Android Application Development

Survey Application

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OVERVIEW:

A project that demonstrates the use of Android Jetpack Compose to build a UI for a sleep tracking app. The app allows users to track their sleep. With the “Sleep Tracker” app, you can assess the quality of sleep they have had in a day. It has been time and again proven that a good quality sleep is pretty essential for effective functioning of both mind and body.

A sleep tracking app is a mobile application designed to monitor and analyse your sleep patterns and provide insights on how to improve your sleep quality and overall health by providing personalized recommendations based on their sleep data. A sleep tracking app can be a useful tool for anyone looking to optimize their sleep and improve their overall health and well-being. However, it's important to note that while these apps can provide helpful information.

“Sleep Tracker” application enables you to start the timer when they are in the bed and about to fall asleep. The timer will keep running in the background until it is stopped, whenever the user wakes up. Based on the sleep experience, you can rate your sleep quality. Finally, the app will display an analysis of the kind of sleep, you had the previous night. In an effort to help our users stay informed about their sleep, we are making Sleep API.

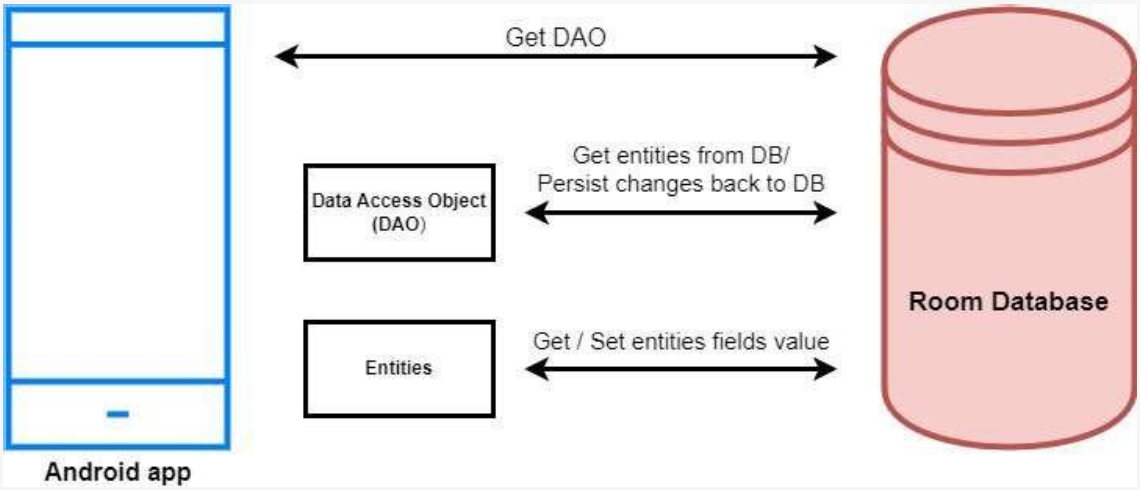
Our phones have become great tools for making more informed decisions about our sleep. And by being informed about sleep habits, people can make better decisions throughout the day about sleep, which affects things like concentration and mental health. The Sleep Application Programming Interface is an Android Activity be used to power features like the Bedtime mode in Clock. Elapsed Time return the time since the system was booted, and include deep sleep. This clock is guaranteed to be monotonic, and continues to tick even when the CPU is in power saving modes, so is the recommend basis for general purpose interval timing.

This sleeping information is reported in two ways: .

- A daily sleep segment which is reported after a wakeup is detected.
- App can run in the background to optimize battery usage based on the user's habits and preferences.

The app still running smoothly and providing accurate sleep data. By running in the background, the app can also use a variety of sensors to track sleep without the need for the user to keep the app open and actively tracking. This can improve the user experience by reducing the need to constantly interact with the app and potentially drain the battery.

ARCHITECTURE:



PROJECT WORKFLOW:

- **User registration:** Users provide their personal information and create an account to record the survey .
- **User login:** Once registered, users can log in to the application using their email and password to record survey .
- **Main page:** After logging in, the user is directed to the main page of the application, where they give the survey on diabetics.
- **Survey Report:** The user can record the informations on this page and it is stored and surveyed.

