Adoption:** 70% of users that previously used whatsapp and telegram moved towards the ticketing system

**System Performance:** 80% uptime and response time below 2 seconds

## **CHAPTER 7**

### **Approval**

Prepared By

Rafael, Kevin, Fadhillah,  
Alex

Reviewed By

Mr. Juwono

Approved By:

Mr. Ida Bagus Kerthyayana  
Manuaba S.T., Ph.D.

Date of Approval:

# **CHAPTER 8**

## **Others**

### **8.1. GitHub Repository Link**

<https://github.com/Frahyang/WADS-FP-FARK.net>

### **8.2. Project Management Tool**

We will be using Trello for the project management tool for this project, where the link is given below:

<https://trello.com/b/V7iWyVGE/wads-fp-farknet>

**WEB APPLICATION AND DEVELOPMENT (COMP6703001)**

**USER REQUIREMENTS SPECIFICATIONS**

**EVEN SEMESTER 2024/2025**



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# CHAPTER 1

## Project Overview

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- Creating a responsive website with subtle smooth animations to enhance the user experience.

Out of Scope:

- Third-party payment gateway integration.
- Mobile application development.
- Multi-branch support

# **CHAPTER 2**

## **User Requirements**

### **2.1. User Roles and Description**

- Customers can register and login to their respective accounts to make an appointment at Dentalign.
- Staff can be able to address reports when it is needed.
- Admin can see the appointments made by the customers and track the ongoing progress.

### **2.2. Functional Requirements**

1. The key features of our application will include the following:
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- View all tickets created by both customers and staff to monitor ticket volume
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- Enable 2-step user verification to increase the security of the application
- The system should handle multiple concurrent users without lag
- The interface should be user friendly and be accessible on different devices with different screen sizes

# CHAPTER 3

## User Persona and User Journey

### 3.1. User Persona

- **Name:** John
- **Age:** 25
- **Occupation:** Sales man
- **Goals:** Wants to make a dentist appointment for regular checkup
- **Pain Points:** Right now to book a dentist appointment at Dentalign requires chatting using WhatsApp or Telegram, and the registration form in the website gives poor user experience
- **Technology Usage:** Both computers, laptops, smartphones can access this application, as long as they have access to the internet.

### 3.2. User Journey

**Step 1: Discovery:** The user can visit the application from their internet browsers

**Step 2: Registration and Login:** Users can register their account and login afterwards.

**Step 3: Booking an Appointment:** Users input their necessary data to make an appointment, which includes, date and time, and for what purpose they have to come.

**Step 4: Booking Made:** The user will be let know that their booking appointment has been made.

# **CHAPTER 4**

## **Assumptions and Constraints**

### **4.1. Assumptions**

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- The system will only use free services and tools due to the team's lack of budget for paid software, hosting, or third-party integrations.

## **CHAPTER 5**

### **Acceptance Criteria**

- User Registration: 100% of users can successfully register and log in, as this shows that the system is created carefully.
- Course Completion: 100% of users successfully make their appointment without any technical issues.
- System Uptime: 99.9% uptime requirement, to enable the users to conveniently make appointments anytime.

# **CHAPTER 6**

## **Approval**

Prepared By

Rafael, Kevin, Fadhillah,  
Alex

Reviewed By

Mr. Juwono

Approved By:

Mr. Ida Bagus Kerthyayana  
Manuaba S.T., Ph.D.

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# CHAPTER 1

## Introduction

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- Creating a responsive website with subtle smooth animations to enhance the user experience.

Out of Scope:

- Third-party payment gateway integration.
- Mobile application development.
- Multi-branch support

### **1.3. Definitions, Acronyms, and Abbreviations**

- **MERN Stack**

The MERN Stack is a JavaScript Web development stack which is widely adopted due to its fast and beginner-friendly development process and deployment. The term ‘MERN’ itself is an abbreviation for the technologies included in the stack; MongoDB (database), Express (web server), React (frontend framework), NodeJS (backend, with Express)

- **API**

An API (Application Programming Interface) is a set of rules built in a form of interface which allows various applications to communicate with each other. In the context of this project, we will develop Web API which is a type of API which is suitable for communicating Web App frontend with backend.

- **REST API**

The REST (Representational State Transfer) API is a type of Web API which is simple and flexible, utilizing the basic HTTP request methods; GET, POST, PUT/PATCH, DELETE. If a web application implements a REST API, it is called as ‘RESTful’

### **1.4. References**

- <https://www.geeksforgeeks.org/mern-stack/>
- <https://www.geeksforgeeks.org/what-is-an-api/>
- <https://www.geeksforgeeks.org/rest-api-introduction/>

# **CHAPTER 2**

## **Overall Description**

### **2.1. System Overview**

We create a system where complaints from both staff and customers are addressed in an orderly manner, assigning each complaint a priority level to also include fairness. Upon opening the web application, the user is welcomed with the hero page, but is unable to do any interaction without logging in first. Regarding the signup/login page, there will be 3 options which include admins, business staff, and customers. Each type of login will lead the user to its respective pages, in accordance to their level of access.

