Android-Based HealthTrack Application

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Abstract: *HealthTrack is an advanced healthcare app developed to modernize and improve medical services for patients and healthcare providers. HealthTrack is a comprehensive digital environment that provides more efficient healthcare services by providing appointment scheduling, interactive consultations, queue management, and automated billing via an app. This unique tool endeavors to reduce patients wait times and hospital activities while providing better accessibility of medical services. The app harnesses AI-powered recommendations and real-time notifications to create a personalized healthcare experience for the users that helps them manage and schedule their appointments, medication reminders, and consultations with doctors smoothly and seamless. HealthTrack is also centered on the security and privacy of your health information with an encrypted data transmission system for health records stored using the application and compliance with health regulation requirements. Future developments in the application will evolve with HealthTrack connection with electronic health records, AI-enabled diagnostics, predictive analytics, and upgraded telemedicine components to help further the scope of patient care and hospital management. Finally, HealthTrack closes the digital gap of healthcare providers and patients by automating services that rely heavily on human interaction and provides a safe environment for health care delivery. Smart automation, real-time communication, and data-informed decisions will help change the current footprint of digital healthcare with particular emphasis on quality and use of technology to leverage better health outcomes and promote operational efficiency.*

Keywords: *Scheduling appointments, Queue management, Medical Records, Automated Billing, Notifications.*

I. INTRODUCTION

The healthcare sector is transforming quickly, and technological solutions are vital in improving patient care and the delivery of medical services. HealthTrack is a contemporary health mobile application intended to provide a simple and effective health experience for patients and healthcare professionals. A great number of features are integrated into the app such as appointment booking, virtual appointments, waitlist management and automated billing designed to improve access to healthcare and the operating model. Many hospitals and clinics have trouble with long patient wait times, ineffective scheduling, waits during on-site visits, or limited communication between physicians or operators and patients. These inconveniences contribute to poor patient satisfaction, as well as anxiety for healthcare professionals. HealthTrack provides a healthcare management platform that removes challenges associated with scheduling and wait times, while adding real-time communication features to decrease any possible anxiety with the patient experience.

Recently, the appetite for digital healthcare solutions has grown substantially based on the need for more accessible, effective, and patient-centered healthcare services. Many more traditional healthcare systems are reliant on manual appointment scheduling, paper-based documentation, and in-person visits, which can result in operational inefficiencies, long wait times, and excessive administrative requirements for healthcare providers. By digitizing the core healthcare workflow, HealthTrack adds efficiency by enabling patients to book their own appointments using the app, consult with their doctors in a cyber-way, and receive notifications in a timely manner regarding their healthcare priorities. By combining real-time queue management, the app reduces time spent by patients in a clinic or hospital, thus enhancing the overall patient experience and relieving pressure at medical facilities that's often attributed to overcrowding.

II. EXISTING WORK

The existing systems for the health care system rely on traditional methods such as paper-based registrations, offline appointments, offline billing and paper-based reports and scans for patients. Coming to the patients they usually call the hospital and book the appointment or they come in person to book the appointment for consulting a doctor then the receptionist may add to the queue. By that the patient have to wait for long time and they might not know when they can consult the doctor and if any emergency cases patients have to wait for longer hours by this existing system for getting a bed booked. In many cases the hospitals offer the medical records and patient information in paper-based records which leads to the errors, loss of the documents or can be delay in accessing information in crucial times and also if any of the patient may forget the previous medical records then their treatment may get delayed or may be mistreated.

In some advanced healthcare systems, we can book the appointment but we don't know when the appointment is scheduled. Online billing will be available and we can also choose the best hospital as our choose and can choose the best doctors as our like and can make the appointment as our need and the reports are given in the paper based but the patient information may be stored in the online as softcopy not as paper based and no errors may occur. But the queue management lags patient. By that the patient have to wait longer hours without knowing their position in the queue.

Additionally, both the traditional and the advanced health care systems lag the overall patient progress, manual scheduling, financial tracking and patient accessibility which may get negative impact on both patient and the hospital.

DISADVANTAGES

Manual appointment scheduling: Patient should call or visit hospital for appointment booking.

