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Student Name: Abhishek Rokaya

London Met ID: 19030695

College ID: NP01CP4A190164

Internal Supervisor: Mohit Sharma

External Supervisor: Ankit Tandukar

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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a marks of zero will be awarded.

Summary

The report that follows is based on a web application that is being developed with the Python programming language. This is the interim report for the final year project, and it serves to document the project's current development. Introduction, Background, Surveys, Client's Requirements, Development to Date, Analysis, and Future Planning are all included in this graphic report of the intermediate report. The main goal of this system is to create a "Dental Appointment System" online application. This report details the system's early progress as well as the work that will be done in the future to achieve the goal.

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1. Introduction

Nepal is a developing country where technological evolution is also emerging day by day. In Nepal, several new innovations have been introduced and implemented. But there is not much technological advancement in Nepal with regards to the dental appointment sector. People still wait in long lines just to get their teeth checked. It is necessary to get a dental check-up once every 6 months. So, it is necessary to have an appointment for various dental check-up and facilities in order to avoid such crowds and lines. Many people do not have time to wait in such lines. In order to save such time, I decided to create a Dental Appointment System that would help many people in Nepal.

1.1 Problem Scenario

People who have a tight schedule don't have enough time to wait in long line for their dental check-up. Sometimes there is no guarantee if their turn will come or not. It is very hectic for people to wait in long lines for a few minutes of consultation as well. Especially now, in times of covid, it is very risky to stay in crowds as well. Here, the clinics still use old paper style report so there is very high chance that the report will get lost or misplaced. So, if in case, the patient goes to a new dentist, there is a chance that he/she might have to check their whole teeth again to see what had happened.

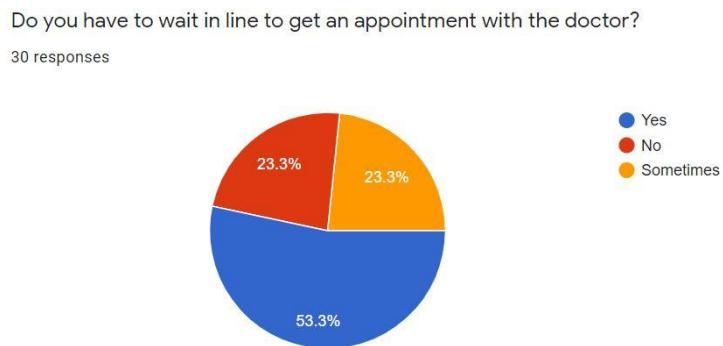


Figure 1: Survey of problem

According to a survey done, it was found that over 50% had to wait in long lines to get an appointment with the doctor whereas around 23% sometimes had to wait in lines.

[Here is the survey findings.](#)

1.2 Project as a Solution

This Dental Appointment System is important for the country as technology grows fast in the world. The goal of developing this project is to provide better solutions to the problems faced by patients. This website will allow customers to schedule an appointment for their dental check-up from home or from the office. In the present situation, there is no such appointment system available in Nepal. Patients find it difficult to book an appointment for their dental check-up. Either they must wait a very long line in crowd or must call some known doctors to schedule an appointment. Patients can also view their reports in their profile, so they will never lose their dental record and it will be much easier to access it in future if the patients face any problems.

Would you like to use a web application to schedule an appointment with the doctor?

30 responses

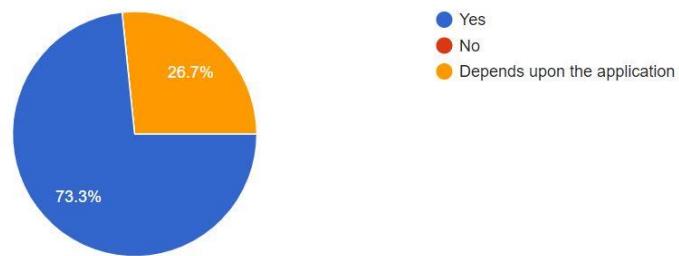


Figure 2: Survey of solution 1

According to the pie chart, it shows that over 70% of them would like to use a web based application to schedule an appointment with the doctor whereas the rest would like to use it depending upon the application.

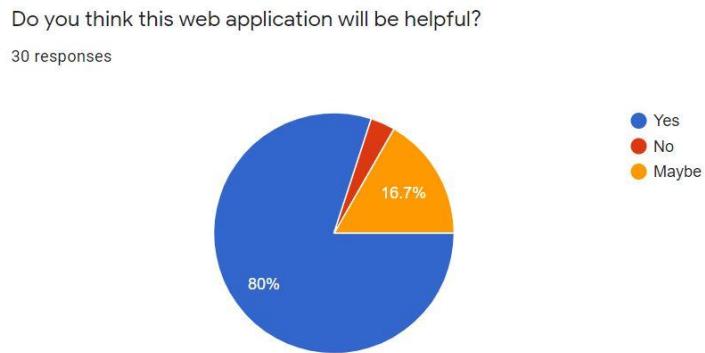


Figure 3: Survey of solution 2

According to the above pie chart of the survey, it was found that 80% of the people thought this web application will be useful whereas 16.7% thought it might be helpful.

At the end of this project, a prototype will be created that will provide a solution to the problem found. This system would be a web-based system where an overall online registration process and appointments will be carried out. Finally, the proposed system would save time for the patients.

1.3 Aims and Objectives

The primary aim of this project is to create a user-friendly web application that allows users to schedule a dental check-up appointment and save time rather than going to the clinic and waiting in line.

The following objectives are pursued in order to achieve this aim:

- To learn about the Python and its Django Framework along with its features.
- To use a relational database to comprehend and implement a database management system in the real world.
- To create a web application that allows people to book an appointment for their dental check-up.
- To work on the project using incremental methodology.
- Make the UI as user-friendly and interactive as possible.

1.4 Features

The main expected outcome after the completion of the project is that the user will be able to schedule an appointment with the doctor for their dental check-up with the doctor that they prefer for their desired dental services. Instead of having to wait in long lines, users can easily book an appointment from anywhere. The application is targeted only on one particular clinic. The deliverables and features of this project are listed below:

User:

- User can register into the system.
- User can login to the system after being registered.
- User can reset their password in case they forget their previous password.
- User can view and update their profile.
- User can schedule, view and cancel their appointment accordingly.
- User can view doctors list and select their preferred in house doctors for their check-up.
- Users can also view their report online after their visit to the clinic.

Admin:

- Admin can also login to the system with their own unique credentials in order to use the system.
- Admin can view all the users.
- Admin can register new users and de-register current users.
- Admin can add new doctors as well as delete existing doctors.
- Admin can add report of the user's appointment as well as delete existing report.
- Admin can view all of the appointments of the users as well as cancel their appointments if needed.

System:

- System verifies registration as well the login details entered by the users.

- System displays error if the details entered by the users are wrong or doesn't meet the criteria.
- System can send password recovery mail to the users who claims to have forgotten their password.

1.5 Report Structure

This section includes the structure of the report:

1. Introduction:

- Introduction of the topic
- Problem Scenario
- Project as a solution
- Aims and Objectives
- Features

2. Background

- Technology
- Methodology
- Review of Similar Projects
- Analysis of Similar Projects
- About the End Users and the Client

3. Development to date

- Use Case Diagram
- High Level Use Case Diagram
- Wireframes
- Development
- ER Diagram

4. Analysis of progress

- Progress till date
- Analysis on progress

5. Future Work

- Phases to complete

6. References

7. Appendix

- Survey Findings
- ERD Creation Process
- Discussion and meeting with client
- Gantt Chart

2. Background and Literature Review

2.1 Technology

Django Python Framework:

For my project, I have decided to use the Django Python Framework. The reason I chose this framework is because it has better CDN connectivity and content management. It also has a faster processing. Django uses the MTV architecture due to which the transmission over the internet is easier and faster.

HTML, CSS, JavaScript and Bootstrap

For the frontend of the web application, I have decided to use HTML, CSS, JavaScript and Bootstrap, which is the framework of CSS.

SQLite

For the database, I have decided to use SQLite to store the database. Django uses SQLite database by default so it is easier to use this database than others which is why I chose this.

PyCharm and Visual Studio Code IDE:

The IDEs that I will be using to develop the application are PyCharm and Visual Studio Code. PyCharm is a professional IDE used specifically for Python. With PyCharm, it is very easy to create a database, create virtual environment and many more. However, for the front end part I have decided to use Visual Studio Code to write HTML and CSS codes as I find it easier with the available extensions.

Hardware Requirements

For the project to run, it doesn't need any high-end hardware device. Just a normal working device with a proper internet connection will work fine.

2.2 Methodologies

2.2.1 Considered Methodology

2.2.1.1 RUP Methodology

The Rational Unified Process (RUP) is an approach for developing agile software. The project life cycle is divided into four phases by RUP. All six main development disciplines are practiced at each phase: business modelling, requirements, analysis and design, implementation, testing, and deployment. RUP provides a systematic way to build this type of system, focusing on the production of an executable architecture in the early stages of the project, that is, before committing resources on a large scale. (TestBytes, 2019)

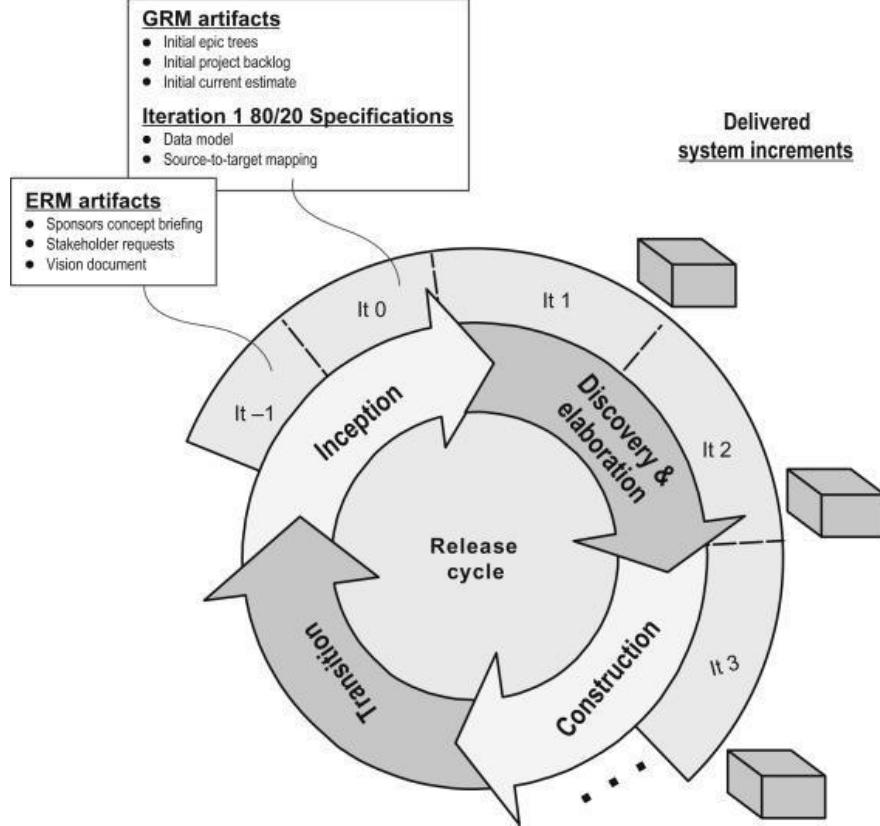


Figure 4: RUP Methodology (TestBytes, 2019)

2.2.1.2 Prototype Methodology

Prototype Model is a software development model in which prototype is built, tested, and reworked until an acceptable prototype is achieved. (Martin, 2021) It also serves as a foundation for the creation of the final system or software. It's best used in situations where the project's requirements aren't fully understood. It is an iterative, trial-and-error process that occurs between the developer and the client.