### **2.2. User Characteristics**

- Customers can register and login to their respective accounts to make an appointment for complaints or create a ticket at Dentalign.
- Staff can be able to address reports when it is needed.
- Admin can see the appointments made by the customers and track the ongoing progress.

### **2.3. Operating Environment**

Web-based application.

Supported browsers: Chrome, Firefox, Edge

Server requirements:

# **CHAPTER 3**

## **Functional Requirements**

1. The key features of our application will include the following:
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## **CHAPTER 4**

### **Non-Functional Requirements**

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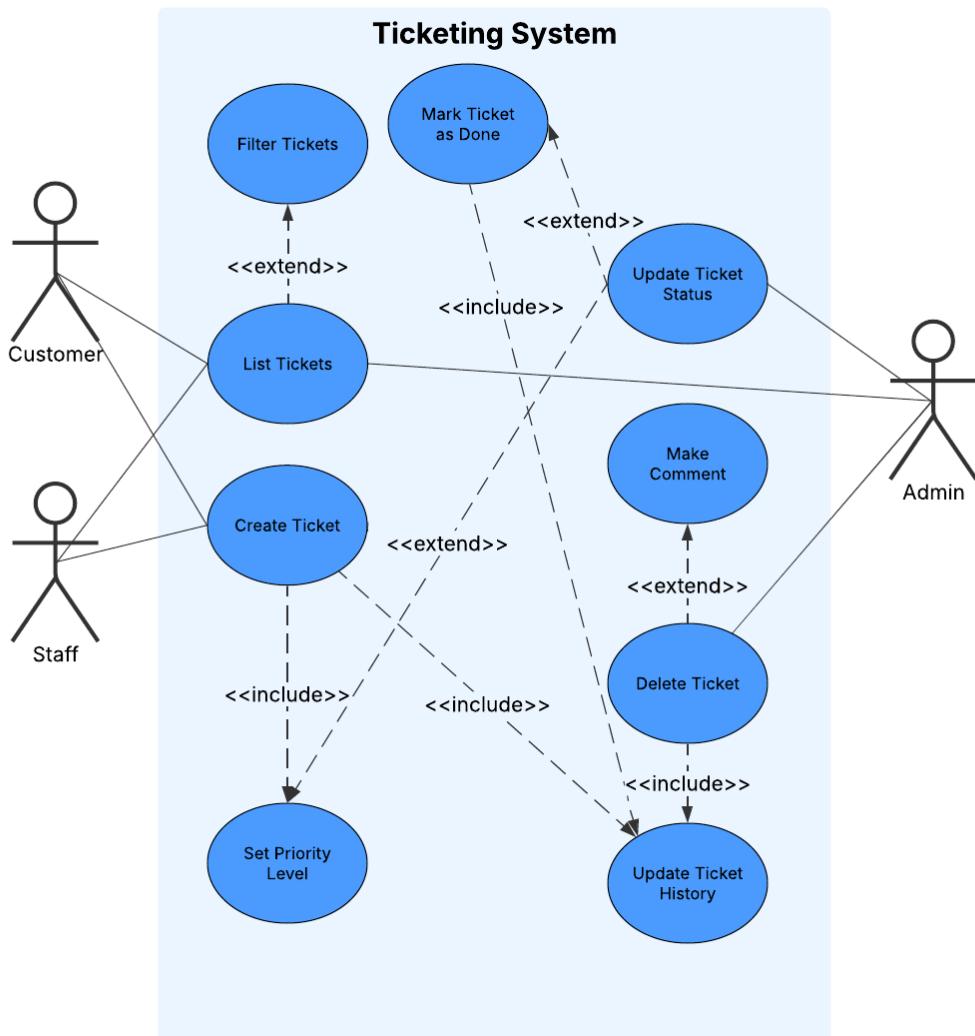
# CHAPTER 6