Queue Management: patient should wait longer time without knowing where their position in queue.

Paper-based Records: Records may be lost or may get delay in the treatment.

Slow Process: By using the paper records the treatment process may get slow.

Poor Communication: Hospital have less sources for communicating with the patient by that they may forget some patients in remaindering.

No Virtual Consultation: some of the patients cannot visit hospital, so they need virtual consultations.

III. PROPOSED WORK

The proposed system for the health Track android app aims to easily register by entering their personal information and can select their preferred hospital and doctor. The main motive of this app is for the easy and less waiting hours. The key feature of the app is to display the available time slots for the particular doctor by that patient can book appointment, the real time queue management patient may receive updates on the queue where their position is. And patient can upload the previous medical records so that doctors can easy view the records and start the treatment and patient will be receiving the follow up notification. Online billing will make the patient easier to pay by credit cards, e- wallets and insurance claims.

ADVANTAGES

Easy Login: Patients can easily login and give information.

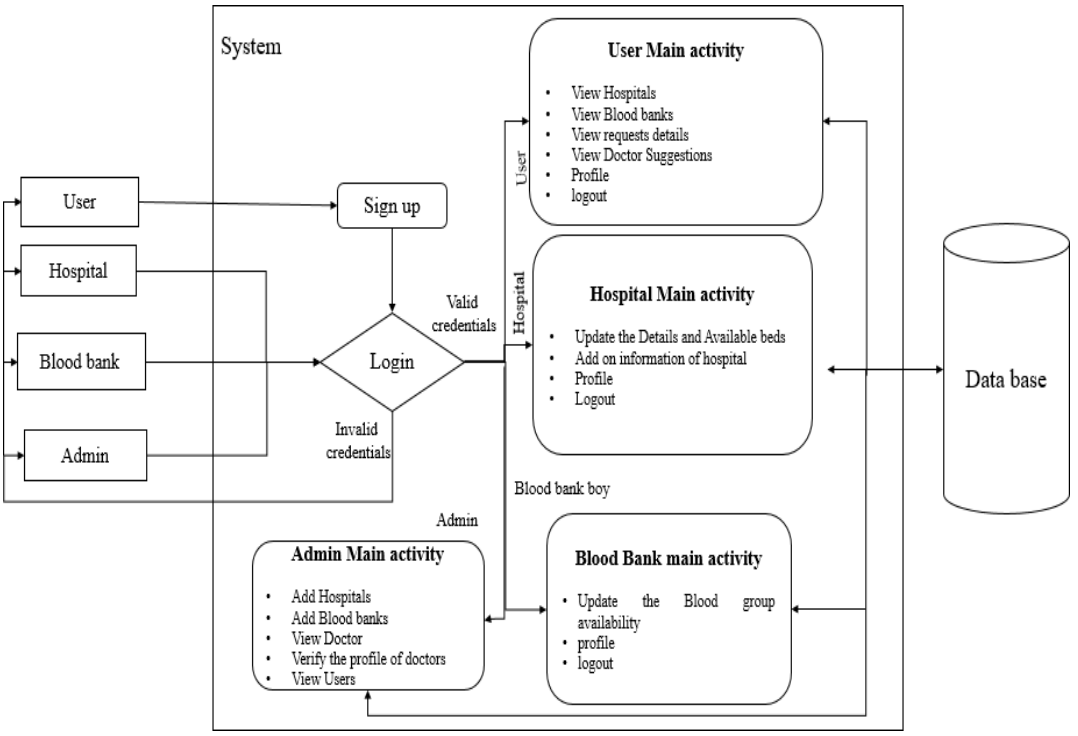
Real Time Queue Management: Patients can know their position and can plan their visit accordingly.

Doctor Availability: They can know the availability of doctor and can book their slots.

Blood Bank: This application provides the blood bank option if any emergency.

Bed Availability: It provides the real time information about the bed.

