



# Revolutionizing Healthcare Services: Medify - An Android App Empowering Patients and Doctors with Seamless Appointment Booking, Patient Queue Management, and Health Data Monitoring

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**Abstract:** Medify is an Android application that addresses the challenges faced by both patients and doctors in the healthcare industry. This app offers users the convenience of booking appointments with registered doctors, with the waiting queue organized based on the severity of the disease and the condition of the patient, while also adhering to a "First Come First Serve" approach to ensure equal priority for all patients. To mitigate the issue of patients providing dishonest information for higher priority, a feedback rating system is implemented, allowing doctors to rate patients based on their honesty, and ensuring future appointments are allocated accordingly. The app enables users to upload and store their prescriptions, ensuring doctors have access to the latest information. Users can also monitor their health data through visual charts that display the last five reports. The appointment booking process involves users answering specific questions related to their issue, enabling efficient scheduling. Additionally, an algorithm has been developed to sort the patient queue based on priority, providing fair and equal treatment. The use of Kotlin in the backend and XML for implementing designs, along with the integration of Java for AES encryption to protect user data, ensures a secure environment. Firebase was utilized for user authentication, storing user data, appointment details, and prescriptions. Jetpack libraries, such as Navigation Fragment and ViewBinding, were employed for streamlined development, while Figma aided in designing a minimal and user-friendly interface. Medify offers a comprehensive solution to enhance the healthcare experience for both patients and doctors, leveraging technology to streamline processes and improve access to quality care.

**Keywords** — Appointment Automation, Health Care, Android App, Patient Queue Scheduling

## I. INTRODUCTION:

The healthcare industry has experienced significant transformations due to digital technologies and mobile applications. Medify, an innovative Android app, aims to address challenges faced by patients and doctors by providing a streamlined healthcare experience. It offers a user-friendly platform for booking appointments with registered doctors, eliminating long waiting times and scheduling difficulties. Medify's unique algorithm ensures equal priority for all patients. One notable feature is the ability to upload prescriptions, displaying the latest information for doctors without the need for physical copies. Users can also track and monitor their health data through comprehensible charts, making informed decisions and monitoring progress over time. Medify also benefits healthcare providers by efficiently managing appointments and patient records, allowing them to focus on delivering high-quality care. Research on user feedback, usage statistics, and behavior provides insights into how Medify transforms patient-doctor interactions and its broader impact on the healthcare sector.

Our proposed work is divided into five parts which are an introduction (part 1), methodology (part 2), result and discussion (part 3), conclusion and future scope (part 4), references (part 5)

## II. METHODOLOGY

### 1. ARCHITECTURE OF THE PROPOSED SYSTEM:

The Medify app follows the MVVM (Model-View-ViewModel) architecture pattern, which separates the user interface (UI) logic from the business logic and data layer. This promotes maintainability, testability, and reusability. MVVM consists of three key components: the Model, the View, and the ViewModel.

The Model represents the data and business logic of the application, independent of the UI. It encapsulates data structures, algorithms, and interactions with backend services. The View represents the UI elements that users interact with, responsible for displaying data and capturing user input. The ViewModel acts as an intermediary, connecting the Model and the View. It contains presentation logic, orchestrates data flow between the Model and the View, and handles user interactions and business logic operations. By separating these components, MVVM enhances maintainability, testability, and reusability of the application.

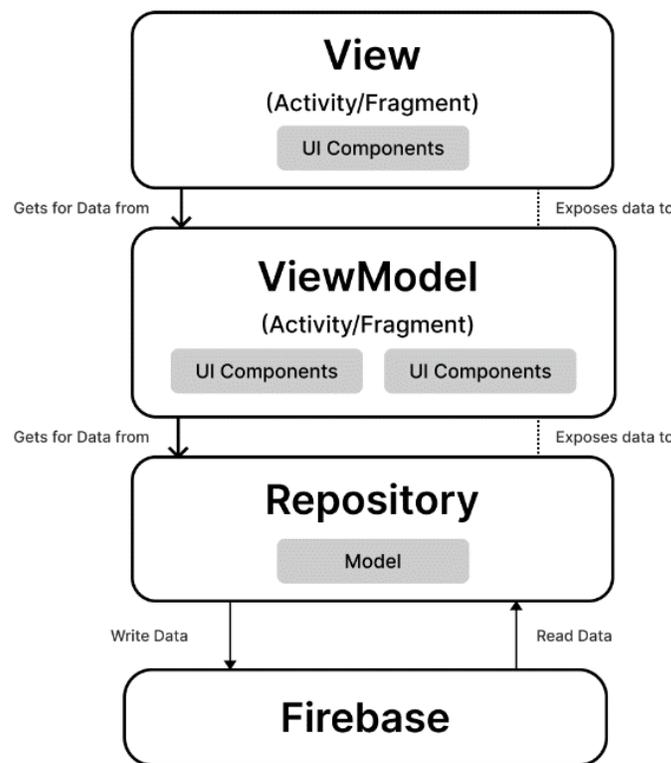


Fig1. Architecture Pattern (MVVM)