## System Architecture and Design

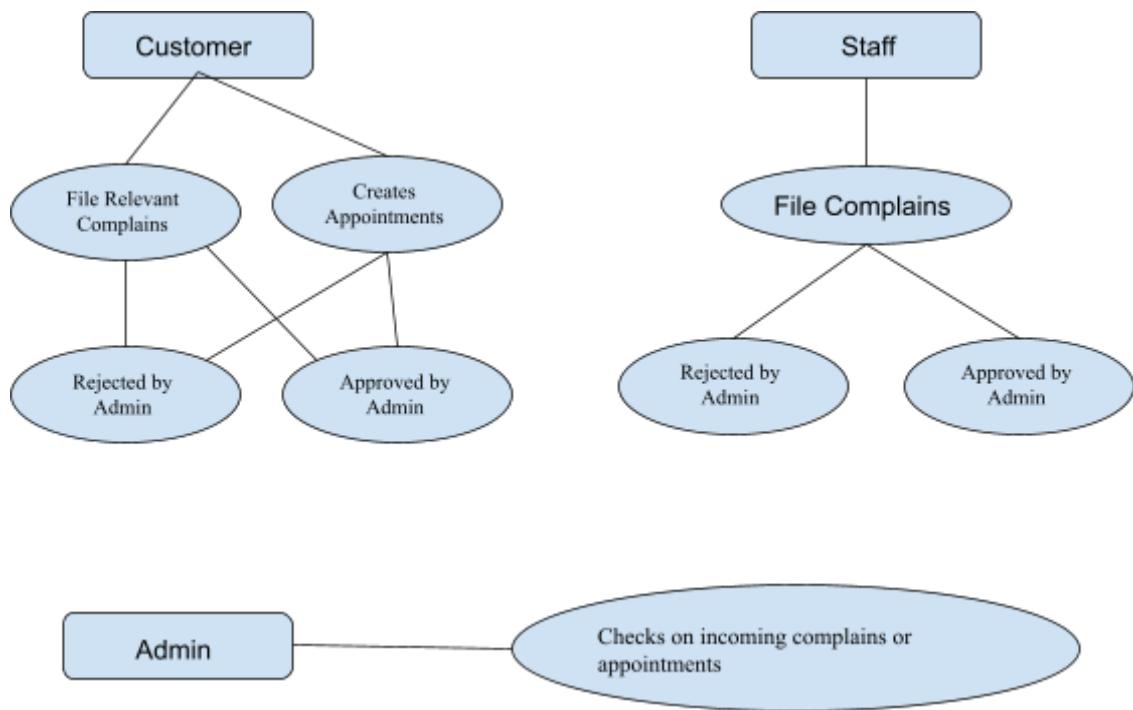
### 6.1. System/Software Architecture

Our system implements a three-tier monolithic architecture which consists of Presentation, Application, and Data tiers. Since we are building a MERN stack web application, We will be using React JS to build the frontend as the presentation layer. Alongside that, we will also be using Node.js with the help of Express to build the application layer and connecting that to a MongoDB database to serve as the data layer to our architecture.

