

DENTOR:
IT'S TIME TO SMILE AGAIN

A

Theme Based Project Report

*Submitted in complete fulfilment of
the Requirements for the award of the
Degree of*

BACHELOR OF ENGINEERING

IN

INFORMATION TECHNOLOGY

By

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2021

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DECLARATION BY THE CANDIDATE

We, **M. HARSHIT, T. KARTHIK REDDY** and **G. RAVI TEJA** bearing hall ticket numbers, **1602-19-737-132, 1602-19-737-137** and **1602-19-737-154** respectively, hereby declare that the project report entitled “**DENTOR-IT’S TIME TO SMILE AGAIN**” is submitted in complete fulfilment of the requirement for the award of the degree of Bachelor of Engineering in Information Technology.

This is a record of bonafide work carried out by us and the results embodied in this project report have not been submitted to any other university or institute for the award of any other degree or diploma.

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ACKNOWLEDGEMENTS

Our Theme Based Project would not have been successful without the help of several people. We are extremely thankful to our college, Vasavi College of Engineering, for providing the opportunity to implement our project, “**DENTOR-IT’S TIME TO SMILE AGAIN**”.

We would like to express our gratitude to **Ms. Leelavathi, Mr. Dharma Reddy**, Assistant Professor, Department of Information Technology, for their esteemed guidance, moral support and invaluable advice provided by them for the success of the Mini Project.

Sincerely,

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ABSTRACT

It has been said that the mouth is the gateway to your overall health. Not properly taking care of your teeth and gums can lead to a variety of health problems. The main intention behind this project is to provide online oral health services and information that can help people in both pre and post-treatment conditions.

DENTOR is an android application where the customers can search for the services provided, book their appointments and consult doctors through video conferencing. Additionally, they can chat with patients and doctors through this DENTOR app. They receive email on successful booking of an appointment.

The goal of this is to promote good oral health for people of all ages within the community.

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1. INTRODUCTION

1.1. ABOUT THE PROJECT

“DENTOR-IT’S TIME TO SMILE AGAIN”. DENTOR is an android application where the customers can search for the services provided, book their appointments and consult doctors through video conferencing. They can chat with patients and doctors through this DENTOR app. They receive email on successful booking of an appointment.

1.2. PROJECT DOMAIN

The domain of the project is the targeted subject area of a computer program. It is a term most commonly used in software engineering. Formally, it represents the target subject of a specific programming project, whether narrowly or broadly defined. To be concise, a **domain** in the realm of software engineering commonly refers to the subject area on which the application is intended to apply. Within a domain, there are two categories:

- a. **Technical Domain**
- b. **Functional Domain**

TECHNICAL DOMAIN

This project falls under the domain of an android Application. An android application with Firebase for Custom Authentication and Google Authentication for signup & login. It also provides realtime database with security. The app works only if it has the internet.

FUNCTIONAL DOMAIN

‘**DENTOR**’ comes under the medical domain, because we are aiming to teach and help users improve their scope of medical treatment. As we are providing knowledge to the user, we fall under a sub-domain called Cognitive.

1.3. FEATURES

Our vision for this project was to provide a platform for users to to provide online oral health services and information that can help people in both pre and post-treatment conditions.

Another component we wanted to keep emphasis on was the Admin here we have given the maximum powers to the admin through which we can do almost everything which helps in maintaining records easier than before. To be simple, the features that we have offered are a chance for users to maintain or manage their records easily, assess themselves, take a important note of the particular patient record and the doctor record.

1.3.1. LOGIN

1.3.2. REGISTER.

1.3.3. BOOK APPOINTMENTS

1.3.4. VIEW APPOINTMENTS IN MAILS

1.3.5. CHAT WITH DOCTORS AND PATIENTS

1.3.6. VIDEO CONFERENCING WITH DOCTORS

1.3.7. MONITER THE DOCTOR AND PATIENT ACTIVITIES

2. RELATED WORK

2.1. EXISTING SYSTEM

Many android appointment booking apps provides services like appointment booking, view treatments, view doctor's profiles, and the users can also view the ratings, reviews on the websites and the treatments.