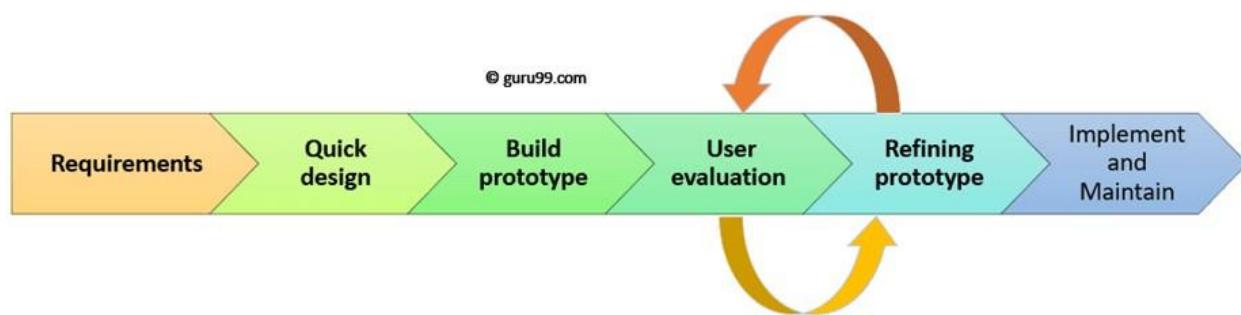


Figure 5: Prototype Methodology (Martin, 2021)

2.2.2 Selected Methodology

2.2.2.1 Incremental Methodology

In Incremental Methodology, first a simple working system is constructed and supplied to the customer, with only a few basic features. Over many successive iterations successive versions are implemented and delivered to the customer until the desired system is realised. (Mall, 2014) The following diagram shows the incremental development model:

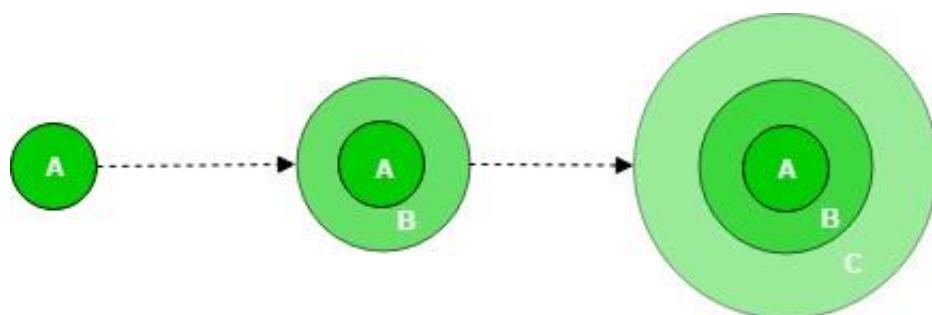


Figure 6: Incremental Methodology (GeeksForGeeks, 2019)

I chose the Incremental Model methodology for my project. The incremental model is a software development technique in which the model is defined, implemented, and tested one step at a time until the product is complete. It consists of both development and maintenance. When a product meets all of its specifications, it is said to be done. This model combines the elements of the waterfall model with the iterative philosophy of prototyping. (Ghahrai, 2016) I picked this methodology over the iterative model because the iterative model requires us to receive input from the project manager after each feature. Furthermore, the incremental model differs from the iterative model in that the iterative model involves the addition of new features, whereas the incremental model involves the refinement of existing features. This approach is commonly utilized in the development of online applications. Also, I utilized incremental since the requirements and features are extremely clear and can be implemented and delivered in each phase.

The product is broken down into multiple parts, each of which is designed and constructed independently (termed as builds). When all of the components have been completed, they are delivered to the client. This allows for partial product usage while avoiding a lengthy development process. It also necessitates a significant upfront financial investment, with the long wait time eliminated. This model of development also helps ease the traumatic effect of introducing completely new system all at once. (Ghahrai, 2016)

2.3 Review of Similar Projects

2.3.1 Dent-inn

Dent-inn is a dental clinic located at Durbar-marg of Kathmandu, Nepal. The application is a web based application. In this application, you can fill out an online appointment form. The form requires name, phone, email, date, time, preferred doctor and message. However, you cannot select a particular service from the appointment from itself. There is also a section where you can view the in house doctors. In this application, you do not need register as a user. Anyone can just visit the website and book an appointment. There is no section for uploading report meaning you can only book an appointment for your dental check-up and nothing more.

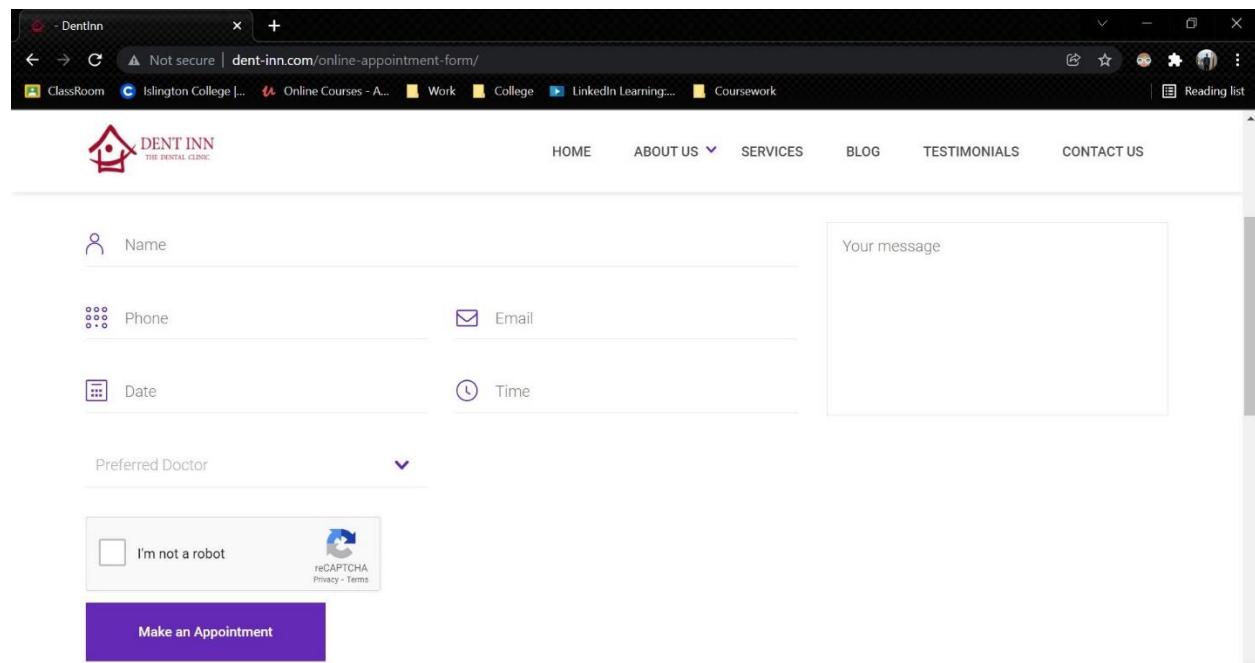


Figure 7: Dent-inn

Link to the website: <http://www.dent-inn.com/>

2.3.2 DentaLife

DentaLife is also a dental clinic located at Jamal, Kathmandu. Although the website is similar to Dent-inn, the appointment section of this web is quite different. It used google forms in order to collect the appointment details. This web uses no backend.

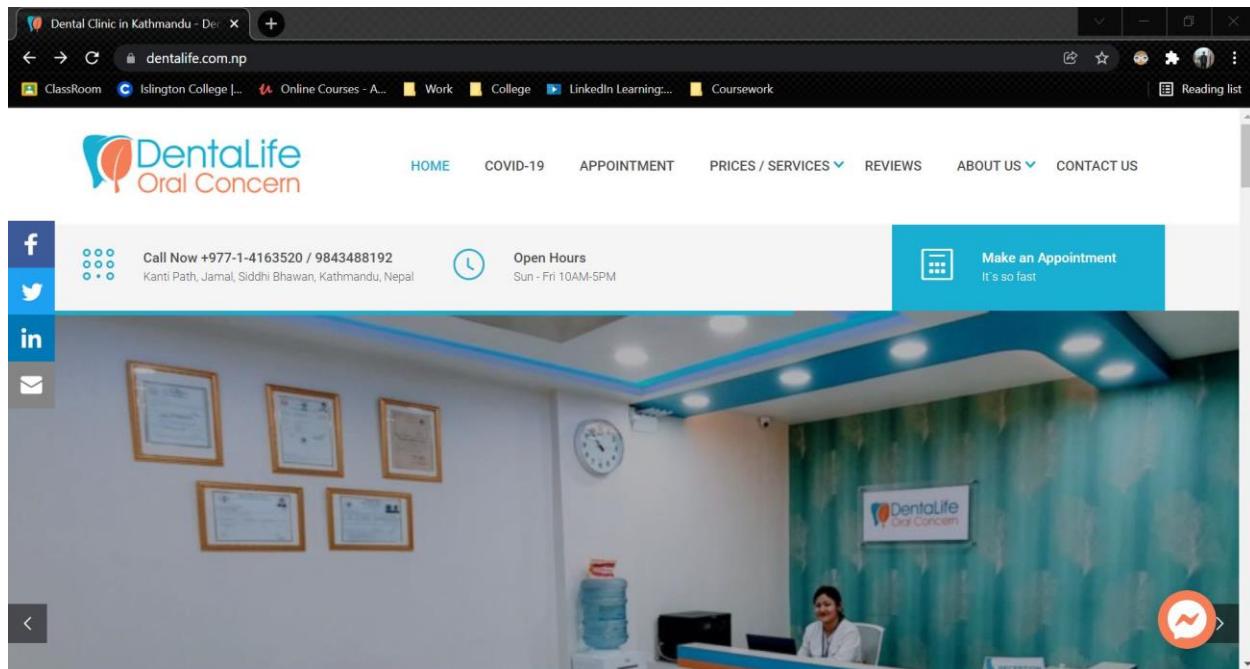


Figure 8: DentaLife

Link to the website: <https://dentalife.com.np/>

2.3.3 Kumari Dental Care

Kumari Dental Care is a dental clinic located at Jhamsikhel, Lalitpur. It is also a web based application where any user can book an appointment. In this web application, the first name, last name, email, needs and message. In this clinic, only one doctor is present. There is no login and register feature here as well. There is no report option here as well, meaning user will only use this website once for their appointment.

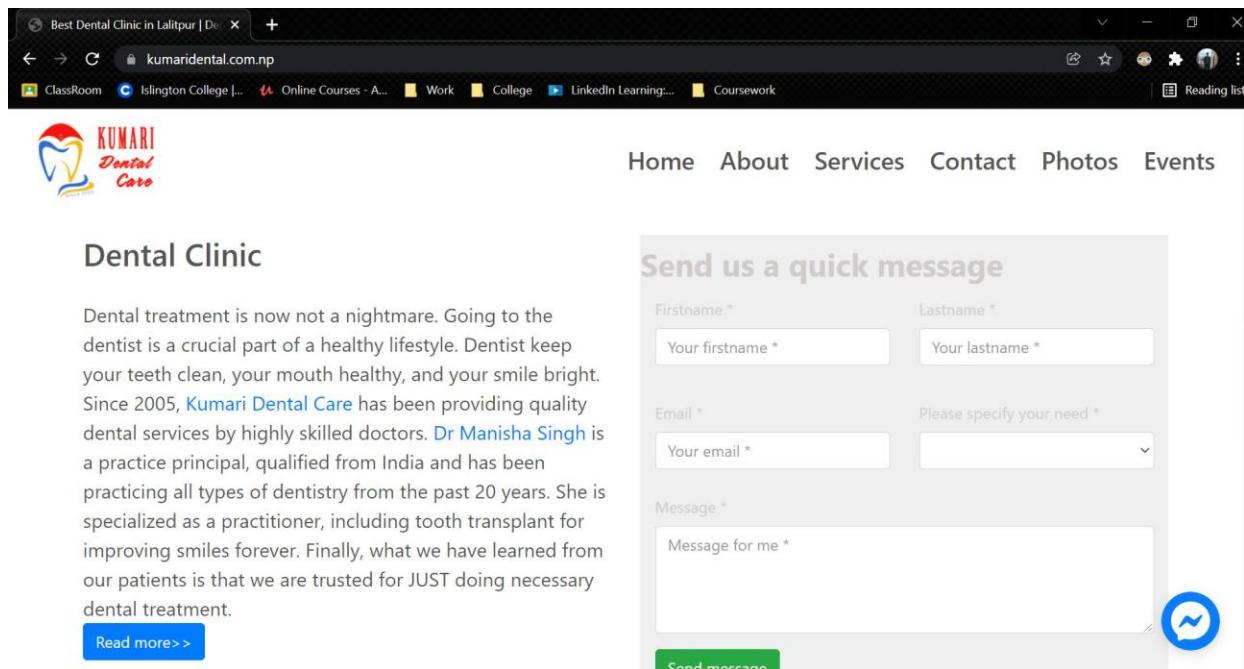


Figure 9: Kumari Dental Care

Link to the website: <https://kumaridental.com.np/index.html>

2.4 Analysis of Similar Projects

The table below shows the comparison of different web based applications for the online appointment booking system.

S. No	Features	Dent-inn	DentaLife	Kumari Dental	My System
1.	Online Appointment Booking Module	✓	✓	✓	✓
2.	Doctor Selection	✓	✓	✗	✓
3.	Service Selection	✗	✗	✓	✓
4.	View Report	✗	✗	✗	✓
5.	View Doctors	✓	✗	✓	✓
6.	Login	✗	✗	✗	✓
7.	Register	✗	✗	✗	✓
8.	Day and Time Selection	✓	✓	✓	✓
9.	Extra Note	✓	✓	✓	✓

Table 1: Analysis of Similar Project

2.5 About the End Users and the Client

2.5.1 Client

Phulchowki Dental Care is a dental clinic located at Thaiba, Lalitpur. The founder and Managing Director of the clinic, Dr. Prashamsa Khadka has agreed to be the client for this project as she, including other staff, found this project very useful, feasible and effective.

2.5.2 End Users

The end users for the application will be multiple people who wants to book a dental appointment. The targeted users are the general public looking for an easier way to schedule a dental appointment with the doctor.

[Here is the discussion about the project with the client.](#)

3. Development till date

3.1 Use case

A use case diagram is a visual representation of the details of a system and the people who use it. It is an effective technique for communicating system behaviour in the user's terms by specifying all externally visible system behaviour. (VisualParadigm, 2021) Because use case diagrams provide a pretty simplistic summary of an interaction, more detail is required to comprehend what is involved. This information can be presented in the form of a basic textual description, a structured description in a table, or a sequence diagram.