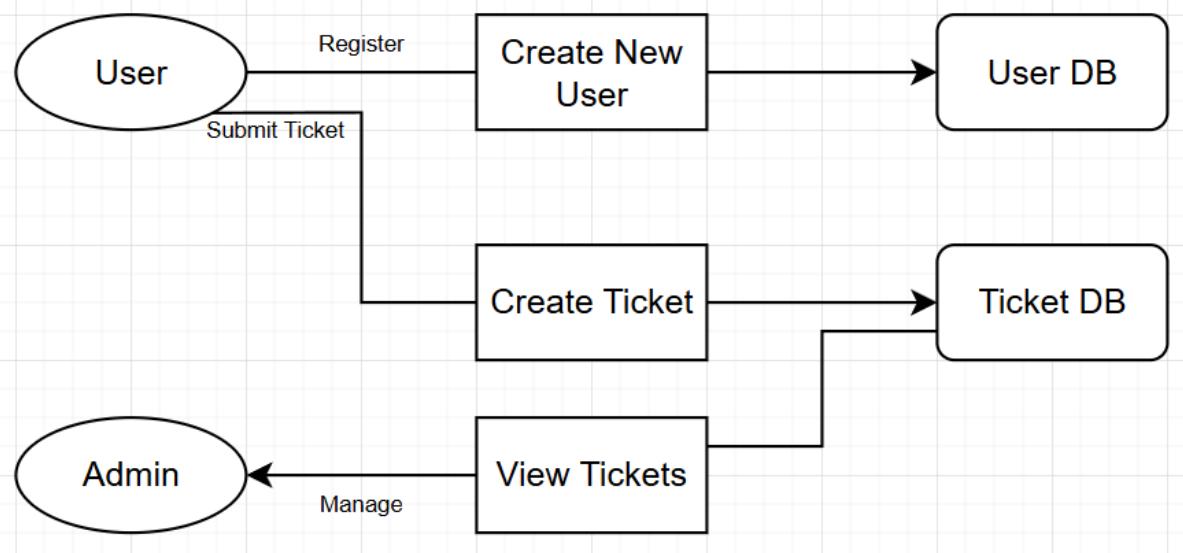
### 6.2. Use Case Diagram



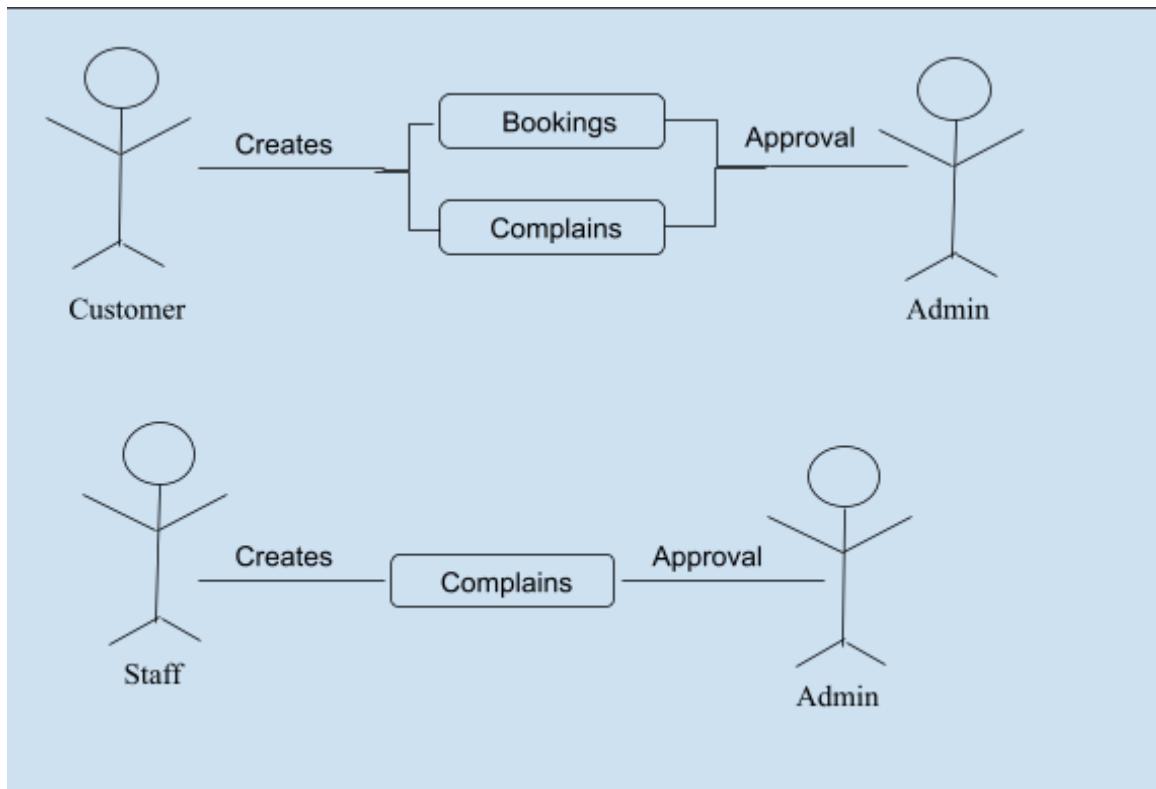
### 6.3. Activity Diagram/Flowchart



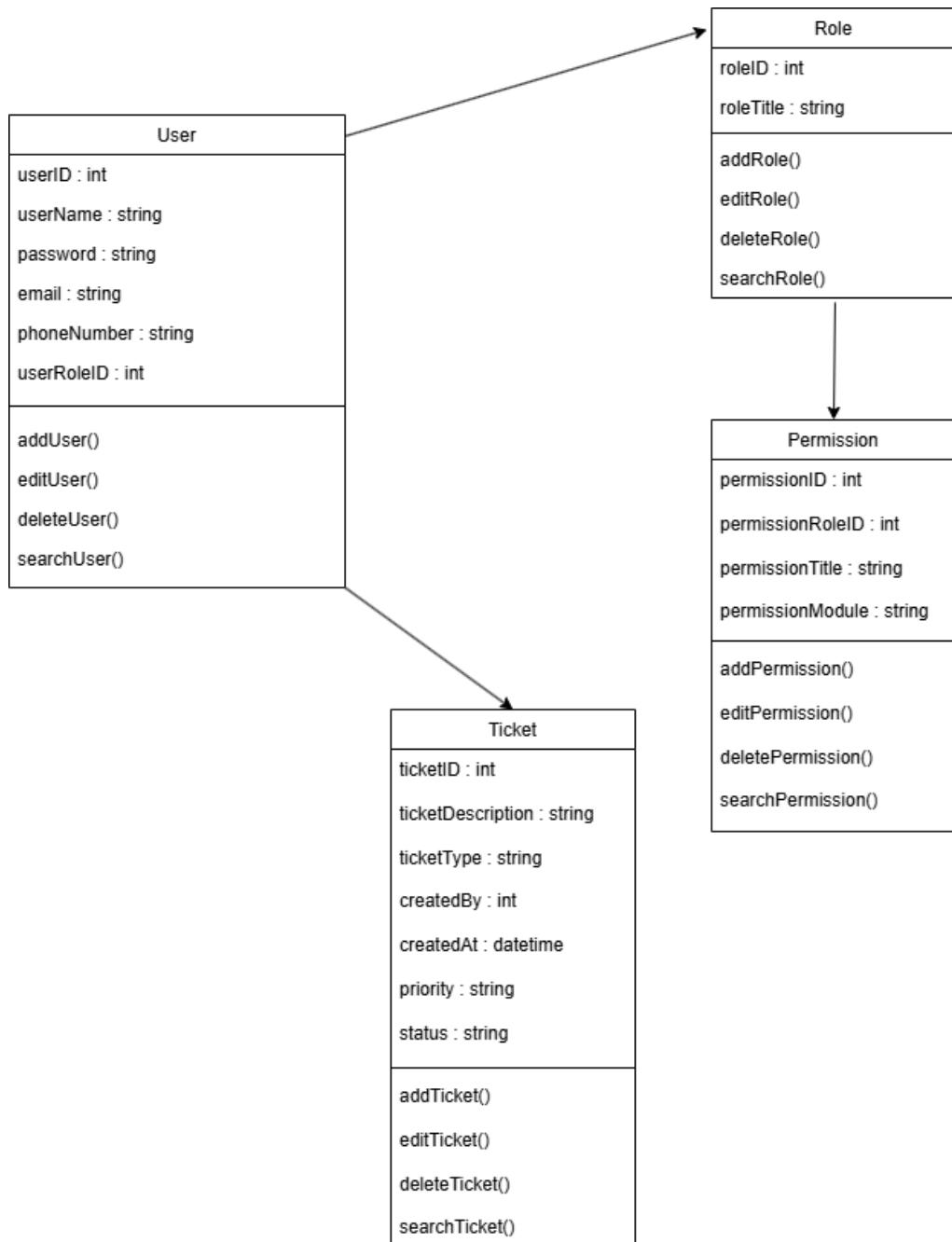
### 6.4. Data Flow Diagram (DFD)