### 2. TECHNOLOGY AND TOOLS USED:

**i. Kotlin** - Kotlin is the primary programming language used in the backend implementation of Medify. Known for its conciseness, readability, and interoperability with Java, Kotlin offers a range of modern features that enhance code quality and developer productivity. By leveraging Kotlin's expressive syntax and advanced language constructs, Medify achieves efficient and maintainable code.

**ii. Java** - While Kotlin serves as the primary language, Java is also utilized in certain aspects of Medify's development. The interoperability between Kotlin and Java allows for seamless integration and leverages the existing Java ecosystem. In Medify, a Java class is used to encrypt user data, ensuring the security and privacy of sensitive information stored within the app.

**iii. Firebase** - Firebase, a comprehensive platform provided by Google, plays a crucial role in Medify's functionality. It is used for several key operations, including user authentication, data storage, and appointment management. By leveraging Firebase's robust and scalable backend infrastructure, Medify ensures secure user authentication and seamless data synchronization across multiple devices.

**iv. Jetpack Components** - Medify benefits from utilizing various Jetpack components, a set of libraries and tools provided by Google, which simplifies the development of modern Android applications. Some of the Jetpack components employed in Medify include

**v. Navigation Components** - This component facilitates seamless navigation between different screens and simplifies the implementation of a clear and intuitive user interface flow.

- vi. **Coroutines** - By utilizing Coroutines, Medify achieves asynchronous and non-blocking programming, enhancing the app's performance and responsiveness.
- vii. **ViewModel** - Medify incorporates the ViewModel component to separate the app's data handling and business logic from the UI, ensuring a clean and maintainable codebase.
- viii. **LiveData** - LiveData is used in Medify to observe and react to changes in data, allowing for real-time updates and efficient communication between different app components.
- ix. **ViewBinding** - ViewBinding simplifies the process of accessing UI elements and eliminates the need for manually writing boilerplate code, enhancing code readability and reducing the potential for error
- x. **Figma** - Figma, a popular design and prototyping tool, is employed in Medify's UI/UX design phase. It enables the creation of minimal and visually appealing designs, ensuring an intuitive and user-friendly interface. By utilizing Figma, the Medify team collaboratively designs and prototypes the app's user interface, ensuring a seamless and visually engaging user experience.