Design:



The process begins at the "User", where users have the option to either register as a patient or log in as hospital, blood bank or Admin. Admin, upon logging in, can add Hospitals, Blood bank, Doctors, Users and verify the profile of the doctors. They also can view blood bank activities hospital activities and user information. The blood bank activity will be updated by the admins such as the availability of the blood and profile of the patient. Patients on the other hands first need to register then the information of the patient will be stored in the database. After registration, patients can log in and access various features, such as viewing their profile, choosing the doctors and uploading the medical records. Coming to the hospital management activity they will update the details of the bed availability, add on the information upon the hospitals, creates the profile for the hospital and all this will be saved in the database. Following this, they proceed to payment, and upon successful payment patient can confirm the appointment. The database stores relevant information throughout this process to facilitate the functionality of the system.

IV. EXPERIMENTAL RESULT

This is our HealthTrack application's sign-up screen. A sign-up screen is the visual interface where new users input their details, including Name, Email, Password, and Mobile Number, to create an account within the application.Once a user is signed-up use can just log-in using Email and Password.

This is our HealthTrack application's login screen. A login screen is the visual interface to an application where users input their credentials (usually Email and password) to access the applications features and data. It's a security method to ensure authorized users are the ones using the application. Here users input their log-in credentials to access their associated application's functions.

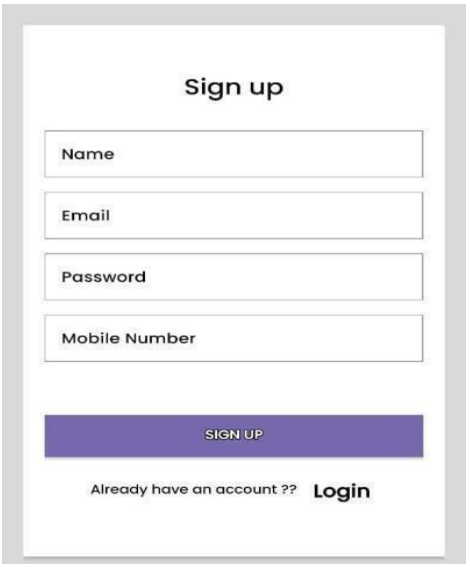


Fig 4.1: Sign Up page

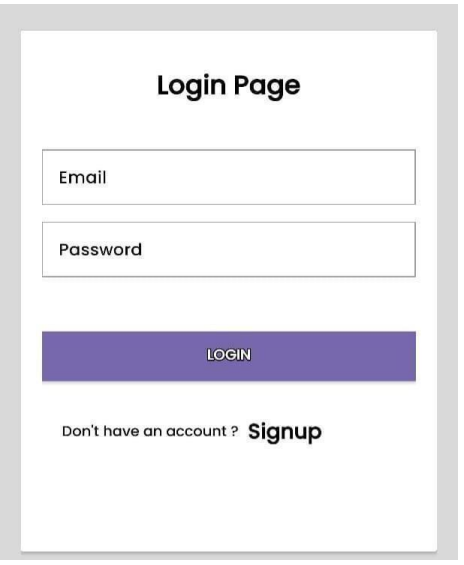


Fig 4.2: Login page

This is our HealthTrack application's appointment booking screen. An appointment booking screen is the visual interface where users can schedule medical appointments by providing details including Date, Description, and Time, along with selecting either Queue-In Clinic or Virtual appointment options.

This is our HealthTrack application's appointments screen. An appointments screen is a visual representation of the user's scheduled medical appointments. Each appointment card provides relevant details, including the appointment description, date fetched, appointment time, and type of appointment (i.e., Virtual or Queue-In Clinic).