2.2. LIMITATIONS OF EXISTING SYSTEM

The existing system of online appointment booking apps are that not all provide appointment bookings on specific department like *Dental* along video consultations before the appointments. They aren't providing with any one-on-one interaction with the doctors beforehand the appointment or treatment.

2.3. NEW MODEL

The system that we are implementing video consultations before the appointments and treatments. It gives assurance to patients and they can be well prepared before the surgeries and what documents to bring along with them for test results like CT-Scan, health certificate etc.

3. PROPOSED WORK

3.1. ACTORS

An actor is a user or external system with which a system being modeled interacts. There are three main actors in the proposed system – **Patient, Doctor** and **Admin**

3.2. USE CASES

3.2.1. PATIENT USE CASES

The user is a person(patient) who has limited access to DENTOR.

3.2.1.1. REGISTER

Any user can register as a user in DENTOR. First, the system prompts the user to enter his/her details. Once, the user enters the required details (username and password), the system checks whether the username checks or not and whether the password meets the prerequisites. The app also allows GOOGLE signup for easy access and appointments

3.2.1.2. LOGIN

In order for a user to login to DENTOR, he/she must be a registered user. First, the system will prompt the user to enter his/her credentials (username and password). Once, the user enters his/her credentials, we check whether it matches with the information in the database. If a match is found, the user gets access to DENTOR.

3.2.1.3. BOOK APPOINTMENTS

Once the user is logged in, he/she patient can register their appointment.

Mail will be received on successful booking of appointments.

3.2.1.4. VIDEO CONSULTATION

After logging in, the patient can book appointment for web consultation of a doctor.

3.2.1.5. VIEW TREATMENTS AND DOCTORS INFO

Once the user logs in, if he/she can view doctors info prior to the booking like specialization, years of experience etc.

3.2.1.6. VIEW APPOINTMENTS IN MAILS

The patients can view all their appointment details in the mail like date of appointment, time slot etc.

3.2.2. DOCTOR USE CASES

The user is a person(doctor) who has limited access to DENTOR.

3.2.2.1. REGISTER

Any user can register as a user in DENTOR. First, the system prompts the user to enter his/her details. Once, the user enters the required details (username and password), the system checks whether the username checks or not and whether the password meets the prerequisites.

3.2.2.2. LOGIN

In order for a user to login to DENTOR, he/she must be a registered user. First, the system will prompt the user to enter his/her credentials (username and password). Once, the user enters his/her credentials, we check whether it matches with the information in the database. If a match is found, the user gets access to DENTOR.

3.2.2.3. CHATTING WITH PATIENTS

Once the user is logged in, he/she doctor can chat with the patients and clarify their queries.

3.2.2.4. VIDEO CONSULTATION

After logging in, the doctor can interact with patient through video call to answer their queries about the treatment they will undergo.

3.2.3. ADMIN USE CASES

The Admin is a user who has access to all information, including the user's credentials and even the leader board. The Admin also has the license to edit any user's details and even delete a user if needed.

3.2.3.1. LOGIN TO FIREBASE

The Admin can login if he/she has the required credentials. The system first verifies whether the credentials entered match the Admin credentials. If they do, then the Admin gets complete access to DENTOR.

3.2.3.2. VIEW (USERS)DOCTOR/PATIENT LIST

After the Admin logs in, he/she can view all the information of all registered users. This information includes first name, last name, username, passwords and the Admin can also login as a user.

3.2.3.3. EDIT (USERS)PATIENT/DETAILS

Once logged in as the Admin, he/she can choose to edit any users' details. First, we load the user information from the database and the Admin can choose the user whose details they want to edit.

3.2.3.4. DELETE USER

Only the Admin has the authority to delete a user. The Admin may have different reasons for deleting a user. Whatever the reason, if the Admin needs to delete a user, he/she has to enter the username of the user they want to remove from DENTOR permanently.

3.4. Architecture and Technology used

3.4.1. Architecture

3.4.1.1. Firebase

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment.