PROBLEM STATEMENT:

With growing awareness of the importance of quality sleep for both mental and physical health, there is a need for accessible tools that help individuals monitor and improve their sleep habits. Many

existing solutions are either too complex or lack a user-friendly interface that promotes consistent usage. As a result, individuals may not have access to easy-to-understand insights on their sleep patterns, making it challenging to address sleep-related issues effectively. This project aims to address this gap by developing a straightforward and engaging sleep tracking app that provides actionable insights into sleep quality and duration.

SOLUTION:

The **Sleep Tracker** app provides a minimalist, easy-to-use platform for users to monitor and improve their sleep habits. Using **Jetpack Compose** for an intuitive UI, the app enables users to start a sleep timer, record their sleep duration, rate their sleep quality, and view daily and historical analyses of their sleep patterns. The app's data visualization offers insights into trends, helping users recognize patterns that may impact their sleep. Future enhancements, such as smart alarms and health metric integration, will make the app a comprehensive solution for those looking to enhance their sleep quality through accessible technology.

SYSTEM REQUIREMENTS:

1.HARDWARE REQUIREMENTS:

1. **Development Device (Computer/Laptop):**
    - **Processor**: Intel i5 (8th generation or higher) or AMD Ryzen 5 equivalent
    - **RAM**: 8 GB minimum (16 GB recommended for smoother performance)
    - **Storage**: 100 GB of available storage space
    - **Graphics**: Integrated graphics (discrete GPU optional for emulator acceleration)

2. **Mobile Device for Testing (Optional)**:
    - **Operating System**: Android 8.0 (Oreo) or higher
    - **RAM**: 2 GB minimum

- **Storage**: At least 50 MB of free storage space for the app

Software Requirements:

1. **Operating System** (for development):
   - Windows 10 or 11 (64-bit), macOS (Big Sur or later), or Linux (Ubuntu 20.04 or later)
2. **Development Tools**:
   - **Android Studio**: Version 4.2 or higher
   - **JDK**: Java Development Kit 11 or higher
   - **Android SDK**: Android SDK API Level 26 or higher
3. **Libraries and Frameworks**:
   - **Android Jetpack Compose**: For building UI components
   - **Room Database**: For local data storage (optional but recommended for sleep data persistence)
   - **Kotlin Coroutines**: For managing asynchronous tasks smoothly
   - **Dagger Hilt**: For dependency injection (optional, for larger app projects)
4. **Database**:
   - **SQLite or Room Database**: For offline data storage and sleep record persistence
   - **SharedPreferences**: For lightweight data (e.g., user settings, last session data)
5. **Additional Tools (Optional)**:
   - **Firebase**: For remote data storage, analytics, and crash reporting (optional)
   - **Git**: For version control and collaboration, with a GitHub or GitLab repository for project storage
   - **Postman**: For testing any APIs (if integrated with other health services)

Testing Requirements:

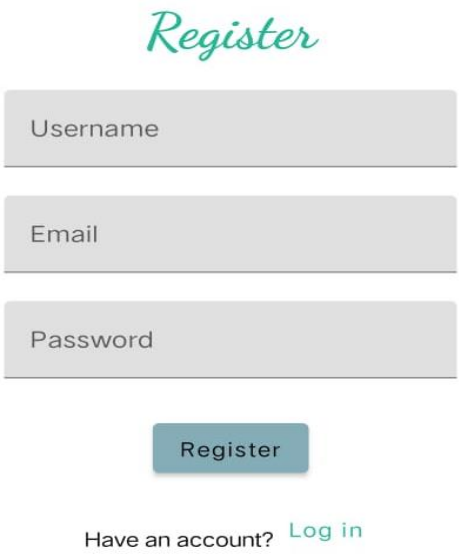
1. **Android Emulator**: Configured in Android Studio with API Level 26 or higher

2. **Physical Android Device** (optional): For real-world testing, ideally with Android 8.0 (Oreo) or higher

Network Requirements (Optional):

- **Internet Connection**: Required only for features such as updates, analytics, or remote data storage if using Firebase or other cloud services.