The Use Case Diagram for the dental booking system is given below:

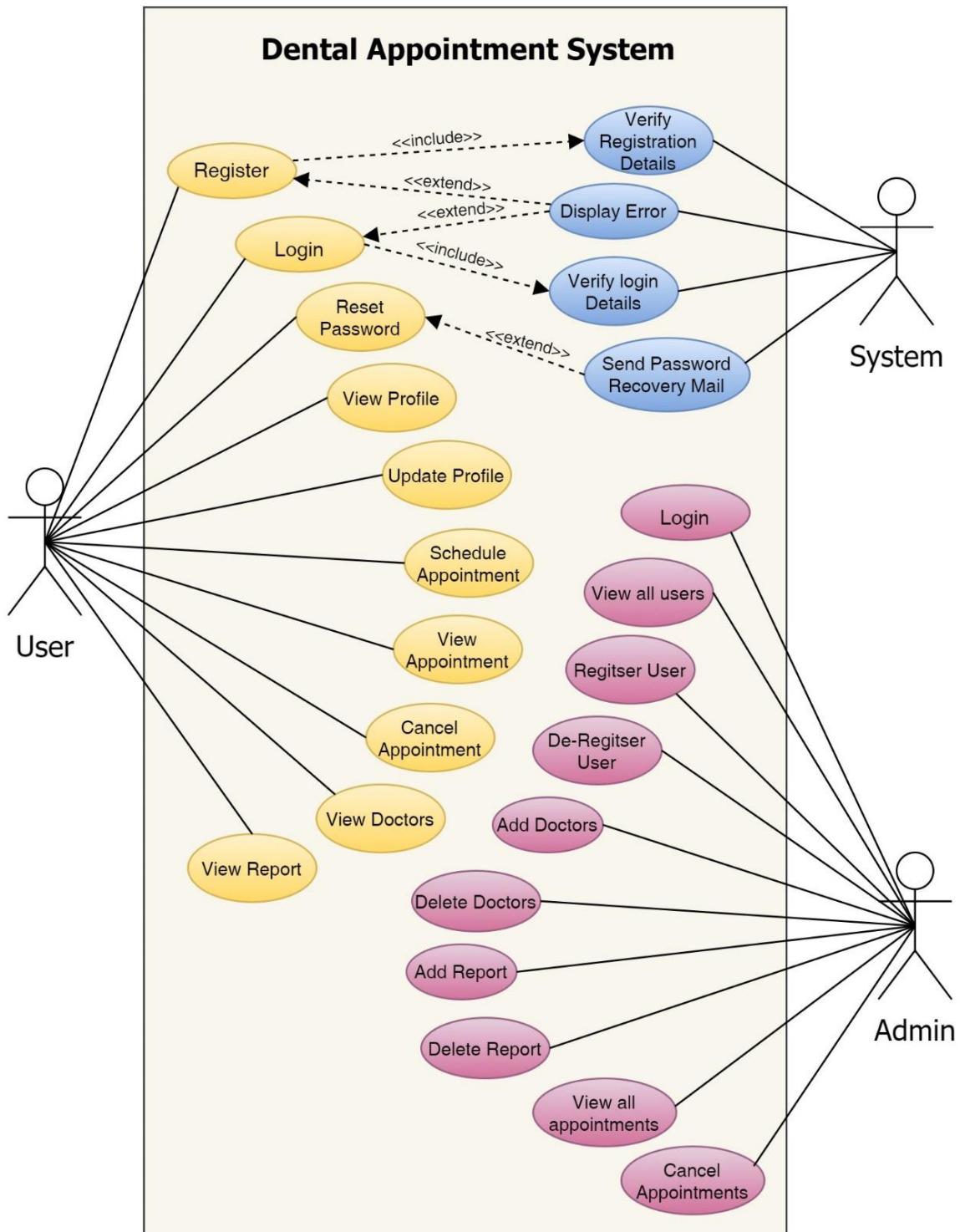


Figure 10: Use Case Diagram

3.2 High Level Use Case Description

The high level use case description of each use case in the system are as follows:

1. Register to the system

Use Case:	Register
Actor:	User
Description:	New users that are not registered in the system register into system. The registration is then verified by the system.

2. Login to the system

Use Case:	Login
Actor:	User, Admin
Description:	In order to use the system and use its features, the user and the admin must log in to the system. The login details is then verified by the system.

3. Verify Registration Details

Use Case:	Verify Registration Details
Actor:	System
Description:	The system verifies if all the field are filled correctly in order to have the user registered to the system.

4. Verify Login Details

Use Case:	Verify Registration Details
Actor:	System
Description:	The system verifies if all the field are filled correctly in order to have the user or the admin logged in to the system.

5. Display Error

Use Case:	Display Error
Actor:	System
Description:	The system displays error if there is any invalid input during the registration or during the login.

5. Reset Password

Use Case:	Reset Password
Actor:	User
Description:	User who forget their password can request a reset for their password.

6. Send Password Recovery Mail

Use Case:	Send Password Recovery Mail
Actor:	System
Description:	The system recovers the password of the user who forget their password.

7. View Profile

Use Case:	View Profile
Actor:	User
Description:	The user can view their profile where they can see their details which they input.

8. Update Profile

Use Case:	Update Profile
Actor:	User
Description:	The user can update their profile details if they have changed anything from what they previously entered.

9. Schedule a Dental Appointment

Use Case:	Schedule Appointment
Actor:	User
Description:	User can schedule appointment for any dental services by selecting the desired date, time, doctor and service.

10. View Appointment

Use Case:	View Appointment
Actor:	User
Description:	Users can view their current appointments as well as their appointments history.

11. Cancel Appointment

Use Case:	Cancel Appointment
Actor:	User, Admin
Description:	The user can cancel their appointment until a certain period of time whereas the admin can cancel anyone's appointment.

12. View available doctors

Use Case:	View Doctors
Actor:	User
Description:	Users can view doctors that are available at the clinic and read their description and see their qualification as well.

13. View report

Use Case:	View Report
Actor:	User
Description:	Users can view report about their visit to the clinic.

14. View all users

Use Case:	View all users
Actor:	Admin
Description:	Admin can view all the user that are registered to the system.

15. Register users

Use Case:	Register User
Actor:	Admin
Description:	Admin can register new users to the system themselves.

16. De-Register users

Use Case:	De-Register User
Actor:	Admin
Description:	Admin can de-register existing users from the system.

17. Add new doctors

Use Case:	Add Doctors
Actor:	Admin
Description:	Admin can add new doctors to the system along with their description.

18. Delete doctors

Use Case:	Delete Doctors
Actor:	Admin
Description:	Admin can add remove existing doctors from the system if the doctor is no longer working in the clinic.

19. Add Report

Use Case:	Add Report
Actor:	Admin
Description:	Admin can add reports of the user approved by the doctor after their appointment with the doctor.

20. Delete Report

Use Case:	Delete Report
Actor:	Admin
Description:	Admin can add remove existing reports from the system.

21. View all appointments

Use Case:	View all appointments
Actor:	Admin
Description:	Admin can view all the appointments the users have made from the system.

3.3 Wireframes

3.3.1 Landing Page

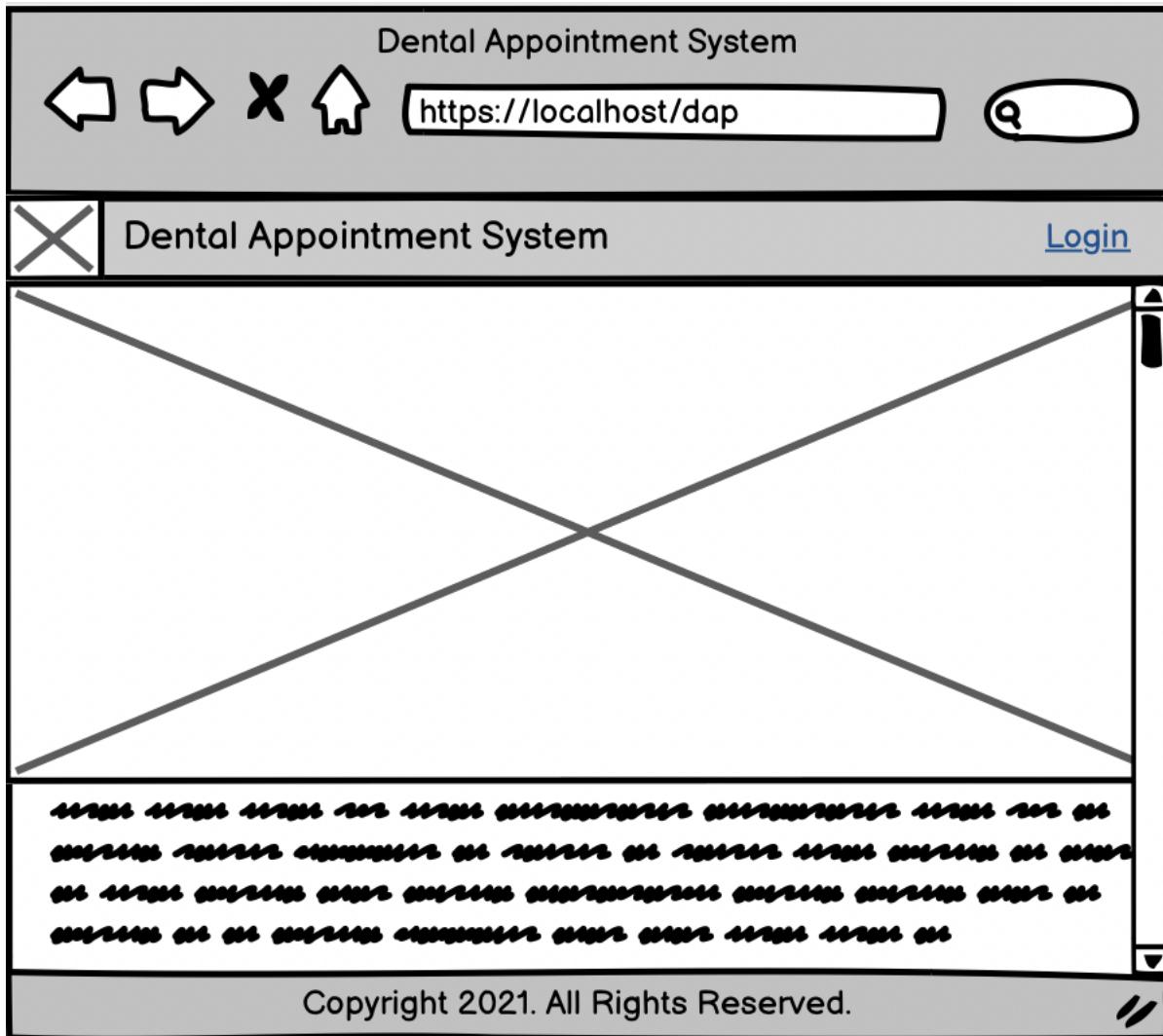


Figure 11: Wireframe 1

3.3.2 Login Page

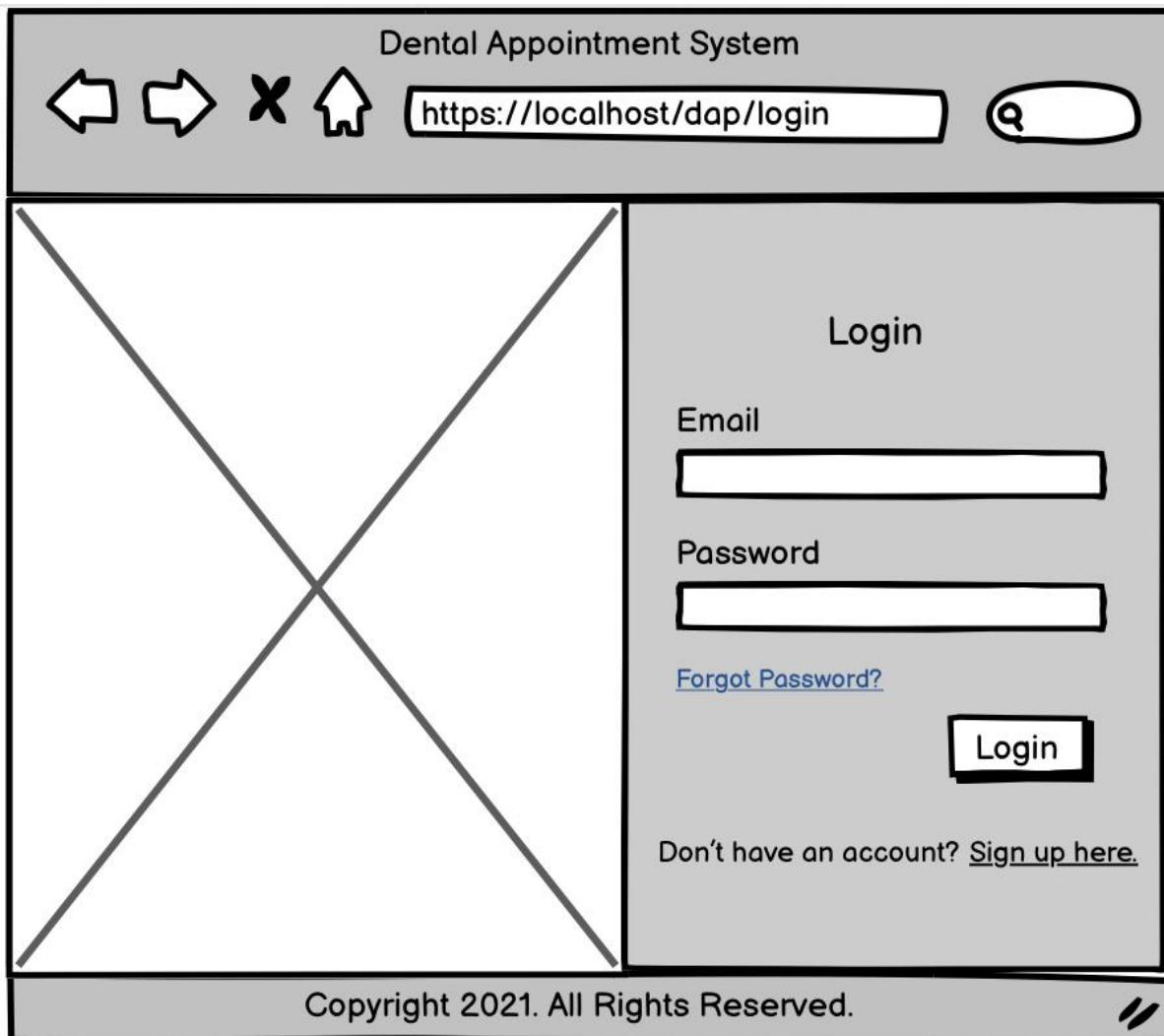


Figure 12: Wireframe 2

3.3.3 Registration Page

The wireframe shows a registration page for a dental appointment system. At the top, there is a header bar with icons for back, forward, close, and home, followed by the URL <https://localhost/dap/registration> and a search icon. The main content area is titled "Registration". It contains fields for "Full Name", "Email", "Gender", "DOB", "Phone No.", "Password", and "Confirm Password", each with an associated input field. Below these fields is a "Register" button. At the bottom of the page, there is a copyright notice "Copyright 2021. All Rights Reserved." and a double slash icon.

Dental Appointment System

<https://localhost/dap/registration>

Registration

Full Name:

Email:

Gender:

DOB:

Phone No.:

Password:

Confirm Password:

Register

Already have an account? [Sign in here.](#)

Copyright 2021. All Rights Reserved.

Figure 13: Wireframe 3

3.3.4 User Dashboard

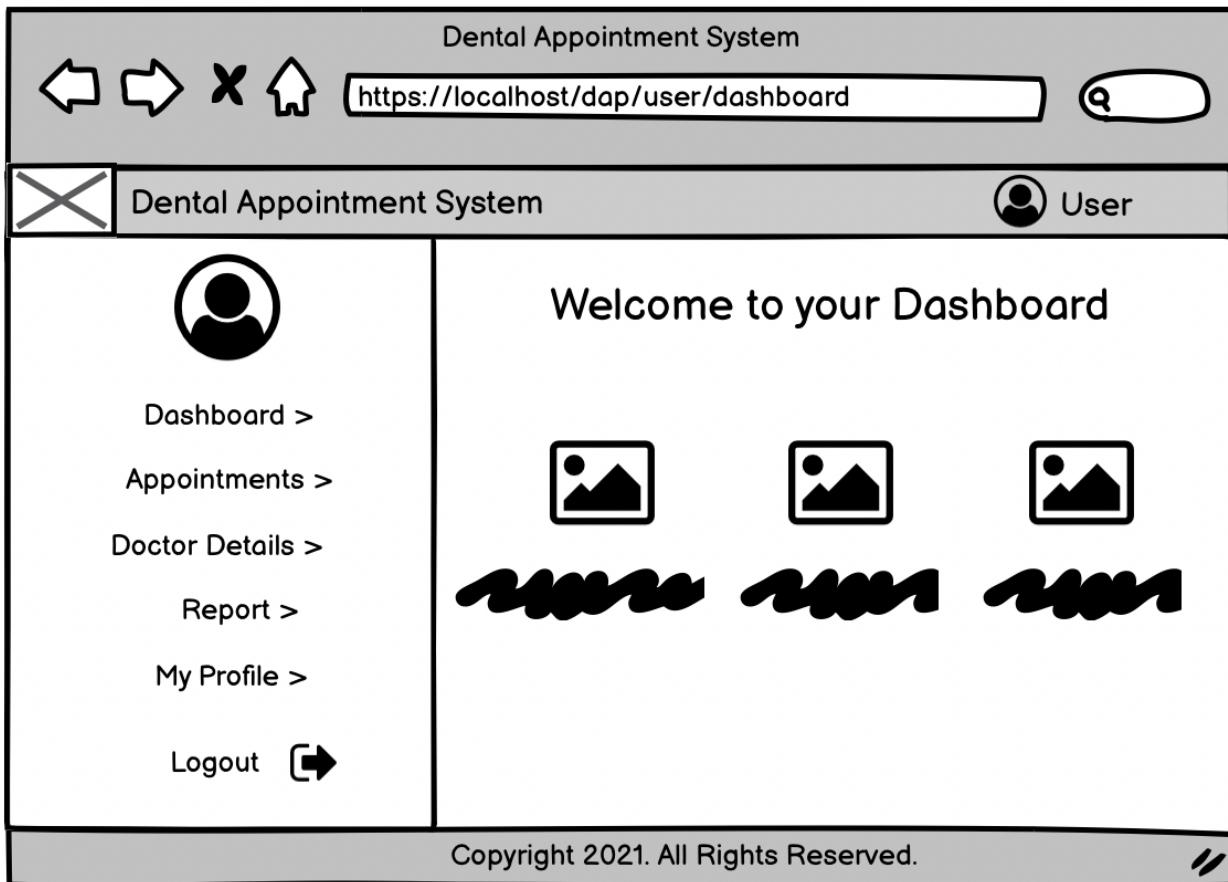


Figure 14: Wireframe 4

3.3.5 User Appointment

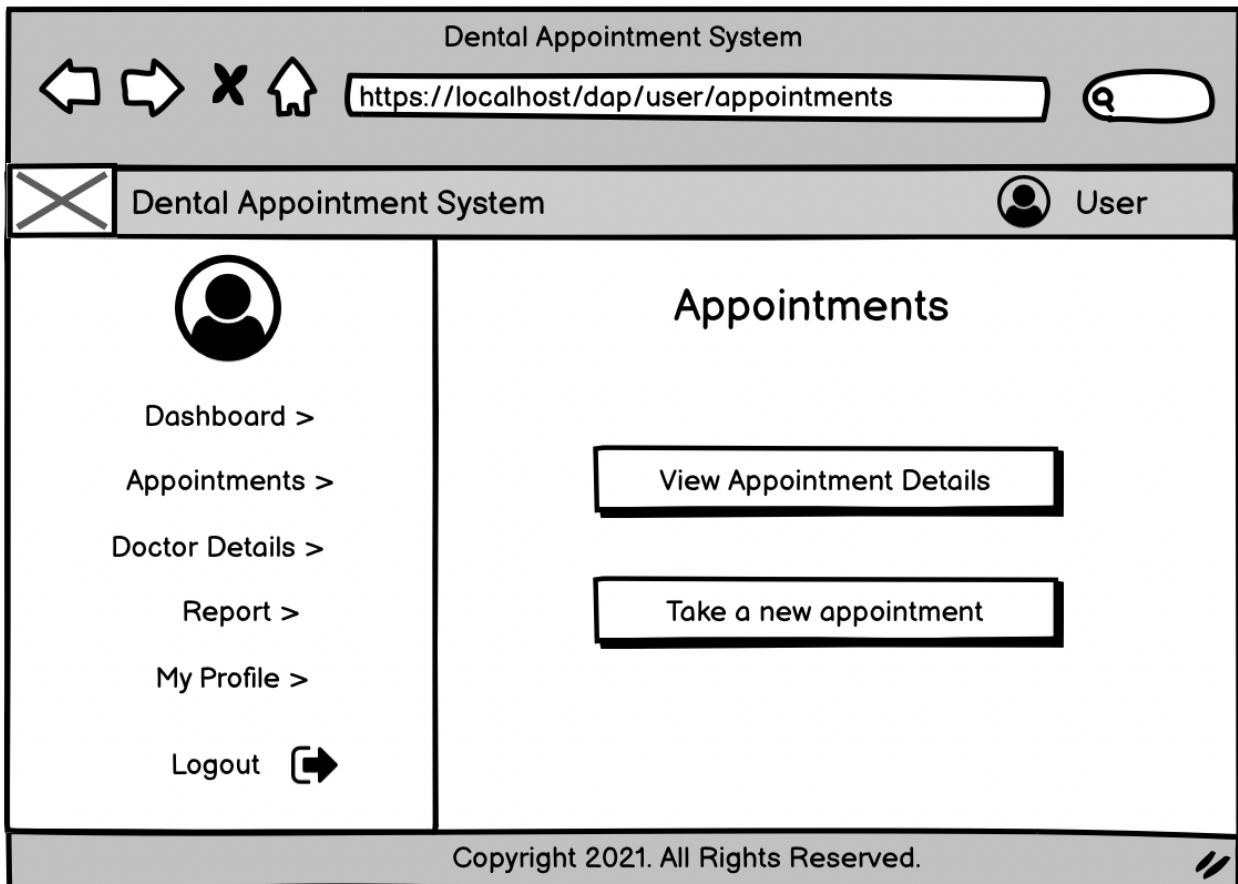


Figure 15: Wireframe 5

3.3.6 User Appointment Details

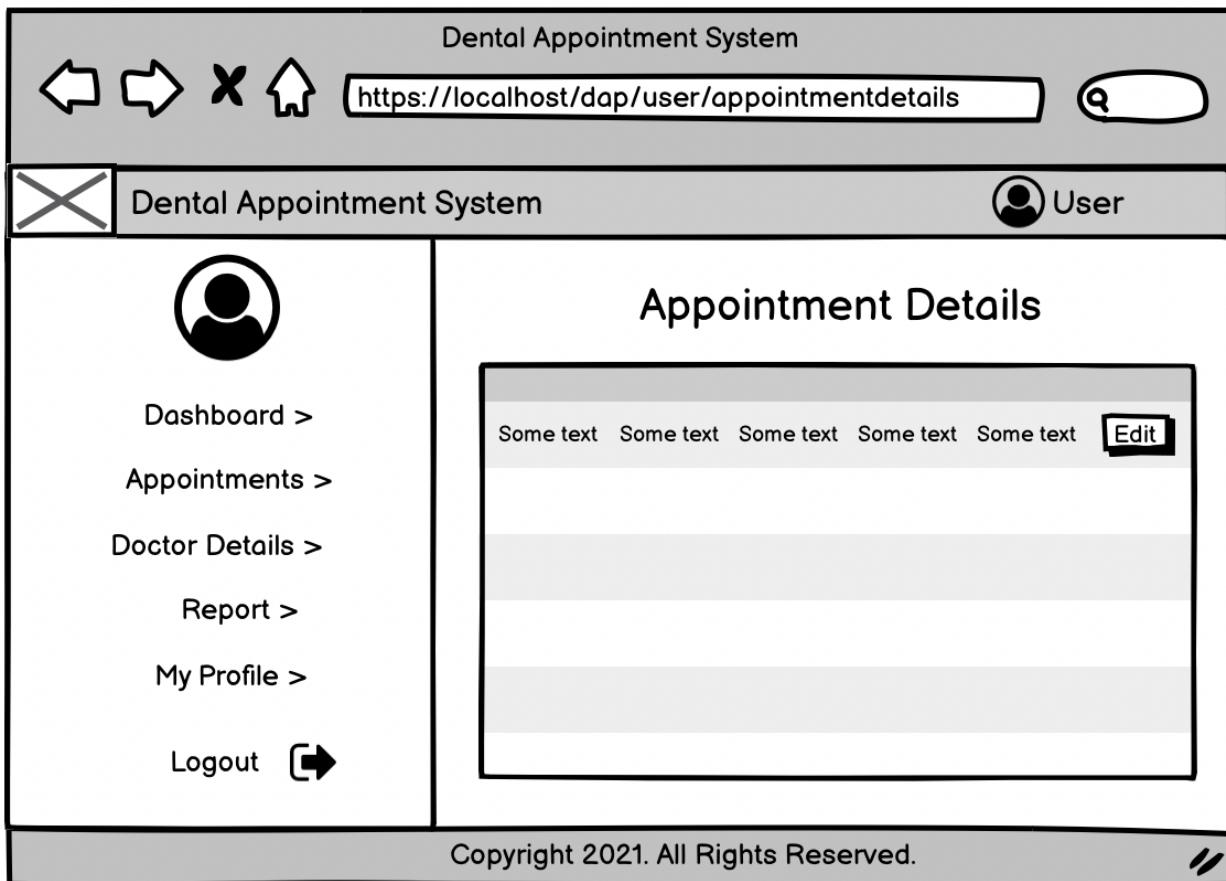


Figure 16: Wireframe 6

3.3.7 User New Appointment

The wireframe shows the 'Dental Appointment System' interface. At the top, there are navigation icons (back, forward, search) and a URL bar showing <https://localhost/dap/user/newappointment>. The main header also displays 'Dental Appointment System' and a user icon labeled 'User'. On the left side, a sidebar contains a user profile icon and links: 'Dashboard >', 'Appointments >', 'Doctor Details >', 'Report >', 'My Profile >', and 'Logout' with a right-pointing arrow icon. The main content area is titled 'Schedule an Appointment' and includes fields for 'Full Name' (text input), 'Contact' (text input), 'Date' (text input with a calendar icon), 'Time' (ComboBox), 'Service' (ComboBox), 'Doctor' (ComboBox), and 'Extra Note' (text input). The footer contains the copyright notice 'Copyright 2021. All Rights Reserved.' and a double-right arrow icon.