3.4.1.2. Firebase to Android project

Prerequisites

Make sure that your project meets these requirements:

- Targets API level 19 (KitKat) or higher
- Uses Android 4.4 or higher
- Uses Jetpack (AndroidX), which includes meeting these version requirements:
 - `com.android.tools.build:gradle v3.2.1` or later
 - `compileSdkVersion 28` or later

3.4.2. Technology Used

3.4.2.1. Frontend

Front-end android development is the development of the graphical user interface of an app, through the use of XML, so that users can view and interact with that app.

3.4.2.1.1. Android Studio

Android Studio is the official^[8] integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. The fastest developer tools for building market-leading apps and accelerating performance.

3.4.2.1.2. XML

XML stands for eXtensible Markup Language. It is a markup language much like HTML. It was designed to store and transport data. XML was designed to be self-descriptive. XML also makes it easier to expand or upgrade to new operating systems, new applications, or new browsers, without losing data

3.4.2.2. Backend

3.4.2.2.1. Java

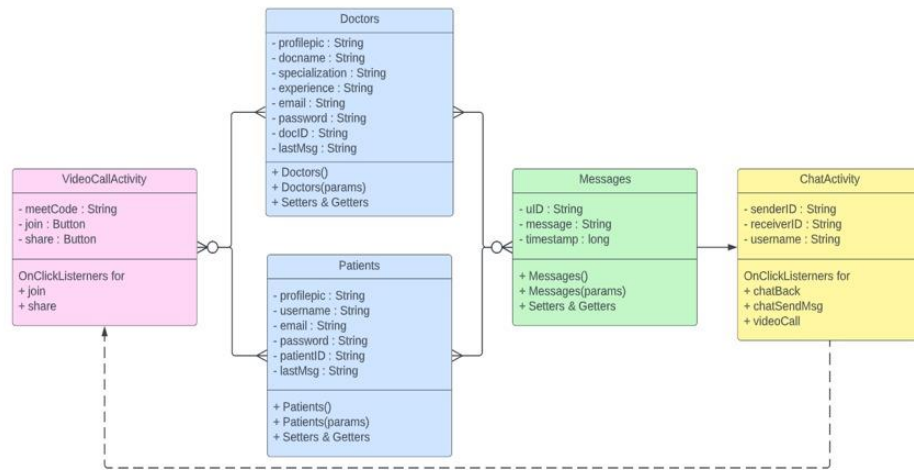
Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. Java is a popular programming language. Java is used to develop mobile apps, web apps, desktop apps, games and much more.

3.4.2.2.2. Firebase

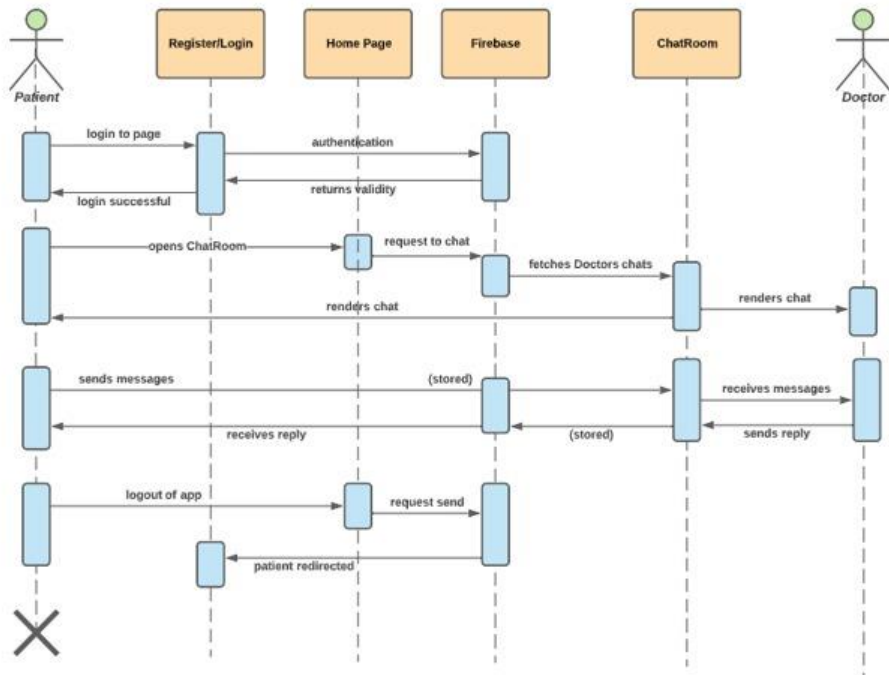
Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment.