## 6.5. Sequence Diagram



## 6.6. Class Diagram



## 6.7. Entity-Relationship Diagram (ERD)

Because we are using MongoDB for our database, it is an NoSQL database type, which is short for Not Only SQL, and it is a non-relational database therefore, we will not need the implementation of an Entity-Relationship Diagram (ERD)

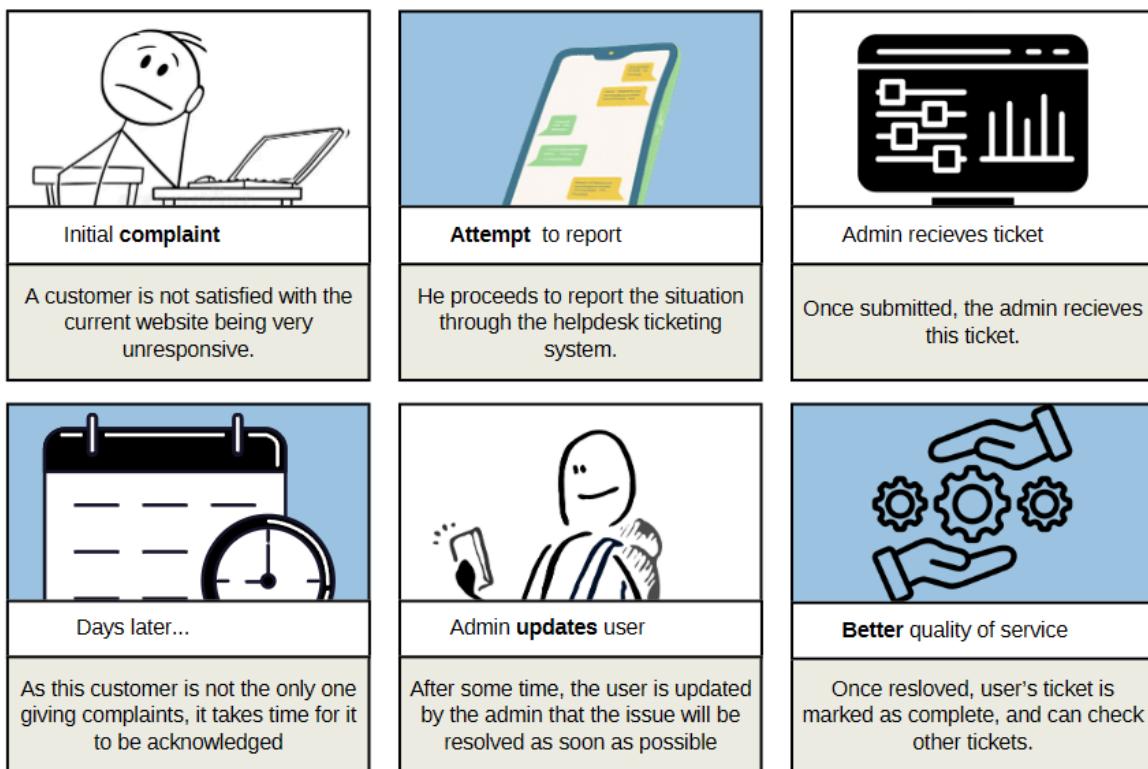
# CHAPTER 7

## Frontend and Backend Design

### 7.1. Storyboard

#### FARK.NET

Below illustrates a scenario of our website application services in use



## 7.2. Mockup (Low-Fidelity)

### Admin View

#### Dashboard

ID	Description	Type	User ID	Date Created	Priority Level	Status
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