Figure 17: Wireframe 7

3.3.8 User Doctor List

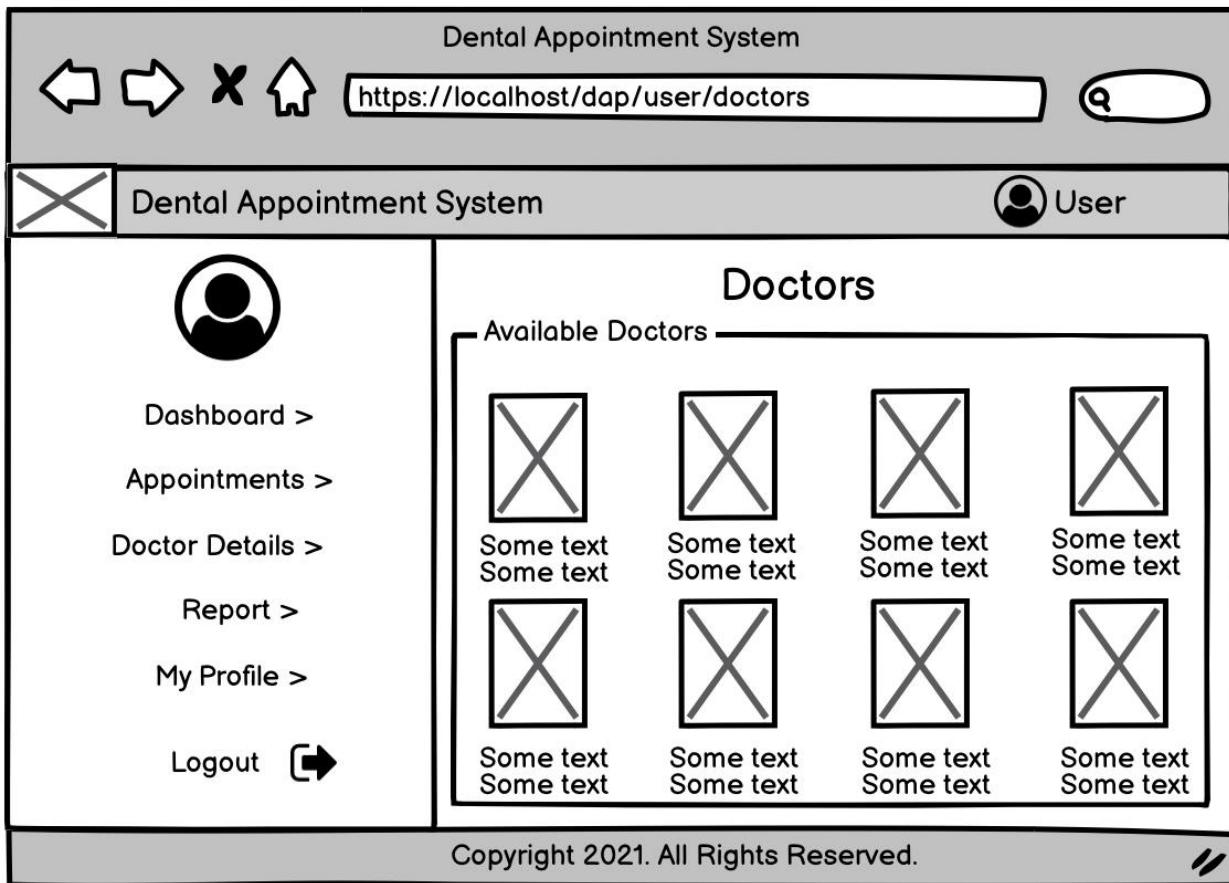


Figure 18: Wireframe 8

3.3.9 User Report

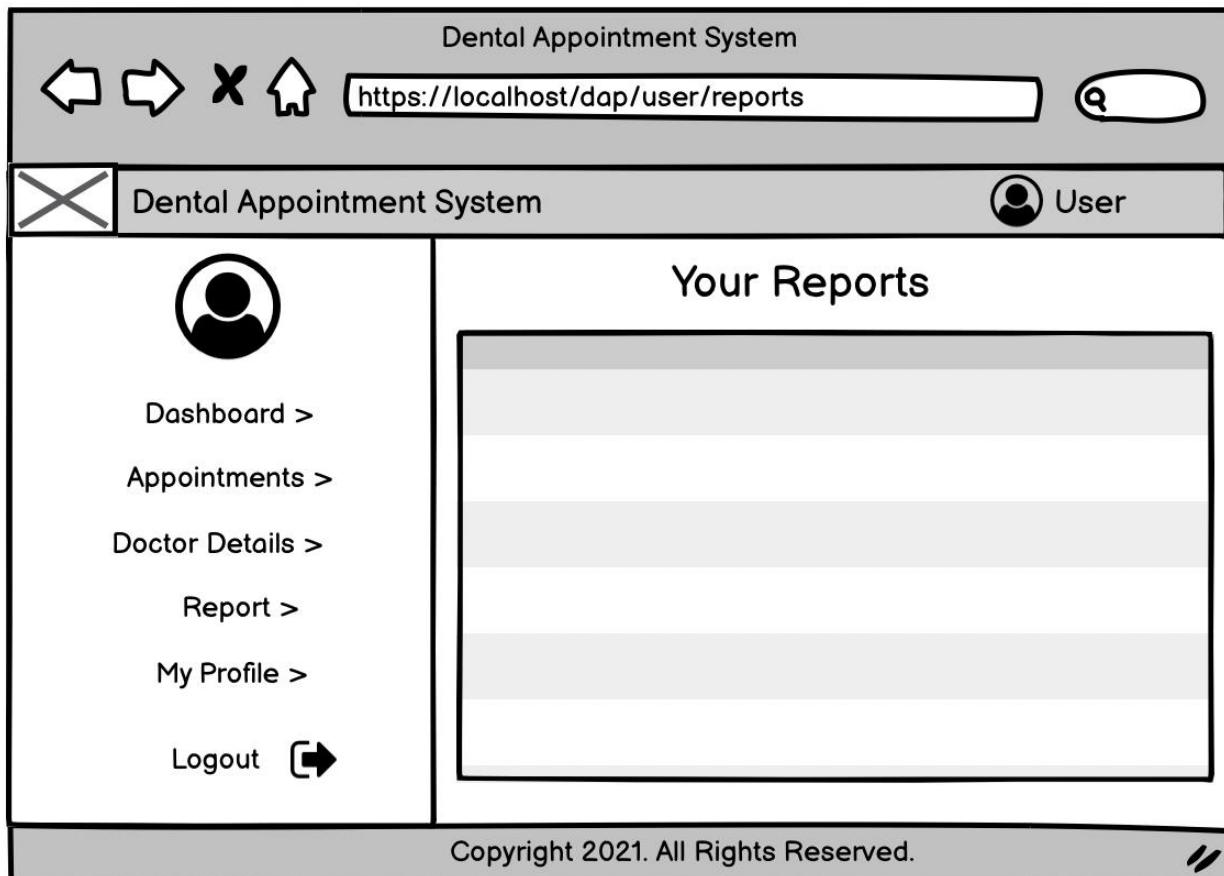


Figure 19: Wireframe 9

3.3.10 User Profile

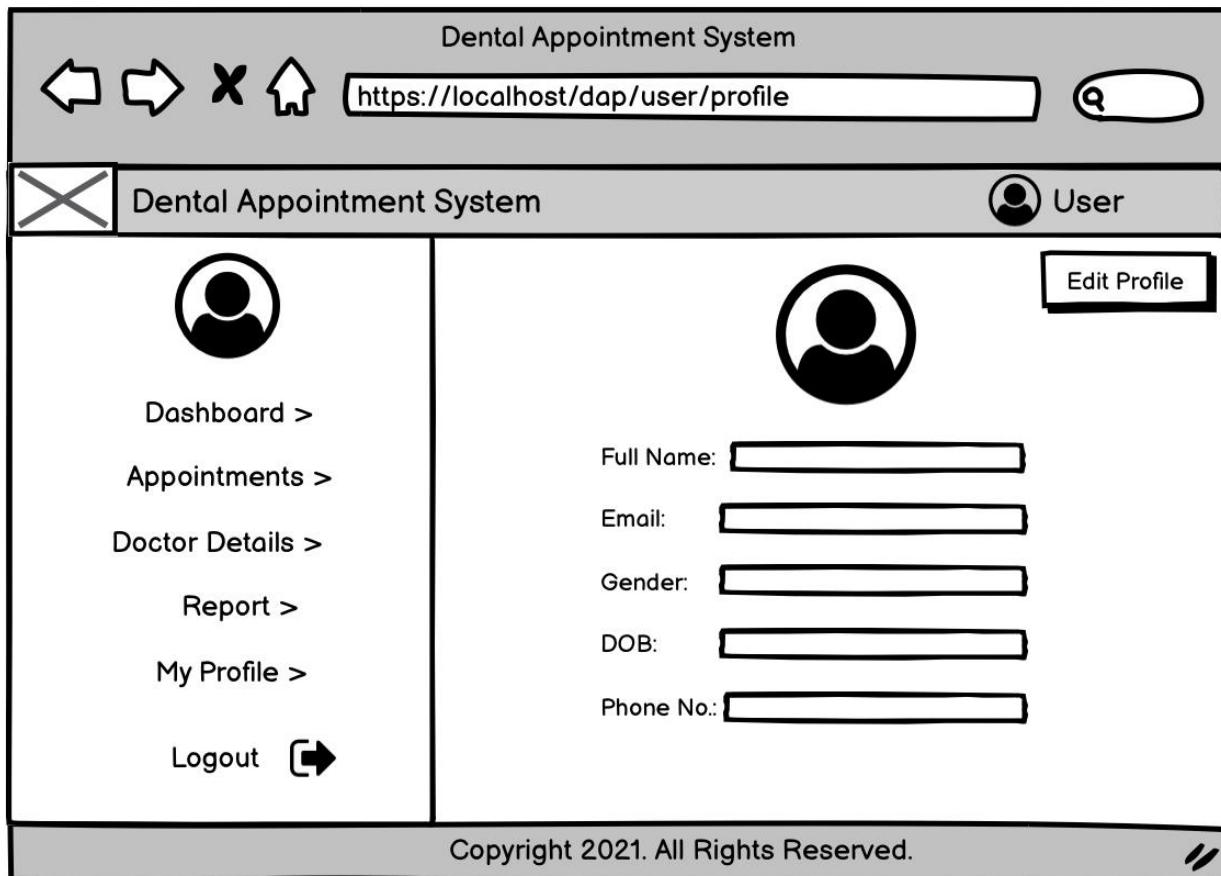


Figure 20: Wireframe 10

3.3.11 Admin Dashboard

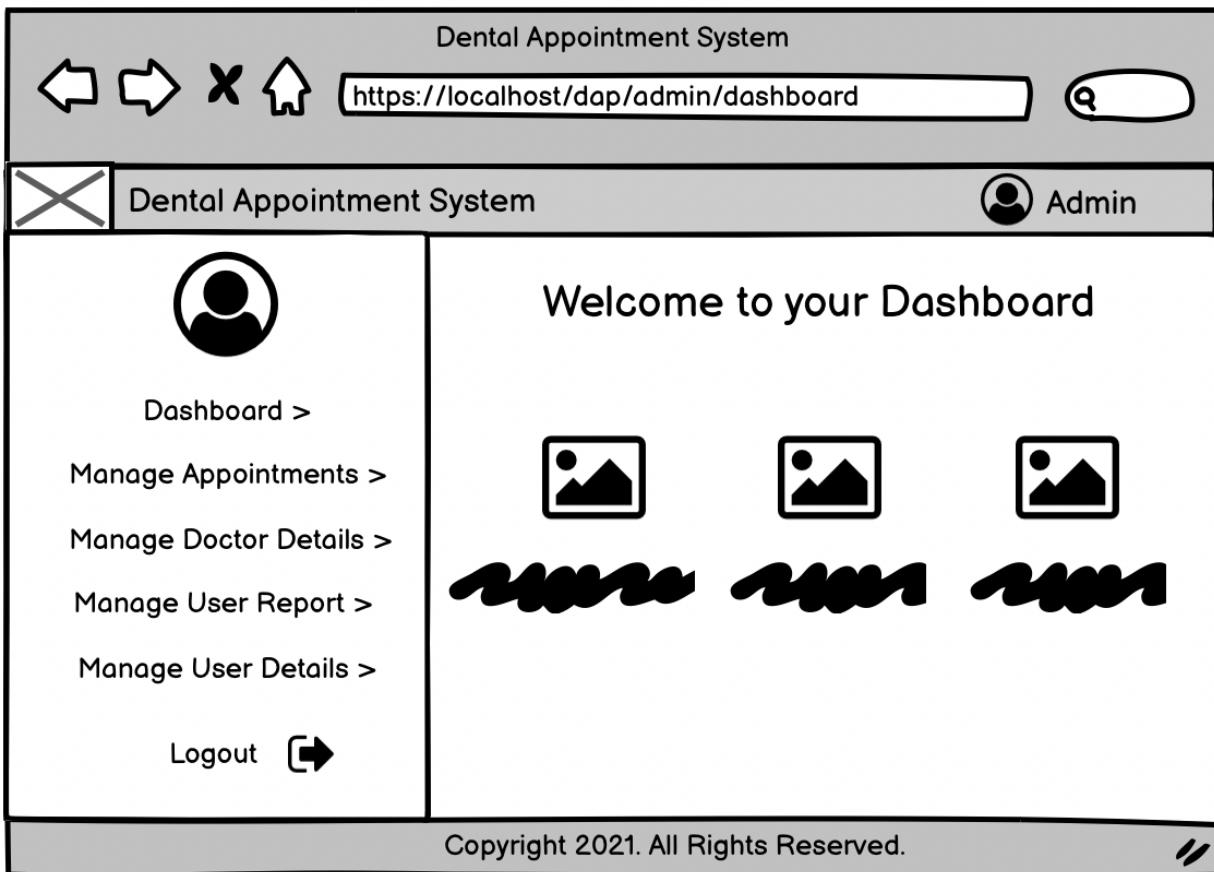


Figure 21: Wireframe 11

3.3.12 Admin Appointment

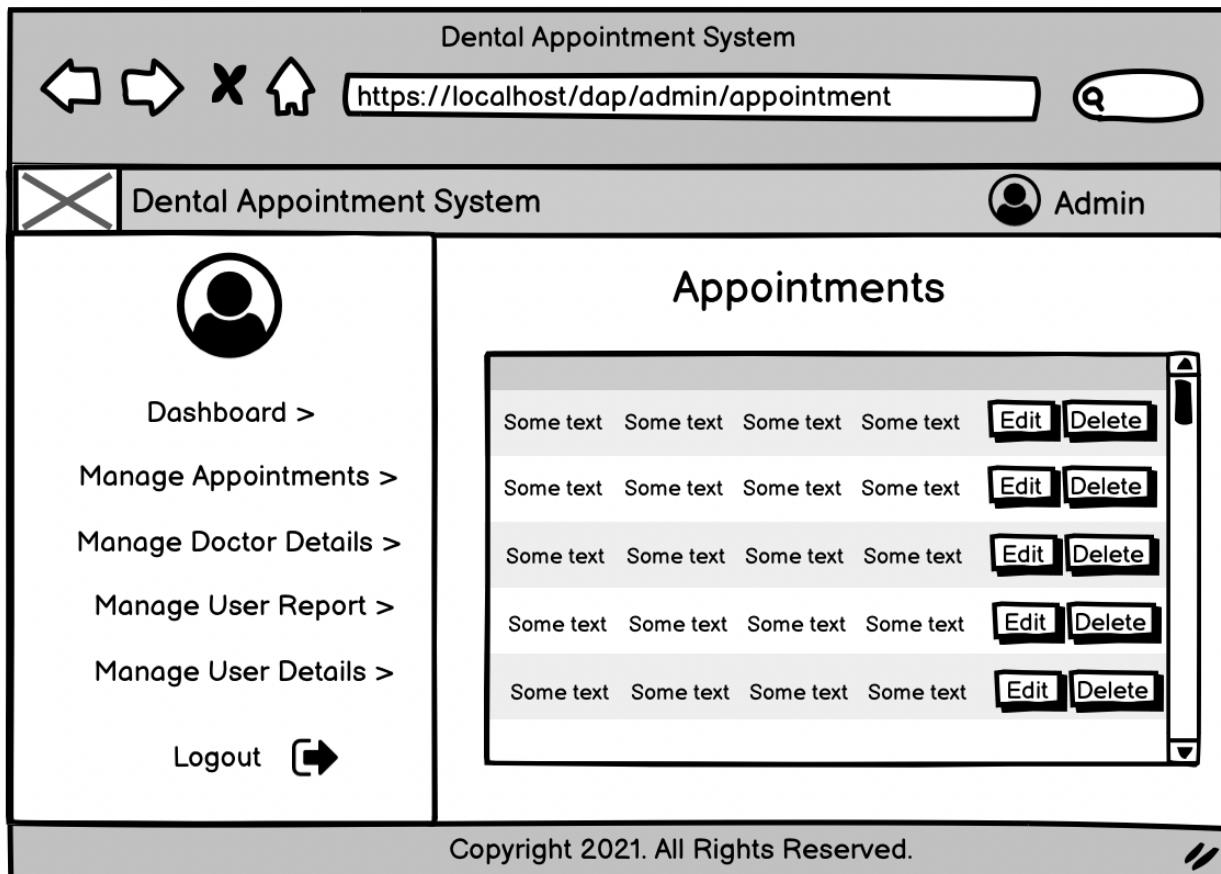


Figure 22: Wireframe 12

3.3.13 Admin Doctor List

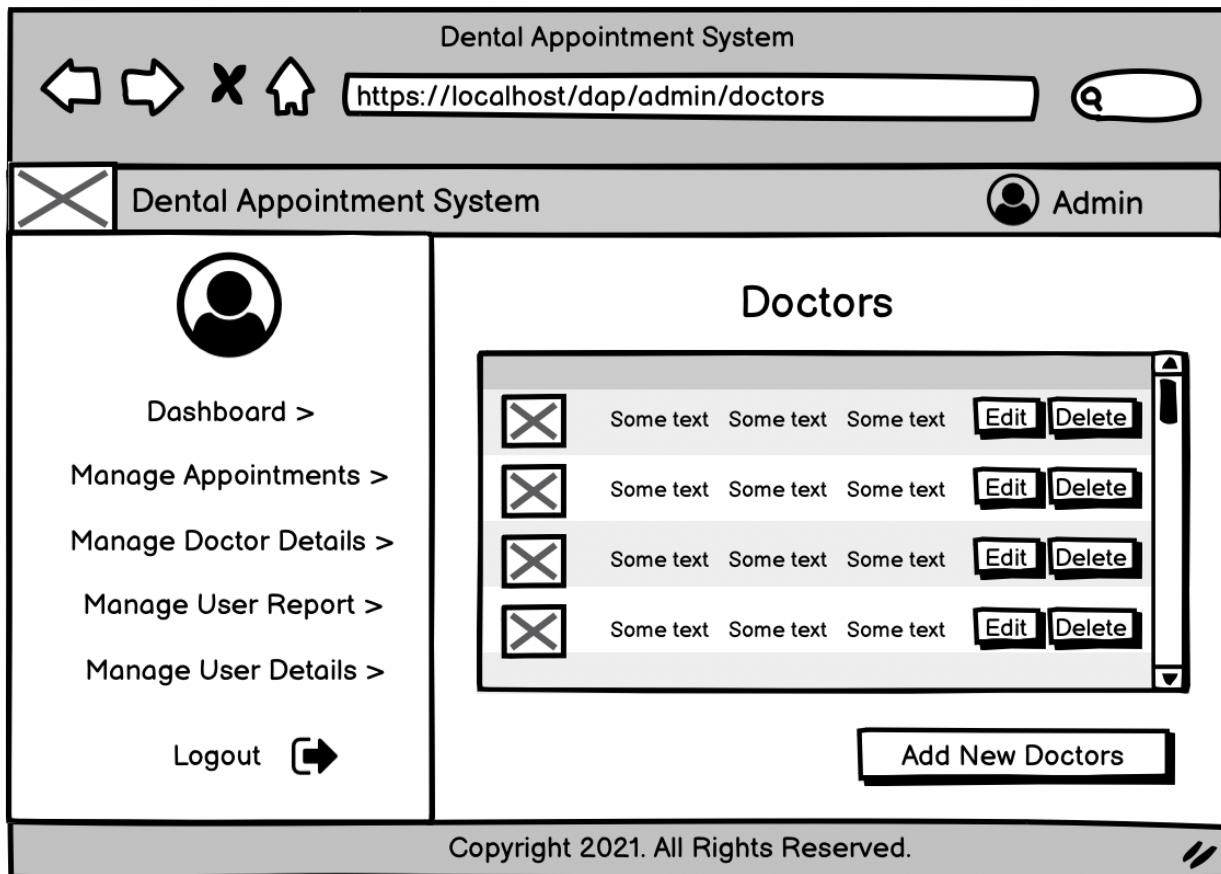


Figure 23: Wireframe 13

3.3.14 Admin User Report List

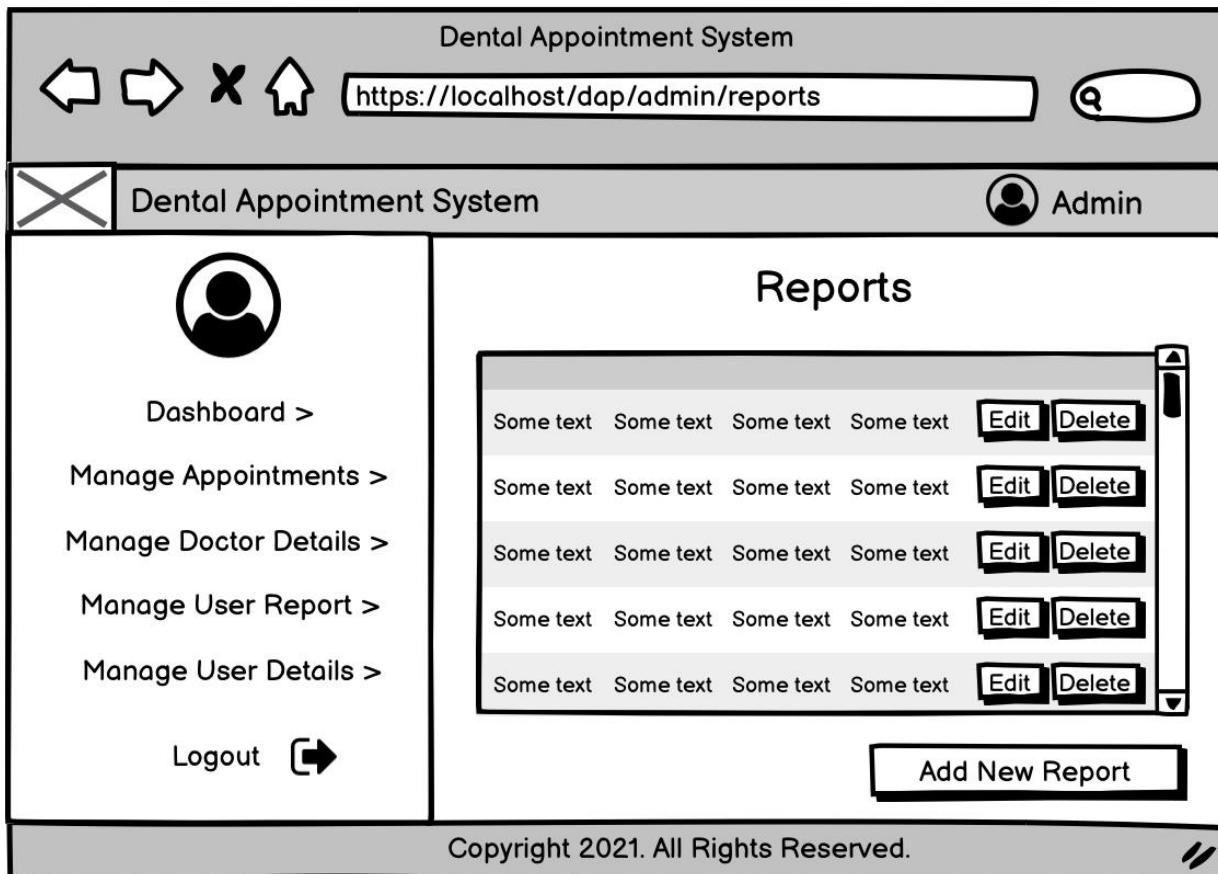


Figure 24: Wireframe 14

3.3.15 Admin User Details

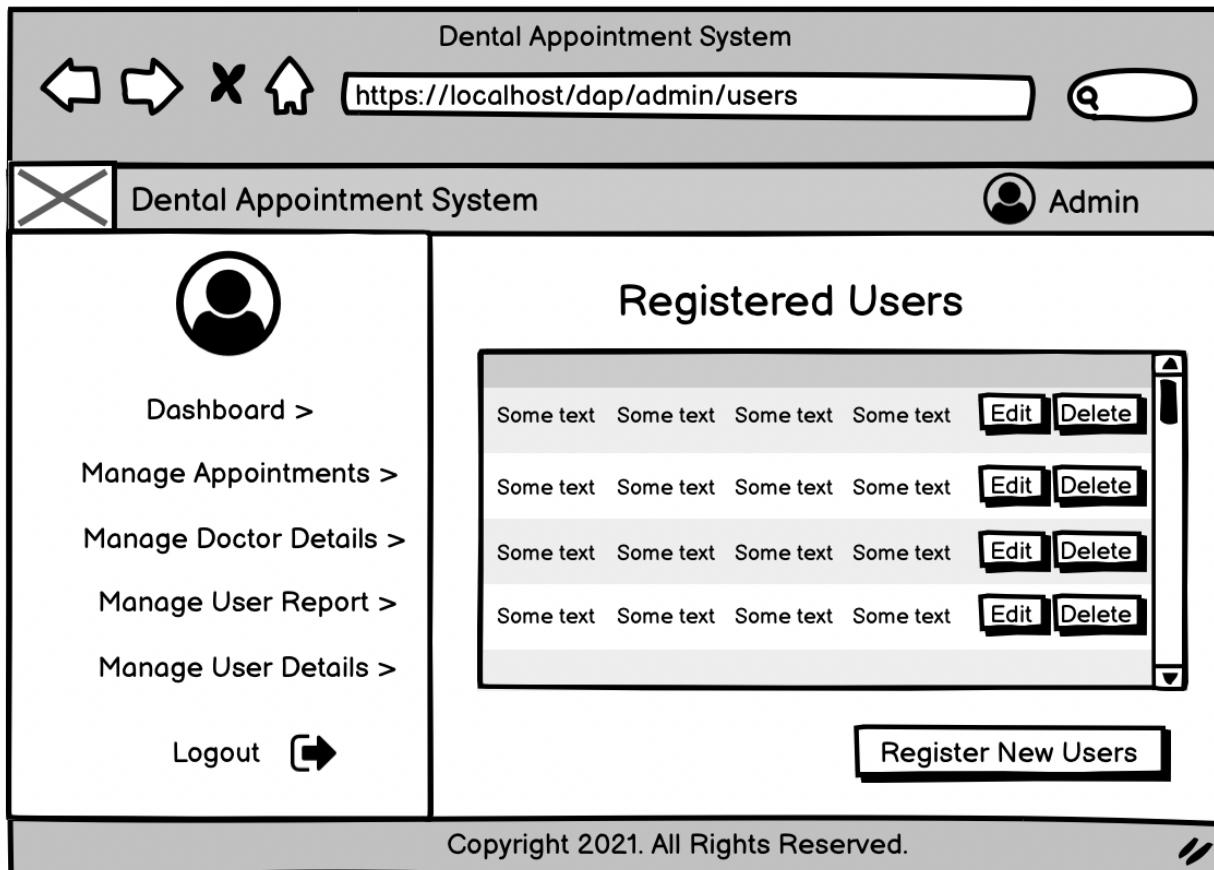
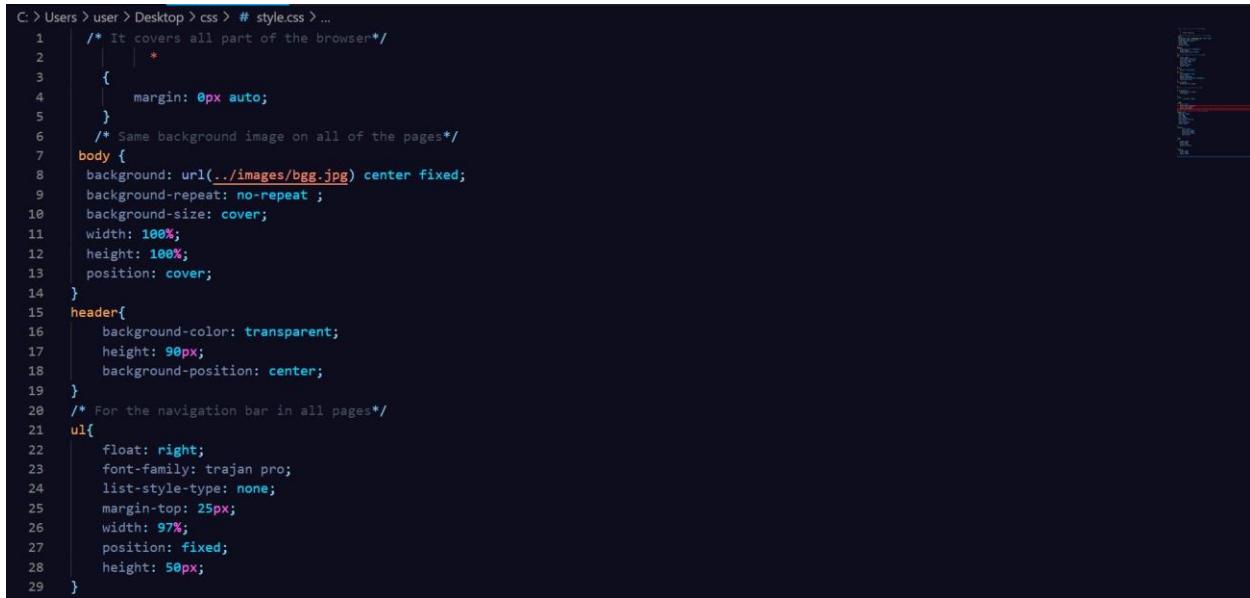


Figure 25: Wireframe 15

3.4 Development

The following are the screenshots of the codes of HTML and CSS that are being written in order to develop the front end.

```
C:\> Users > user > Desktop > landingpage.html > html > head > style > title h1
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Home- Dental Appointment System</title>
5      <meta name="description" content="Dental Appointment System">
6      <meta name="keywords" content="HTML">
7      <meta name="author" content="Abhishek Rokaya">
8      <link rel="stylesheet" type="text/css" href="css/style.css">
9      <style>
10
11     .title{
12         position: absolute;
13         transform: translate(-50%,-52%);
14         z-index: 1;
15     }
16
17     .title h1{
18         color: white;
19         font-size: 37px;
20         font-family: 'Gill Sans', 'Gill Sans MT', Calibri, 'Trebuchet MS', sans-serif;
21         z-index: 1;
22     }
23
24     .buttons{
25         position: absolute;
26         top:50%;