Fig 4.3: Appointment Scheduling

Fig 4.4: Appointments

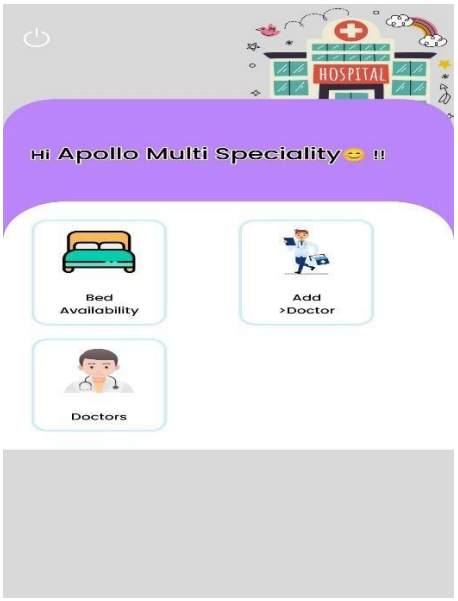


Fig 4.5: Hospital Screen

Fig 4.6: Doctors screen

This is our HealthTrack application's hospital dashboard screen. A hospital dashboard screen is the visual interface where hospital administrators can access key management functions for their healthcare facility. The three main action tiles are Bed Availability: for monitoring and managing patient beds, Add Doctor: for onboarding new medical professionals to the system, and Doctors: for viewing and managing the existing medical staff.

This is our HealthTrack application's doctor dashboard screen. A doctor dashboard screen is the visual interface where medical professionals can access their key practice management functions.Appointment: for viewing and managing patient consultations, and Suggestions: for accessing patient feedback or providing medical recommendations.

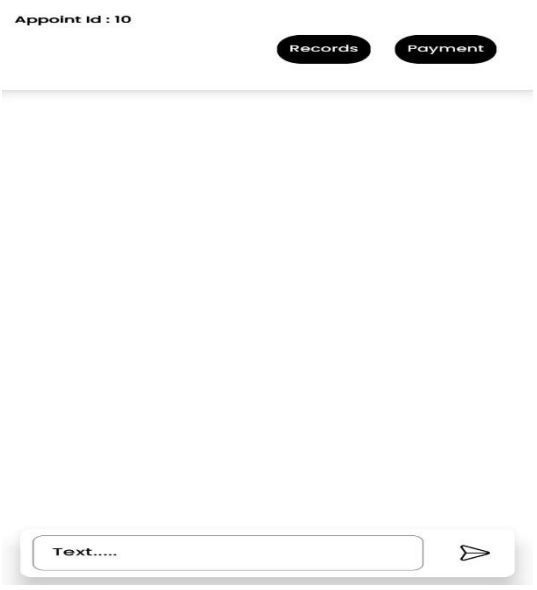


Fig 4.7 : Chat Option

Fig 4.8 : Blood Bank

This is our HealthTrack application's Chat screen.A chat screen is the visual interface where the Doctor and user can contact. User can upload records and procced to payment .This is used to get the meet link from the doctor to the user.Doctor and user can contact through this option.

This is the blood bank search screen of our application HealthTrack. A blood bank search screen is the visual interface for users to identify blood donation resources near their location. This screen has the search bar at the top indicating the prompt Search near by you and shows the search result is a Blood Bank with critical contact information including the organizational name.

V. CONCLUSION

The Healthtrack healthcare management application has been successfully developed and employed to solve key emergency medical coordination concerns. By linking bystanders, hospitals, and physicians, it creates a higher level of emergency medical assistance through its sophisticated digital solutions. This application makes processes such as patient registration, securing appointments, and communication with information instant. Its ability to expedite decision-making and coordination improves the efficacy of emergency medical services and the management of routine health services. Furthermore, apart from functioning well, healthtrack has proved to be reliable and effective to ensure performance across multiple devices, environments, and versions. The user-friendly interface of healthtrack makes interfacing with the application easy for users, as does the secure management of individual health data and scalability for users, institutions, and communities as well. The real-time tracking functionality of healthtrack, its efficient queue management system, and the use of a queue digitization system, have also improved workflow management in hospitals while improving patient experience by reducing wait time.From an economic and strategic perspective healthtrack reduces healthcare consumer costs through reduced costs for administration that can improve systemic efficiencies around administering medical services. More telling is healthtrack's proven support for a national vision of modernization in health interface with and for the consumer, supporting improvements to patient safety and access, while degrading technological inequities in accessing medical services. Likewise, healthtrack, while it is resourcefully performed, implementation in institutions, is yet unattached to the broader adaptability and challenges of consolidating consumer use of the system.

VI. REFERENCES

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