Filter     Remove

#### Ticket Selection

ID	Description	Date Created At	View Date	Condition	Priority Level	Status
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—

Filter     Remove

Ticket Details

Ticket ID	Description
—*	—
User ID	—*
Type	—*

## Customer and Staff View

### Dashboard

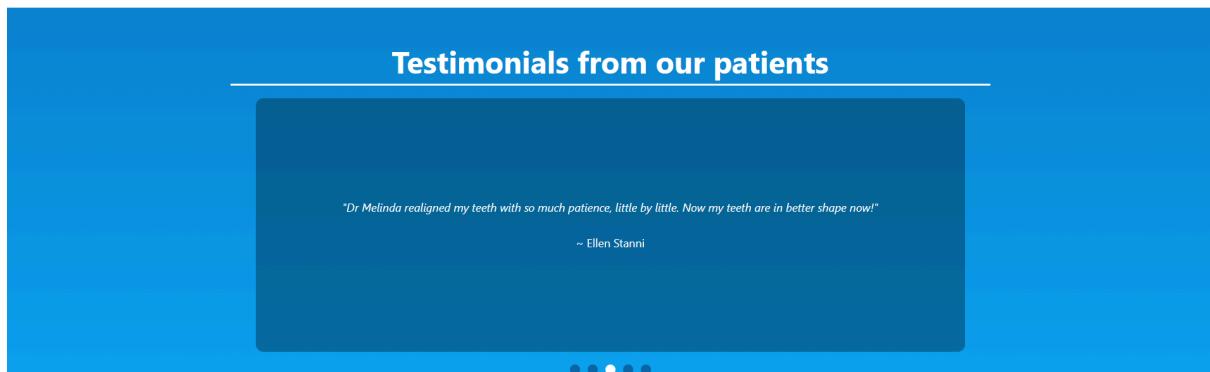
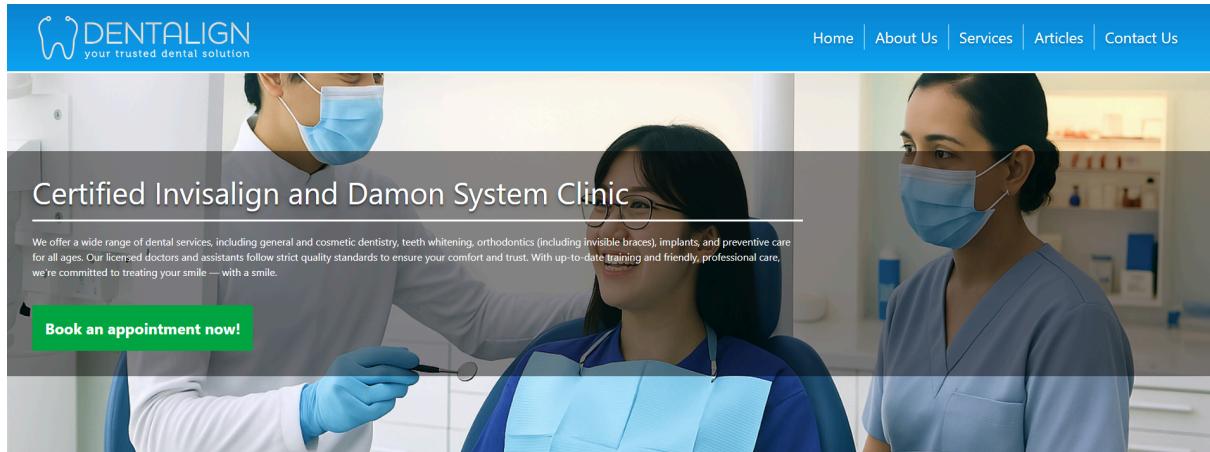
The dashboard interface includes a search bar labeled "Search", navigation links for "My Tickets", "In Progress", "Completed", and "Ticket History", and a "Create" button. The main content area is divided into two large sections: "Date" and "Ticket Details", both of which are currently disabled or removed.

### Sign In

The sign-in page features a header with the "Dentalign Logo" and a subheader containing the text "Header" and "subheader". The main content area is titled "Sign In" and contains fields for "Email" and "Password", along with a "Remember me" checkbox and a "Forgot password?" link. Below these are a "Sign In" button and a "Continue with Google" button. A link for "Don't have an account? Sign up" is also present.

## 7.3. Wireframe (High-Fidelity)

### Landing Page



**Certified Invisalign Clinic**



**DAMON SMILE**  
More than straight teeth

**Certified Damon System Clinic**

**At Dentalign, we specialize in Invisalign treatment for both adults and kids.**

Invisalign is an invisible way to straighten your teeth without braces. This technique uses a series of clear, removable aligners to gradually straighten teeth, without metal or wires. Invisalign is a clear alternative to traditional braces.