3.5. DESIGN

3.5.1. Class Diagram



3.5.2. Sequence Diagram



3.6. IMPLEMENTATION

3.6.1. User Authentication

This module is related to all the User (Doctor & Patient) related functionalities such as: Login, Register, Search and Profile Page. It contains the models User, Doctor and Patient and related forms – DoctorSignUp, PatientSignUp and Login forms.

3.6.2. Appointment Booking

This module is related to the booking of appointments of specified doctors by the patients for their dental health problems. These include the functionalities such as: PatientBooking, Viewing appointments by the patients etc.

3.6.3. ChatRoom

This module is related about the chat interactivity between patients and doctors and resolving the queries involved in the treatments. Doctors interact with patients and explain all the treatment related information with the patients and thus assuring them.

3.6.4. Video Consultation

This module is related to the one-on-one online video consultation between doctors and the patients before the appointments and the surgeries, treatments. Doctors interact with patients and explain all the treatment related information with the patients and thus assuring them.

3.6.5. Mail Services

This module is related to the sending email regarding appointment details to the patients on successful appointment booking of selected doctors with required specialization, date of appointment and time slot.

3.7. TESTING

Testing refers to the approach in which a thorough investigation is conducted to provide stakeholders with information about the quality of the product or service under test. It allows us an objective, independent view of the software created.

In this project, we have done the basic testing. The testing techniques taken include:

- Execution of the program with the aim of finding errors
- Testing functionality of each use case

PATIENT TEST CASES

The user has major functionalities like: Login, Book and View Appointments, Web consultation, Search oral health services, View ratings and reviews, View and Upload prescriptions and test result documents and upload health services, Add/delete Doctor details.

Below are some of the test cases which we have been successfully compiled together manually as for now.

Test case ID: TC01		Use case ID: UC01
Test case title: Register		
Test case description: Allows users to register for an account		
Test steps	Expected result	Actual result
Enters user name, email, password	A message saying account is created	An account has been created successfully

Test case ID: TC02		Use case ID: UC02
Test case title: Login		
Test case description: Allows registered users to access features		
Test steps	Expected result	Actual result
Enters user email and password	Displays home page if the credentials are valid else Display a error message saying invalid credentials	Display home page if the username and password entered by user are valid

Test case ID: TC03		Use case ID: UC03
Test case title: Appointment Booking		
Test case description: Allows Patient users to book appointments of specific doctors based on their dental problems		
Test steps	Expected result	Actual result
Selects doctors with required specialization and schedule the date of appointment with time slot	Sends confirmation email to the patients regarding the information of the appointment made.	Patient receives the email on booking an appointment.

ADMIN

Test case ID: TC1		Use case ID: UC01
Test case title: Admin login		
Test case description: Allows admin to look at the user list		
Test steps	Expected result	Actual result
Selects the list users option	Displays the list of the user that are created	Displays the list of the user that are created

Test case ID: TC2		Use case ID: UC02
Test case title: Delete complete user		
Test case description: Admin allows to delete user		
Test steps	Expected result	Actual result
Selects delete user option Admin enters their choice	Selects admin to delete either any or all user Delete particular user	Deleted successfully

4. RESULT

4.1. Introductory Pages



Appointment Bookings

Patients can book appointments of specialized Doctors under various treatments



NEXT



Our Doctors

Patients can view profiles of various Doctors prior to booking appointments



ChatRooms

Patients can interact with Doctors directly using ChatRooms and clarify their doubts

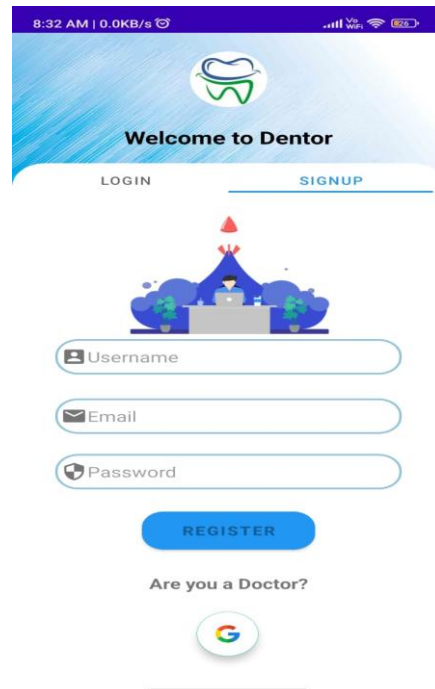
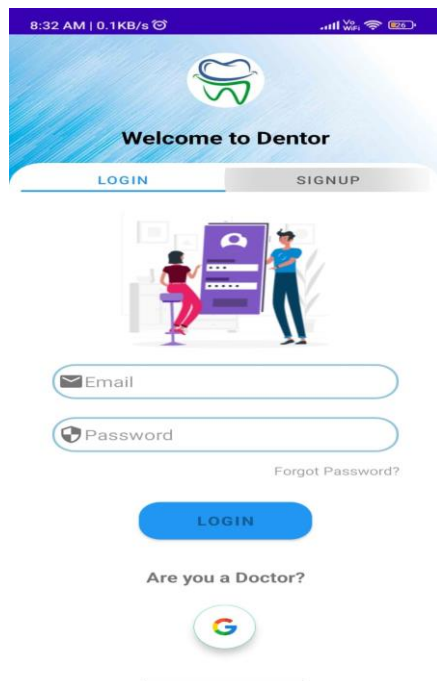


NEXT



START

4.2. SignUp & SignIn Pages



4.3. Home Page



4.4. Treatments Page



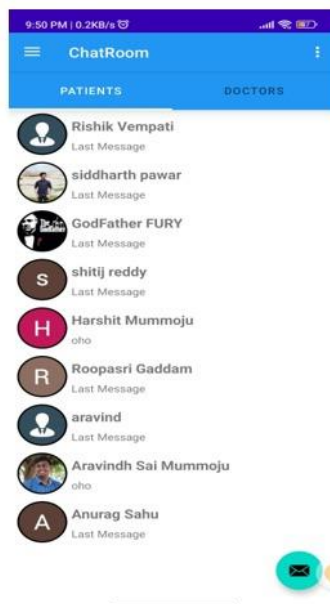
4.5. Doctors Page



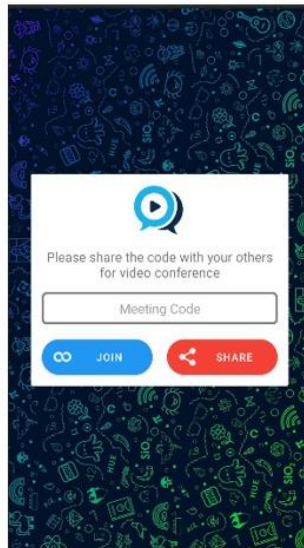
4.6. Appointments Page



4.7. ChatRoom Page



4.8. VideoCall Page



4.9. Appoitment Mail



5. CONCLUSION AND FUTURE WORK

To conclude, we have built a DENTOR an android application which features many basic real world applications. The intention behind this project was to enhance our knowledge in these crucial subjects and further provide the same to all users of our platform. We also wanted to inculcate the practice of Self-caring program, that is, without guidance of professors or institutions.

Our motive is for making the public to make their health consciousness without the problem of getting the appointment or not. Our future work includes incorporating more concepts such as *Recommender System* in our app which facilitates the patients in booking appointments of specific doctors based on *reviews* and *ratings* the. Other than this, we are deliberating on increasing the authority of the Admin by shifting some features from read-only to editable access as well.

This project can be further improved by the usage of databases to handle huge chunks of data.

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GeeksforGeeks <https://www.geeksforgeeks.org/android-ui-layouts/?ref=lbp>