APPLICATION SCREENSHOTS:




VALIDATION
LOGIN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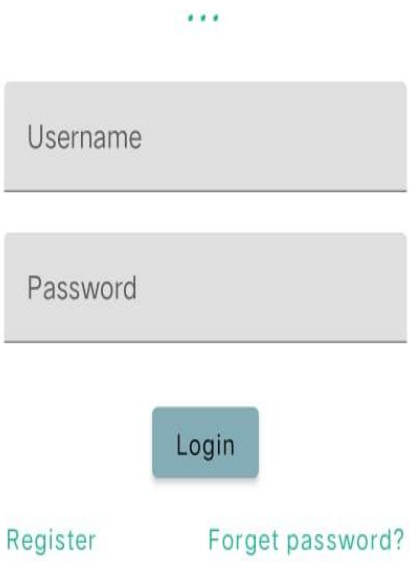
LOGIN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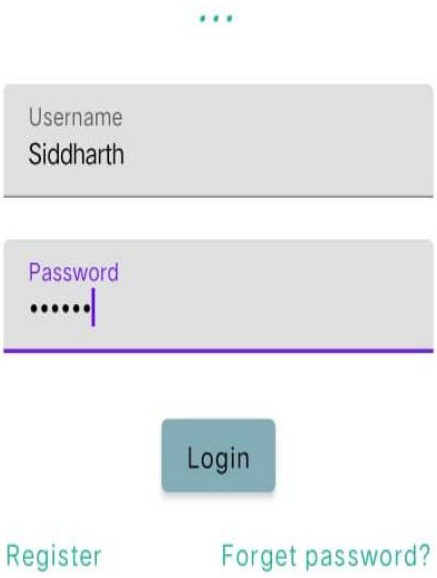
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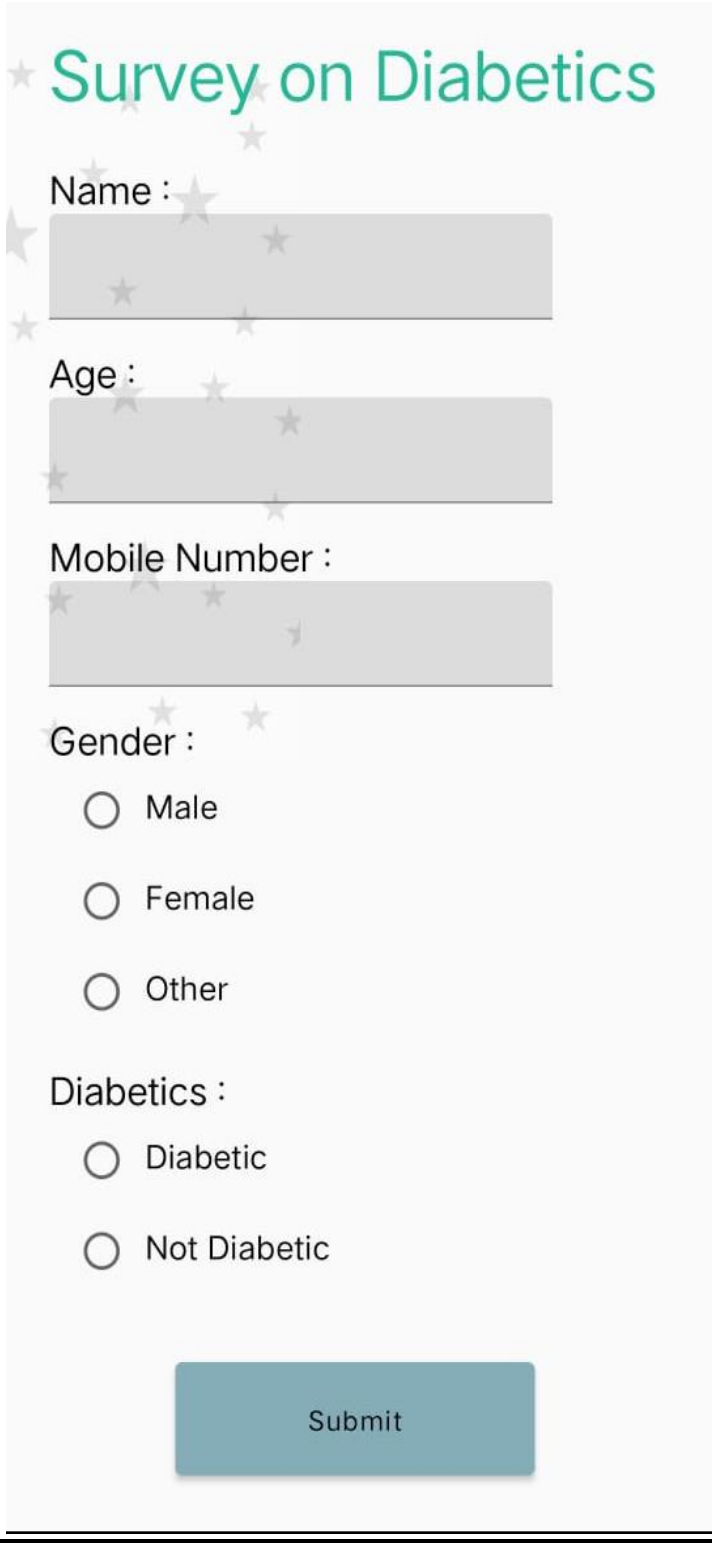
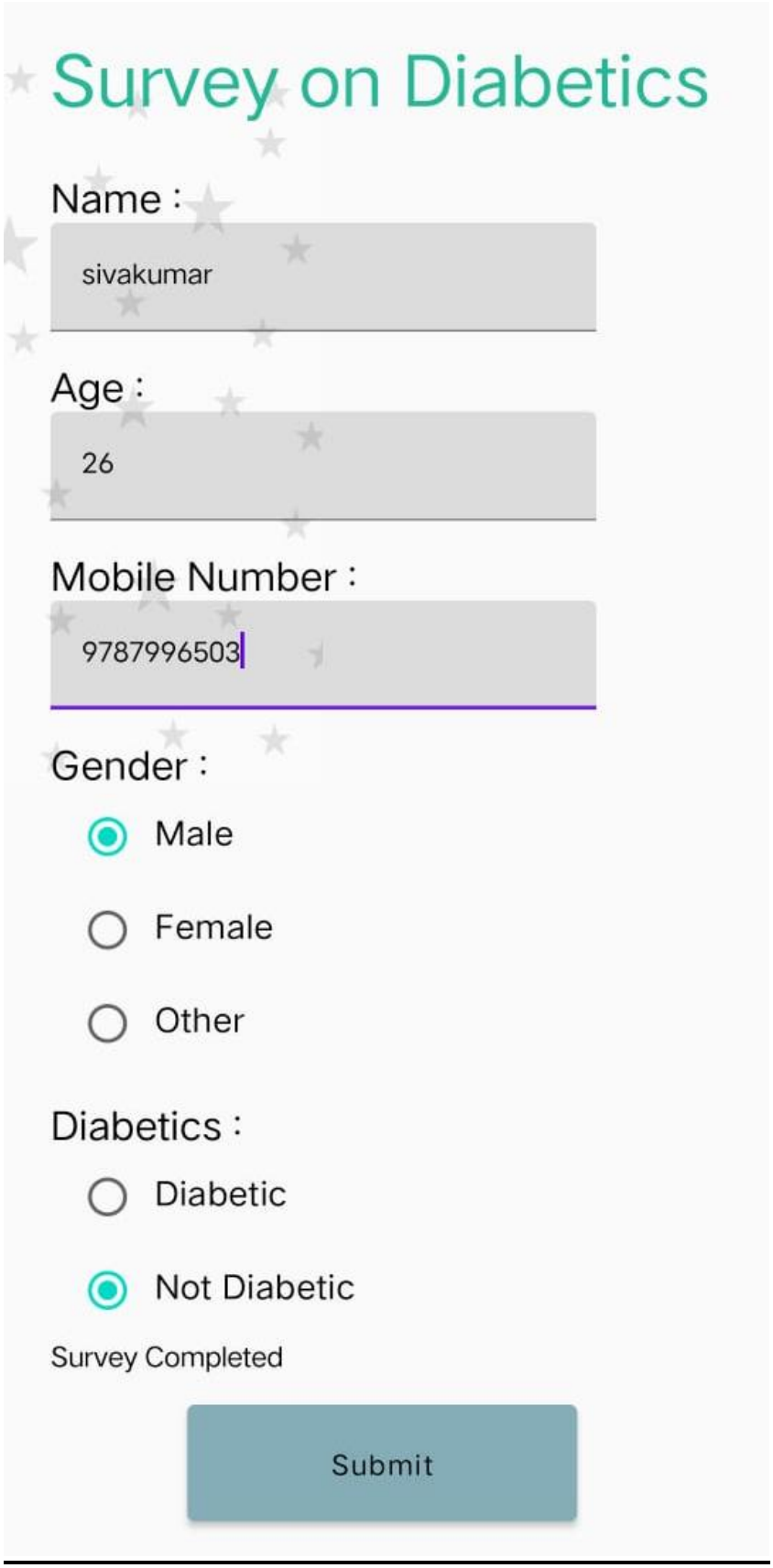

Survey on Diabetics
Name :
Age :
Mobile Number :
Gender :
Male
Female
Other
Diabetics :
Diabetic
Not Diabetic
Submit


Survey on Diabetics
Name :
sivakumar
Age :
26
Mobile Number :
9787996503
Gender :
Male
Female
Other
Diabetics :
Diabetic
Not Diabetic
Survey Completed
Submit


Survey Ap···
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APPLCATIONS:

1. Self-Management for Diabetic Individuals

- **Blood Sugar Tracking: Users can log their daily blood sugar levels (e.g., before and after meals) to monitor fluctuations and trends.**
- **Medication Reminders: The app can provide reminders to take insulin or other medications on time, based on the user's prescribed schedule.**
- **Diet and Exercise Logging: Users can track their food intake, carbohydrate consumption, and physical activity, helping to maintain balanced glucose levels.**
- **Health Trends and Analytics: The app can analyze patterns over time and offer insights, such as times when glucose levels are consistently too high or low, helping users make more informed lifestyle changes.**

2. Support for Healthcare Providers

- **Remote Monitoring**: Healthcare providers can remotely monitor their patients' blood sugar levels, medication adherence, and other metrics, providing them with valuable insights for better treatment plans.
- **Data Sharing**: The app allows patients to easily share their survey results, health data, or daily logs with their healthcare providers in real-time.
- **Alerts for Abnormal Data**: The app can flag any concerning patterns (e.g., sustained hyperglycemia or hypoglycemia), allowing healthcare providers to intervene early.

3. Survey and Feedback Collection for Research

- **Diabetes Prevalence Studies**: Researchers can use the app to collect demographic and health-related data to analyze the prevalence of diabetes in various populations.
- **Behavioral Patterns Analysis**: By collecting data about patients' lifestyle habits (e.g., diet, exercise, stress), researchers can study how different behaviors impact diabetes outcomes.
- **Feedback on Diabetes Management Programs**: The app can be used for surveys and feedback from patients about their experiences with different diabetes management programs, therapies, or medications.

4. Educational Tool

- **Personalized Tips**: Based on survey results, the app can offer personalized tips for improving blood sugar control, such as dietary suggestions or lifestyle changes.
- **Diabetes Education**: The app can provide educational resources on diabetes management, symptoms, complications, and new research findings to help users better understand their condition.
- **Support Communities**: Some apps integrate community support, allowing users to connect with others living with diabetes to share experiences, advice, and emotional support.

CONCLUSIONS:

A diabetic survey application can be a powerful tool to support diabetes management, improve patient outcomes, and facilitate research and healthcare provider oversight. It combines the collection of real-time health data with insightful analytics, personalized feedback, and education to help individuals better manage their condition while promoting long-term health improvements.