**At Dentalign, we also specialize in Damon System treatment for all our customers.**

The Damon System is not just about revolutionary braces and wires, it's a whole new way of treating patients. Traditional treatment often requires removal of healthy teeth and/or the use of palatal expanders to make space. This approach is often uncomfortable, takes longer, and can leave a narrower arch and a flat profile. Damon smiles are full, natural 10-tooth smiles achieved with light biologically-sensible forces, and are specifically designed to improve the overall facial result of each patient.

**Contact us**

---

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+62 21-290-55-115  
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**Email**  
info@dentalign.id

**Address**

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**DENTALIGN**  
your trusted dental solution

CONTACT US

**Make An Appointment**

---

First Name <input type="text" value="First name"/>	Last Name <input type="text" value="Last name"/>
Email <input type="text" value="Email"/>	
Phone Number <input type="text" value="Phone Number"/>	
What is the appointment for? <input type="text" value="Description here"/>	
Preferred Time for Appointment <input type="text" value="dd/mm/yyyy --::--"/>	

**Submit**

**Contact us**

---

**WhatsApp**  
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**Phone**  
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+62 899-1-911911

**Email**  
info@dentalign.id

**Address**

Jl. Hang Tuah No 7, Kebayoran Baru, Jakarta Selatan 12120



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## Admin View

### Dashboard

The screenshot shows a dashboard for managing dental tickets. At the top, there's a logo for 'DENTALIGN' with the tagline 'your trusted dental solution'. A user profile icon is in the top right corner. Below the header, there are tabs for 'All Tickets', 'In Progress', 'Completed', and 'Ticket History', with 'All Tickets' being the active tab. A search bar with placeholder text 'Search tickets...' and a 'Filter' dropdown are also present. The main area displays a table of ticket details:

Ticket ID	Title	Assignee	Type	Date Created	Priority	Status
DENT-1001	Patient Records System Error	Dr Cindy	IT System	30/04/2025	High	In Progress
DENT-1001	Patient Records System Error	Dr Cindy	IT System	30/04/2025	High	In Progress
DENT-1001	Patient Records System Error	Dr Cindy	IT System	30/04/2025	High	In Progress
DENT-1001	Patient Records System Error	Dr Cindy	IT System	30/04/2025	High	In Progress

### Ticket Selection

The screenshot shows a modal window for viewing a specific ticket. The modal has a close button ('X') in the top right corner. It contains the following fields:

- Date**: Created At: 30/4/2025, View Date: 30/4/2025
- Condition**: Priority Level: High, Status: In Progress
- Ticket Details**:
  - Ticket ID**: DENT-1001
  - User ID**: UID-1001
  - Type**: TYPE-02
  - Description**: After attending one of the patients this afternoon, I had difficulty accessing the history of said patient's records. Due to this technical difficulty, I am unable to determine if this patient is a recurring customer.

At the bottom of the modal are two buttons: 'Edit' (blue) and 'Delete' (red).

## Customer & Staff View

### Dashboard

Customer & Staff View

DENTALIGN  
your trusted dental solution

All Tickets In Progress Completed Ticket History

Search tickets... Filter ▾

Ticket ID	Title	Type	Status
DENT-1002	Appointment Scheduling Bug	Tech Support	Completed