### 3. FLOWCHART:

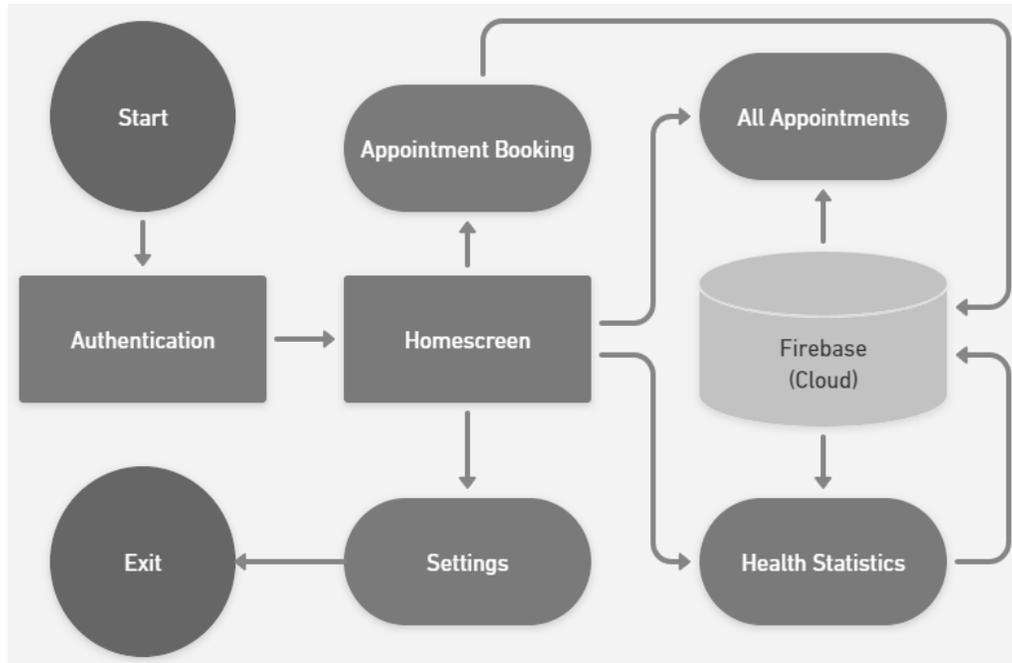


Fig 2. Workflow Diagram

III. RESULT AND DISCUSSION

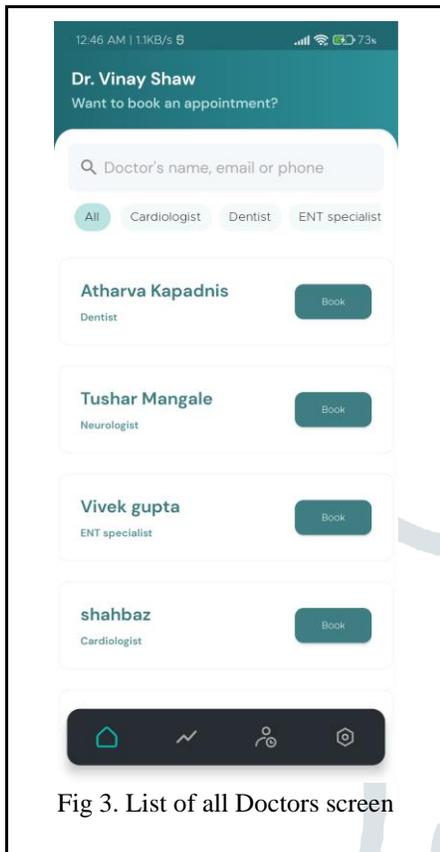


Fig 3. List of all Doctors screen

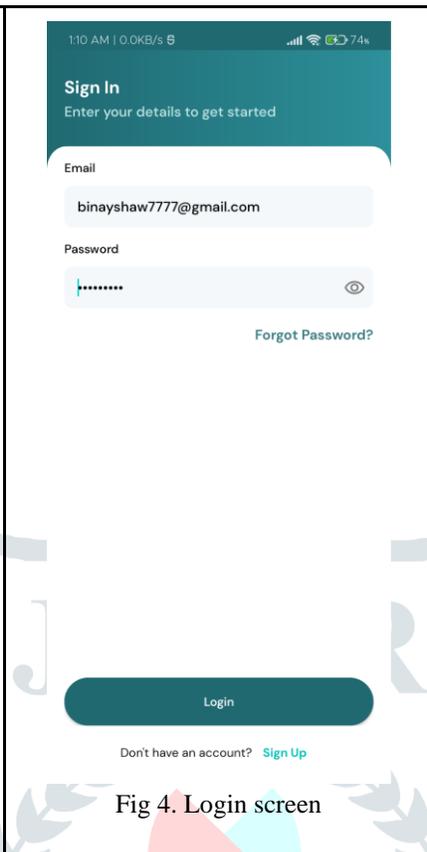


Fig 4. Login screen

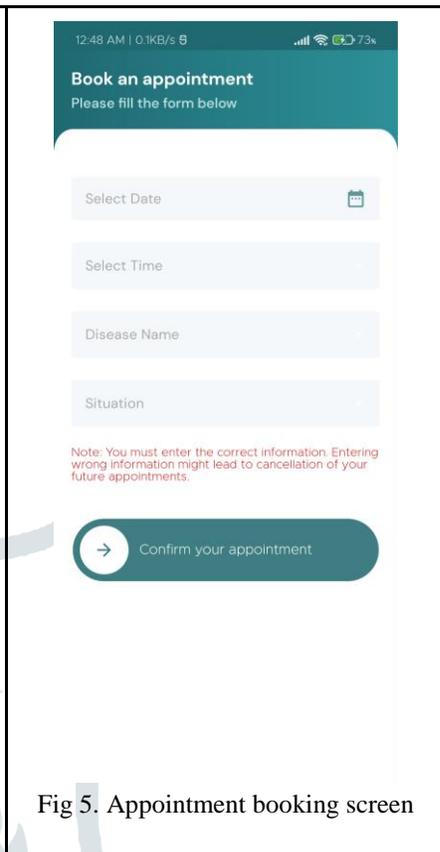


Fig 5. Appointment booking screen

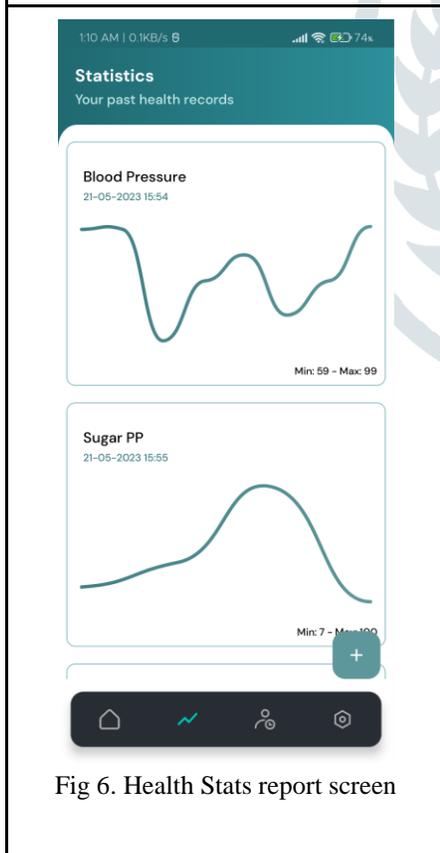


Fig 6. Health Stats report screen

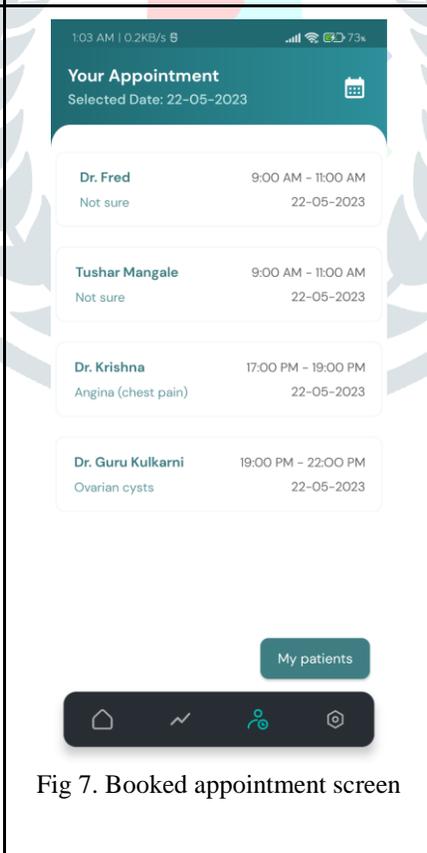


Fig 7. Booked appointment screen

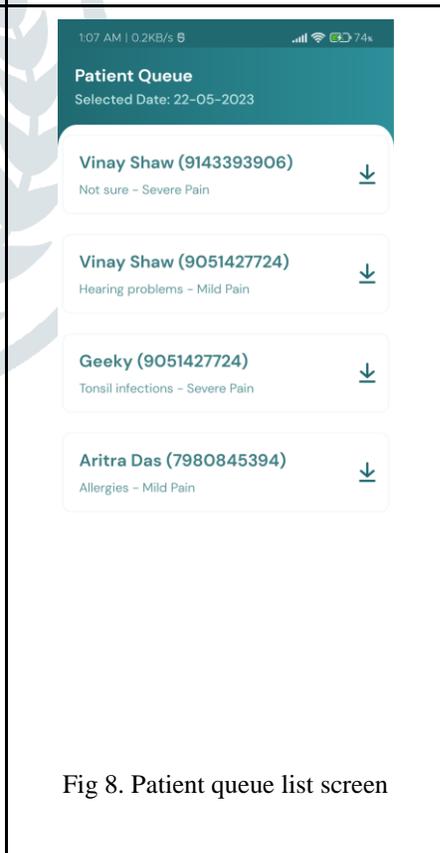


Fig 8. Patient queue list screen

#### IV. CONCLUSION AND FUTURE SCOPE:

In conclusion, Medify is an Android app that addresses various healthcare challenges and strives to improve the overall healthcare experience for both patients and doctors. It offers a range of features such as authentication, appointment management, prescription handling, health data monitoring, and patient feedback. However, the app doesn't stop there and aims to continually enhance its capabilities. In the future, Medify plans to introduce several new features including a symptom checker tool that utilizes advanced algorithms, AI-powered medicine details, secure messaging for doctors and patients, emergency messaging functionality, and a location-based service to find the nearest pharmacies and hospitals. Medify's ultimate goal is to leverage technology to enhance healthcare accessibility, efficiency, and quality, fostering collaboration between patients and doctors and providing a seamless healthcare experience.

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