27         left:50%;
28         transform: translate(-50%,-50%);
29         z-index: 1;
30         margin-top: 15px;
31     }
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56     top: 0;
57     border-radius: 0 0 50% 50%;
58 }
59
60     .butn:hover::before{
61         height: 104%;
62     }
63     </style>
64 </head>
65 <body>
66     <header>
67         <!-- Division for Name Logo -->
68         <div class="header">
69             <h1>Phulchowki Dental Care</h1>
70         </div>
71         <!-- Division for Navigation Bar -->
72         <div class="main">
73             <nav>
74                 <ul>
75                     <li Class="active"><a href="#">Home</a></li>
76                     <li><a href="Resume.html">Our Services</a></li>
77                     <li><a href="blog.html">About Us</a></li>
78                     <li><a href="Research.html">Contact Us</a></li>
79                     <li><a href="contact.html">Login</a></li>
80                 </ul>
81             </nav>
82         </div>
83     </header>
84
85     <main style="height: 200px; width: 50%; align-self: center; margin-top: 170px; padding-left: 50%;">
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The image shows a screenshot of a code editor displaying a CSS file named style.css. The file is located at C:\Users\user\Desktop\css\#style.css. The code defines styles for the body, header, and ul elements. The body has a background image from the images/bgg.jpg file, set to center fixed, no-repeat, and cover. It also has a margin of 0px auto. The header is transparent, 90px high, and centered. The ul element is positioned fixed, 97% wide, and 50px high, with a margin-top of 25px, font-family of trajan pro, and list-style-type of none.

```
C:\> Users > user > Desktop > css > # style.css > ...
1  /* It covers all part of the browser*/
2  |
3  {
4      margin: 0px auto;
5  }
6  /* Same background image on all of the pages*/
7  body {
8      background: url(..../images/bgg.jpg) center fixed;
9      background-repeat: no-repeat ;
10     background-size: cover;
11     width: 100%;
12     height: 100%;
13     position: cover;
14 }
15 header{
16     background-color: transparent;
17     height: 90px;
18     background-position: center;
19 }
20 /* For the navigation bar in all pages*/
21 ul{
22     float: right;
23     font-family: trajan pro;
24     list-style-type: none;
25     margin-top: 25px;
26     width: 97%;
27     position: fixed;
28     height: 50px;
29 }
```

Figure 28: Landing Page CSS

3.5 ER Diagram

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology system. (Biscobing, 2021)

The initial ER Diagram for the system is shown below:

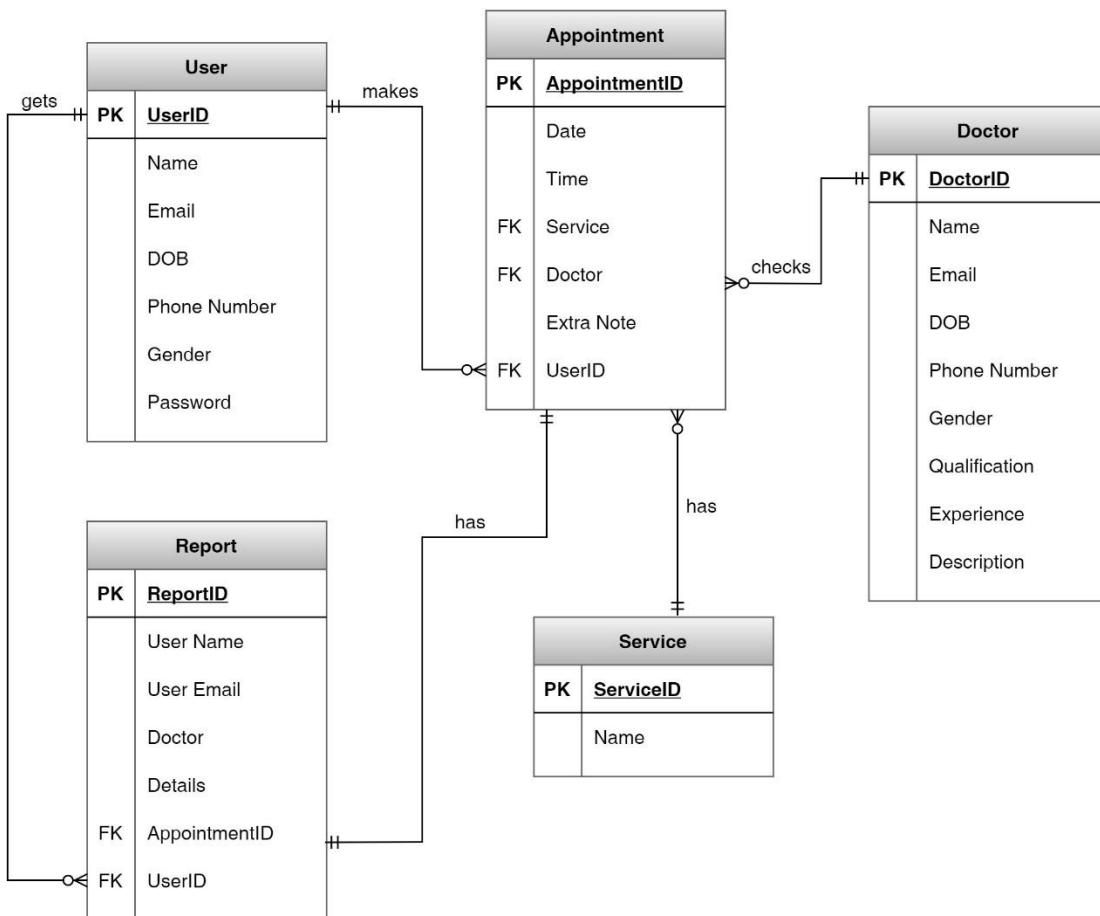


Figure 29: ER Diagram

[The process in creating the ERD is elaborated here.](#)

4. Analysis of Progress

This section contains a progress analysis to acquire information on the project's current state and progress. This section aids in determining the project's real progress figures and comparing them to the Gantt chart. Firstly, I started working on the front end part of the web pages. Use Case Diagrams and High Level Descriptions were completed. Then ERD was made. The list of things completed are as follows:

- Completed Proposal.
- Meeting with the client.
- Gantt chart made.
- Research and analysis on similar project.
- Conducted a survey.
- Requirements gathered.
- Wireframes were designed for the web app.
- Created Use Case Diagrams and High Level Description.
- Created ER Diagram.
- Started Development Phase.

In accordance to the Gantt chart, I was not able to start the coding phase of the webpage on the specified date. I was a little off schedule. It shows that I need to give more time and focus on the web application in order to finish it within the given time frame. I will hence give more time and effort on the Final Year Project and hence complete it in the required time.

5. Future Work

The following are the tasks remaining to be completed according to the Gantt chart:

Tasks	Start Date	End Date	Total Days
Coding the Webpage	1/12/21	20/12/21	20
Testing the Webpage	21/12/21	02/01/22	13
Analysing the requirement of the database	03/01/22	06/01/22	4
Creating the Database	07/01/22	15/01/22	9
Configuring the Database	16/01/22	17/01/22	10
Testing the Database	26/01/22	01/02/22	7
Analysing the requirement of the features	02/02/22	10/02/22	9
Designing the Features	11/02/22	02/03/22	20
Coding the Features Set	03/03/22	24/03/22	22
Testing the Features	25/03/22	02/04/22	9
Finalizing the Documentation of the project	03/04/22	10/04/22	8

Table 2: Future Work

6. Bibliography & Reference

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[Accessed 12 12 2021].

7. Appendix

7.1 Survey Findings:

1. 43.3% of them have their dental check-up in over a year, 26.7% of them in a year, 26.7% in every 6 months and 3.3% in every 3 months.
2. 53.3% have to wait in line to get an appointment, 23.3% sometime have to wait in line and 23.3% of them doesn't have to wait in line.
3. 86.7% have never used an online appointment booking system whereas 13.3% have.
4. 73.3% said they would like to use a web based application to schedule an appointment with the doctor whereas the remaining 26.7% said it would depend on the application.
5. 80% thinks this application will be helpful, 16.7% thinks the application might be helpful whereas 3.3% thought it will not be helpful.
6. 76.7% thinks having an online report will be useful whereas 23.3% thinks it might be useful.

Link to the survey: <https://forms.gle/x1DkhUFqgoDTmZ886>

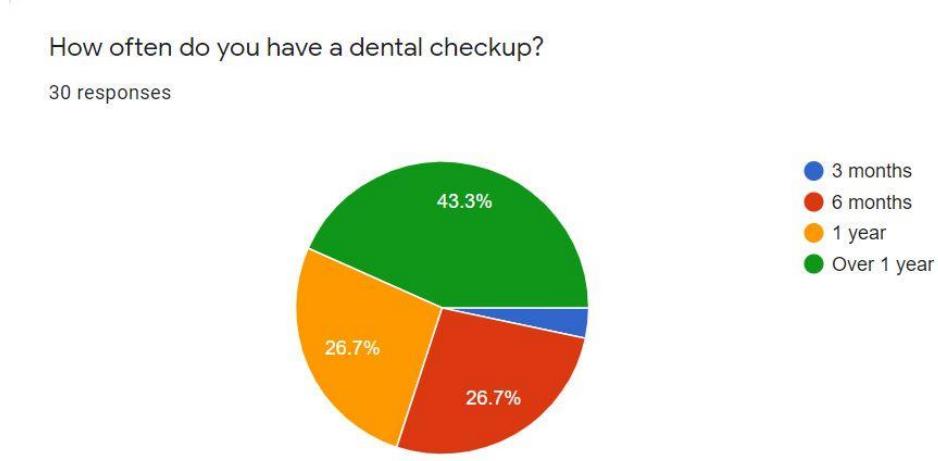


Figure 30: Survey Question 1

Do you have to wait in line to get an appointment with the doctor?

30 responses

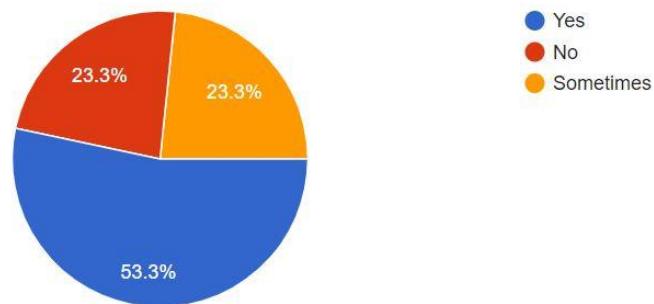


Figure 31: Survey Question 2

Have you ever used any online appointment booking web application?

30 responses

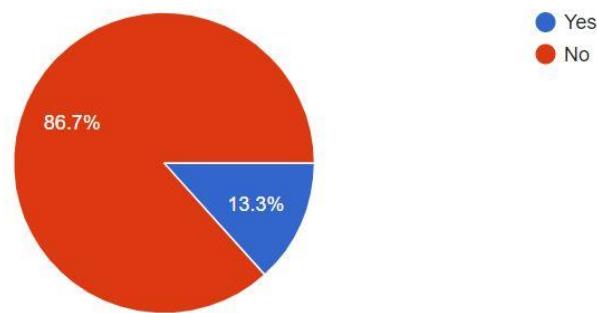


Figure 32: Survey Question 3

Would you like to use a web application to schedule an appointment with the doctor?

30 responses

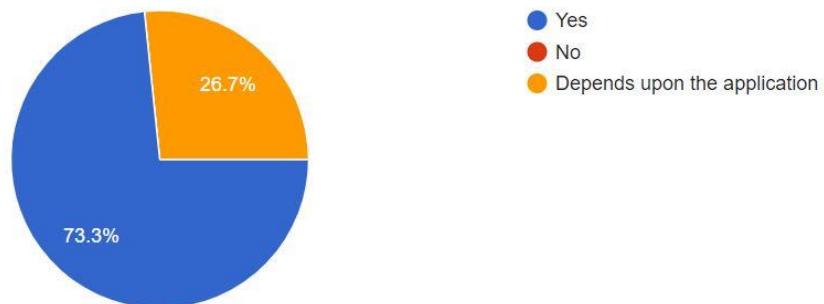


Figure 33: Survey Question 4

Do you think this web application will be helpful?

30 responses

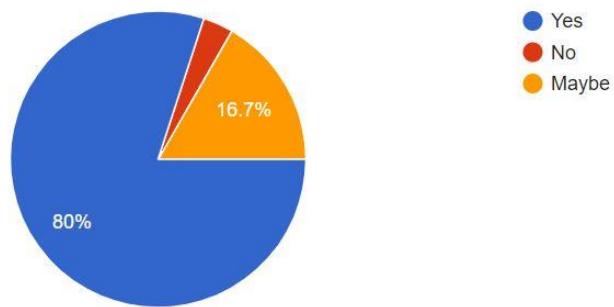


Figure 34: Survey Question 5

Do you think having an online report of your checkup is useful?

30 responses

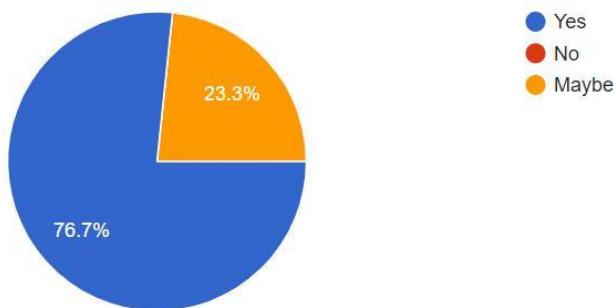


Figure 35: Survey Question 6

What features would you like to see if you'd use an application like this?

19 responses

Online report.

An application that provides quick and immediate response while trying to book an appointment would be very helpful.

Booking appointment, seeing report

Appointments, reports, and minor prescription too.

Routine check up notification or reminders

Something that would make appointment easier and faster

-Check up history

-Next regular check up appointment reminder.

Not sure

Figure 36: Survey Question 7

Any suggestions or issues that you encounter when scheduling a dental checkup appointment?

14 responses

The lines are too much crowded. In times of covid, it is risky to even get your teeth checked.

none

Confirmation issues, fate and time issues

Not yet

Have to wait for more than hours so it would be better if they can provide you the exact time when they can start your treatment so you can reach there accordingly.

I haven't had been to a dentist since a long so I don't remember

Nothing.

Yes, like my appointment got canceled without any information 

no

Figure 37: Survey Question 8

7.2 Entity Relation Diagram Creation Process

The ERD creation process is elaborated below:

1. Possible Entities

The possible entities for Dental Appointment System as:

- i. User – To store information about the users.
- ii. Appointments – To store the details about the appointment done by user.
- iii. Services – To store the details about the services available.
- iv. Doctors – To store the details about the doctor.
- v. Report – To store the report of the appointment.

2. Relationship Between Entities

i. User and Appointment:

A user can make multiple appointment but an appointment can only be made by one user.

So, the relation between User and Appointment will be one mandatory to many optional.

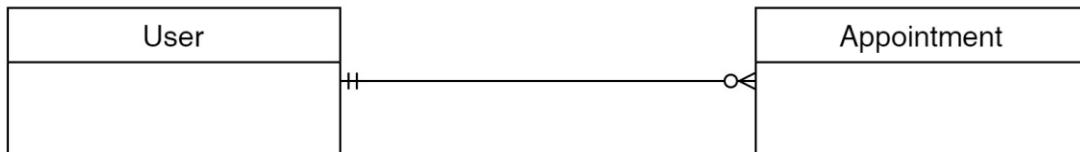


Figure 38: User Appointment Relation

ii. User and Report:

A user can have multiple report from their multiple appointments but a report can only belong to one user. So, the relation between User and Report will also be one mandatory to many optional.

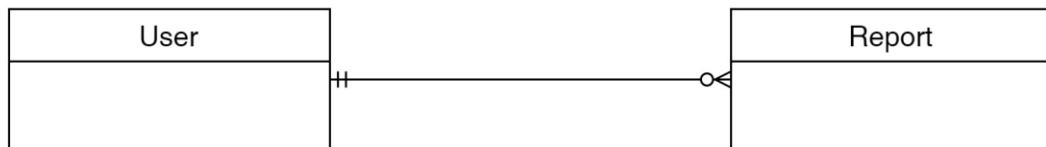


Figure 39: User Report Relation

iii. Report and Appointment:

A report can only belong to one appointment and an appointment can only have one report. So, the relation between report and appointment will be one mandatory to one mandatory.

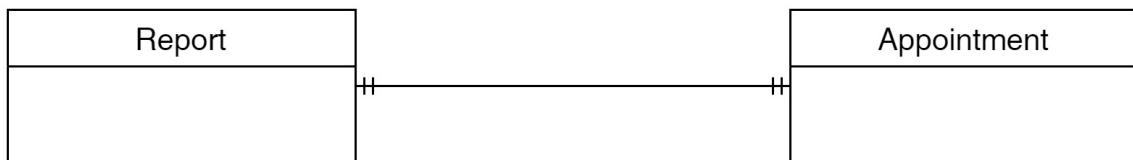


Figure 40: Report Appointment Relation

iv. Doctor and Appointment

A doctor can oversee many appointments but an appointment can only have one doctor. So, the relation between Doctor and Appointment will be one mandatory to many optional.

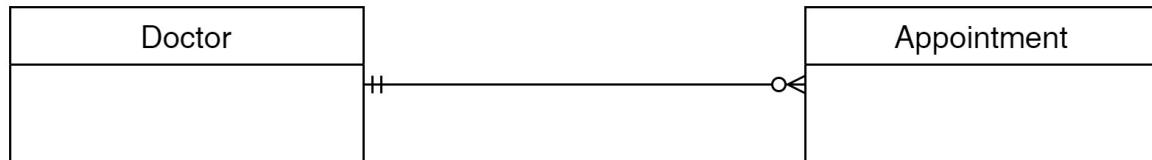


Figure 41: Doctor Appointment Relation

v. Service and Appointment

An appointment can only be made for one service but a service can have multiple appointments. So, the relation between Services and Appointment will also be one mandatory to many optional.

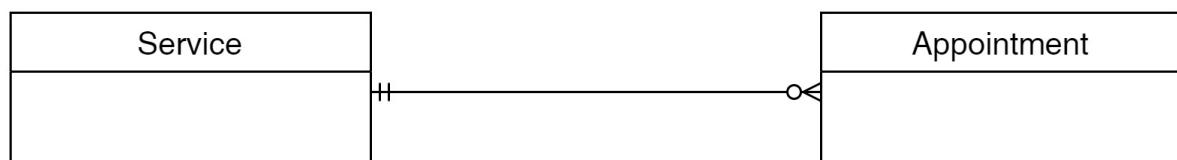


Figure 42: Service Appointment Relation

3. Attributes

i. User

Attributes	Data Type	Others
UserID	int(6)	Primary Key
Name	Varchar(30)	
Email	Varchar(30)	
DOB	Date	
Phone Number	int(10)	
Gender	Varchar(1)	M, F or O
Password	Varchar(20)	

Table 3: User Attributes

ii. Doctor

Attributes	Data Type	Others
DoctorID	int(6)	Primary Key
Name	Varchar(30)	
Email	Varchar(30)	
DOB	Date	
Phone Number	int(10)	
Gender	Varchar(1)	M, F or O
Qualification	Varchar(20)	
Experience	Varchar(30)	
Description	Varchar(256)	

Table 4: Doctor Attributes

iii. Service

Attributes	Data Type	Others
ServiceID	int(6)	Primary Key
Name	Varchar(50)	

Table 5: Service Attributes

iv. Appointment

Attributes	Data Type	Others
AppointmentID	int(6)	Primary Key
Date	date	
Time	time	
Service	Int(6)	Foreign Key
Doctor	Int(6)	Foreign Key
UserID	Int(6)	Foreign Key
Extra Note	Varchar(256)	

Table 6: Appointment Attributes

v. Report

Attributes	Data Type	Others
ReportID	int(6)	Primary Key
User Name	date	
User Email	time	
Doctor	Varchar(30)	
Details		
AppointmentID	Int(6)	Foreign Key
UserID	Int(6)	Foreign Key

Table 7: Report Attributes

7.3 Discussion about the project with client

According to Dr. Prashamsa Khadka, Founder and Managing Director of Phulchowki Dental Care, the following issues were identified during the discussion and meeting:

Problem:

According to her, there wasn't any system to book an appointment. People either had to call or wait in line. The lines were very long and sometimes very crowded as well. Especially in time of covid, it was very hard to even maintain social distance which increased the risk of transmission. She also stated that the records were written manually in a paper which made it very hard to access the records. Patients used to lose their reports frequently which made them difficult to have access to their previous history. So she had been looking for such system to implement.

Solution:

This system will allow users to book the appointment. Users can view the list of available doctors and select their desired doctors for their desired services. The system allows them to book, cancel and check the booking status. The report can also be uploaded which makes it easier for both patient and doctors.

Client's Requirements:

- Users should have their profile.
- Users should be able to book their appointment easily through the system.
- The system should also have features to cancel the appointment as well as check the appointment booking status.
- List of available doctors along with their description.
- Admin should be able to cancel user's appointment if the need arises.
- User should be able to view their report online as well.
- The Admin will manage the doctor's list and well as the user's list.
- The Admin will upload the doctor's approved report to the system for the user's to see.

7.4 Gantt Chart

The Gantt chart of the project is given below:



Figure 43: Gantt Chart