Created at: 30/04/2025

Priority Level: Medium Status: Completed

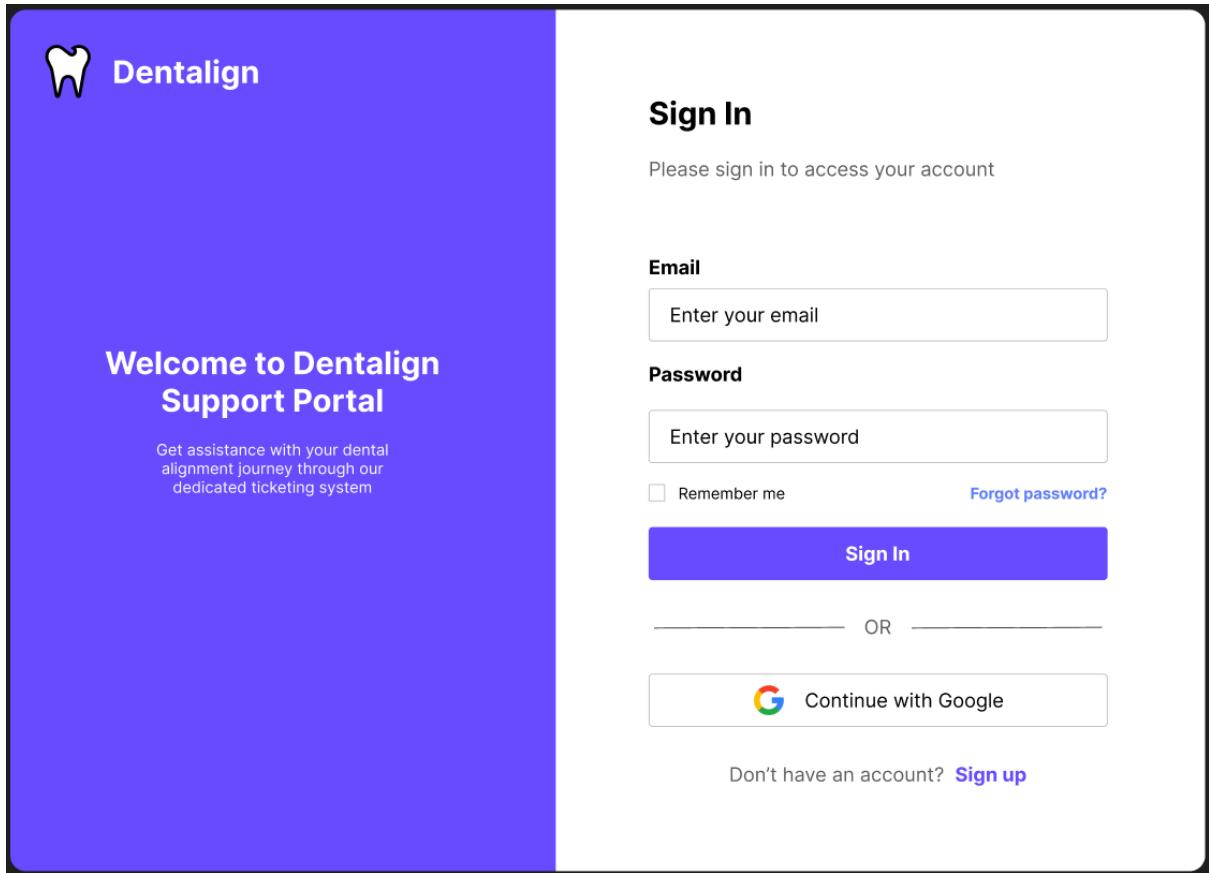
**Ticket Details**

- Ticket ID: DENT-1002
- Title: Appointment Scheduling Bug
- Type: Technical Support

**Description**

The calendar is showing double bookings for afternoon appointments. This is causing confusion for both staff and patients.

## Login/Signup



The image shows a two-column login interface for the Dentalign Support Portal. The left column has a purple background and features the Dentalign logo (a white tooth icon) and the text "Welcome to Dentalign Support Portal". Below this, a subtext reads: "Get assistance with your dental alignment journey through our dedicated ticketing system". The right column has a white background and contains a "Sign In" heading, a "Please sign in to access your account" message, and input fields for "Email" and "Password". It also includes a "Remember me" checkbox, a "Forgot password?" link, a large blue "Sign In" button, and a "Continue with Google" button. A "Don't have an account? [Sign up](#)" link is at the bottom.

**Dentalign**

Welcome to Dentalign Support Portal

Get assistance with your dental alignment journey through our dedicated ticketing system

**Sign In**

Please sign in to access your account

**Email**

Enter your email

**Password**

Enter your password

Remember me [Forgot password?](#)

**Sign In**

OR

 Continue with Google

Don't have an account? [Sign up](#)

Figma Link:

<https://www.figma.com/design/fMUyIuNc0lc70WRGRFKNRk/Untitled?node-id=63-2&p=f&t=xoOXPPPLBmVk8LWHd-0>

## **7.4. API Design**

For the design of API, we can use the REST API which is short for Representational State Transfer Application Programming Interface. How we are going to do it is that the backend language that we are going to use, Express, has a supported library named Mongoose that allows it to connect and communicate with MongoDB. Nonetheless, React can talk to the API itself using its own popular built in library tool called axios.

## **7.5. External Service (API) Integration**

Since our application mostly works independently, then we do not need any services or data from external APIs.

## **7.6. Database Connection**

We can connect our back-end of express to MongoDB using REST API, by which was discussed earlier.

## **7.7. Infrastructure and Repository**

For the files that are made and will be made for this project, all will be uploaded and pushed to a GitHub repository, that we already made, which the link is given below:

<https://github.com/Frahyang/WADS-FP-FARK.net>

## **CHAPTER 8**

### **Deployment**

We will use a free and well-known hosting service called Vercel, where our website would be called website.vercel.app, in which the website would be changed to the real name. It is automatically synced and connected to our GitHub repository that we will be using for this project, therefore it will be good.

# **CHAPTER 9**

## **Acceptance Criteria**

- User Registration: 100% of users can successfully register and log in, as this shows that the system is created carefully.
- Course Completion: 100% of users successfully make their appointment without any technical issues.
- System Uptime: 99.9% uptime requirement, to enable the users to conveniently make appointments anytime.

# **CHAPTER 10**

## **Approval**

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Date of Approval: