Android Application Development

Survey Application

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OVERVIEW:

A Diabetic Survey Application is a digital tool designed to collect, analyze, and manage data related to diabetes, offering a way to assess a patient's health status, monitor their lifestyle choices, and track the effectiveness of treatments. It can be tailored to individuals with diabetes, healthcare professionals, or research purposes.

Key Features:

1. **User Registration & Profile Creation:**
    - **Personal data collection (e.g., age, gender, diabetes type, medical history).**
    - **Options for multiple user profiles (patients, caregivers, healthcare professionals).**
2. **Health Data Collection:**
    - **Regular surveys to capture information about blood sugar levels, medications, diet, physical activity, and mental health.**
    - **Tracking of vital statistics (e.g., weight, blood pressure, A1C levels, glucose readings).**
    - **Integration with wearable devices or health trackers to automate data entry.**
3. **Diabetes Risk Assessment:**
    - **Tools to assess the risk level of developing diabetes or complications.**
    - **Surveys designed to capture lifestyle factors (e.g., diet, exercise, smoking) that influence diabetes management.**
4. **Diet & Exercise Monitoring:**
    - **Users can input meals, snacks, and water intake.**

- **Exercise logging (duration, type, intensity, etc.) to track physical activity.**
- **Nutritional guidance or integration with food databases.**

5. **Medication & Treatment Tracking:**
   - **Reminder notifications for medications, insulin shots, or appointments.**
   - **Logging for changes in medication or treatment regimens.**
6. **Blood Glucose Monitoring:**
   - **Manual entry or syncing with glucose meters for daily readings.**
   - **Graphs and trends to show glucose control over time.**
   - **Alerts for critical highs or lows in glucose levels.**
7. **Progress & Reports:**
   - **Visual reports (charts, graphs) to help users track their progress.**
   - **Weekly or monthly summaries to show trends in blood sugar, physical activity, and other key health metrics.**
   - **Printable reports for sharing with healthcare providers.**
8. **Notifications & Alerts:**
   - **Reminders for routine tasks like medication, doctor's appointments, or glucose testing.**
   - **Emergency alerts if blood sugar levels reach dangerous levels.**
9. **Community & Support:**

- **Access to forums, support groups, or educational resources on managing diabetes.**
- **Interaction with healthcare professionals for consultation (via chat or video calls).**

10. **Security & Data Privacy:**
    - **Secure storage of sensitive health data with encryption.**
    - **Compliance with health data protection laws (e.g., HIPAA in the U.S., GDPR in the EU).**
11. **Integration with Health Systems:**
    - **Ability to share data with doctors, clinics, or health systems.**
    - **Sync with electronic health records (EHRs) for streamlined clinical management.**
12. **Educational Resources:**
    - **Articles, videos, and quizzes to help educate users about managing diabetes.**
    - **Guidance on lifestyle changes, healthy eating, and exercise routines.**

Benefits:

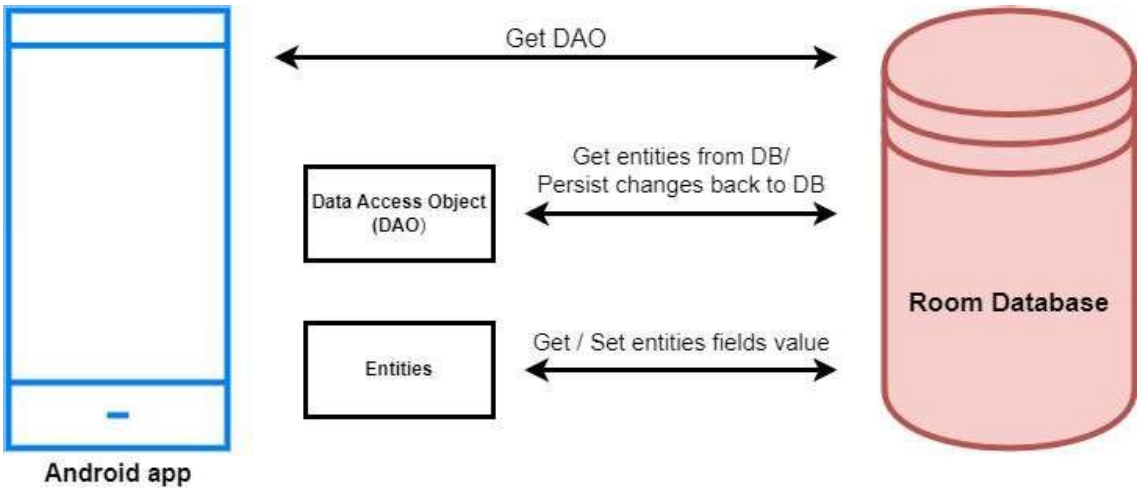
- **For Patients: Improved self-management, personalized care plans, and a better understanding of their condition through regular tracking.**
- **For Healthcare Providers: A comprehensive overview of patient data, allowing for more informed decisions and remote monitoring.**
- **For Researchers: A valuable tool for collecting real-world data on diabetes prevalence, management practices, and treatment outcomes.**

Target Users:

- **Individuals with diabetes (Type 1 and Type 2).**
- **Healthcare professionals such as endocrinologists, general practitioners, and dietitians.**
- **Researchers or institutions studying diabetes trends and treatment efficacy.**
- **Caregivers supporting those with diabetes.**

By collecting relevant data and offering insights, a diabetic survey application helps individuals with diabetes manage their condition more effectively, leading to improved health outcomes.

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:

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.

Objectives:

The objective of a survey detection app is to efficiently identify, capture, and analyze data related to surveys and feedback within a specified context. This type of app is typically designed for a variety of purposes, such as market research, customer satisfaction analysis, or public opinion polling. Key objectives may include:

1. **Survey Identification and Recognition: Automatically detecting and recognizing when a survey is being presented to users, either via emails, websites, or mobile platforms. This could involve detecting embedded forms, pop-ups, or links related to surveys.**
2. **Data Collection: Allowing users to easily participate in or complete surveys, while collecting responses in a structured format for analysis.**
3. **Real-Time Analysis: Enabling users or administrators to receive instant feedback on survey results, with the capability to visualize and interpret the data in real-time.**
4. **Data Validation: Ensuring that the responses collected are valid, complete, and comply with any necessary criteria for a survey to be considered effective and reliable.**
5. **Prevention of Survey Fraud: Some survey detection apps aim to detect and prevent fraudulent responses, such as duplicate submissions or automated (bot-generated) answers.**
6. **Improved Engagement: Encouraging greater user participation by making surveys easily accessible, engaging, and tailored to users' preferences and behaviors.**

7. **Contextual Relevance: Ensuring surveys are relevant to the user by analyzing their behavior, demographic information, or preferences to show appropriate surveys.**
8. **Enhanced User Experience: Ensuring the survey experience is seamless, intuitive, and non-intrusive, possibly offering incentives or feedback to users to improve participation rates.**
9. **Integration with Analytics and Reporting: Allowing survey responses to be seamlessly integrated with reporting and analytics tools for in-depth analysis and decision-making.**

FUNCTIONALIY:

The functionality of a survey detection app can be broken down into several key components, each of which serves a specific purpose in ensuring that surveys are identified, completed, and analyzed efficiently. Below is a detailed explanation of the app's core functionalities:

1. Survey Identification and Recognition

- **Automatic Survey Detection: The app scans for surveys in various forms such as embedded survey forms on websites, email survey invitations, mobile app pop-ups, or links leading to surveys.**
- **Pattern Recognition: Uses AI algorithms or predefined rules to recognize survey forms, identifying elements like text, forms, buttons, or links related to surveys.**
- **Survey Source Detection: Determines whether the survey is coming from a legitimate source (like a trusted website or recognized brand) to ensure the survey is valid.**
- **Push Notification Alerts: Alerts users when a survey is detected on websites or apps they visit, offering a prompt to participate.**

2. Data Collection

- **User-Friendly Survey Interface: Provides a seamless, intuitive interface for users to respond to surveys quickly, even on mobile or desktop platforms.**
- **Multi-Channel Support: Collects responses from various platforms, such as websites, emails, social media, and mobile apps.**
- **Structured Response Formats: Captures user input in structured formats (e.g., multiple choice, text input, Likert scales) for easy analysis.**
- **Progress Tracking: Shows users their progress in completing surveys, offering saving and resuming options if needed.**

3. Real-Time Analysis

- **Instant Feedback: After users submit their responses, the app can immediately present summary data or trends.**
- **Dynamic Visualization: Visualizes survey results in real-time using charts, graphs, and tables, which can help both users and administrators understand the data at a glance.**
- **Interactive Dashboards: Allows admins to interact with survey data, drilling down into specific responses or demographics for deeper insights.**
- **Sentiment Analysis: In case of open-ended responses, the app may analyze text data to gauge sentiment and categorize responses accordingly.**

4. Data Validation

- **Response Validation: Ensures that responses follow the expected format (e.g., no empty fields, logical response sequences, etc.).**
- **Completeness Checks: Verifies that users have filled out all required fields before submission, preventing incomplete data from being collected.**
- **Real-Time Error Alerts: Alerts users if there are errors or missing information, providing opportunities for correction before submission.**

- **Consistency Checks: Identifies inconsistent or contradictory responses and flags them for review (e.g., if a user rates satisfaction as "Very Poor" but indicates they would recommend the service).**

5. Prevention of Survey Fraud

- **Duplicate Submission Detection: Identifies if the same user has attempted to submit multiple responses to the same survey to prevent multiple answers from one person.**
- **Bot Detection: Uses CAPTCHA, behavioral analysis, or other methods to detect and block automated responses generated by bots.**
- **IP and Device Tracking: Tracks IP addresses or device identifiers to ensure responses are unique and prevent fraud.**

6. Improved Engagement

- **Personalized Survey Invitations: Tailors survey invitations based on user behavior, preferences, and demographics, showing relevant surveys at the right time.**
- **Gamification: Incorporates game-like elements such as badges, points, or rewards to make participating in surveys more engaging.**
- **Incentives for Participation: Provides incentives like discounts, offers, or points for completing surveys, which encourage users to participate.**
- **Survey Reminders: Sends gentle reminders to users who have not completed surveys they've been invited to.**

7. Contextual Relevance

- **Behavioral Targeting: Uses data analytics to understand users' browsing habits, past surveys taken, and other preferences to deliver more relevant surveys.**
- **Location-Based Surveys: Uses GPS or geolocation to target users with surveys relevant to their physical location (e.g., local events, region-specific product feedback).**

- **Demographic Profiling: The app can analyze a user's demographic data (age, gender, occupation) to show surveys relevant to their profile.**

8. Enhanced User Experience

- **Non-Intrusive Design: Ensures surveys do not interrupt users' experiences on websites or apps, presenting them at appropriate times or after certain actions.**
- **User-Friendly Interface: Offers simple navigation and visually appealing designs to ensure that surveys are easy to understand and complete.**
- **Progressive Disclosure: Displays survey questions one at a time to avoid overwhelming users, especially for longer surveys.**
- **Customizable Themes: Allows brands to customize the look and feel of surveys to align with their visual identity and create a cohesive user experience.**

9. Integration with Analytics and Reporting

- **Seamless Data Export: Allows survey data to be exported in various formats (CSV, Excel, etc.) for use with external analytics or reporting tools.**
- **Third-Party Integrations: Supports integration with popular analytics tools (e.g., Google Analytics, Tableau, Power BI) for deeper insights.**
- **Advanced Reporting Features: Provides admins with advanced reporting tools to generate detailed reports, custom views, and trend analysis.**
- **Automated Insights: The app can generate automated insights based on survey responses, offering suggestions or actionable recommendations for decision-making.**

10. Survey Distribution and Sharing

- **Email and Social Media Integration: Distributes surveys via email, social media platforms, and other communication channels to reach a wider audience.**

- **QR Code Generation: Allows for easy sharing of surveys by generating scannable QR codes, particularly useful for physical locations or events.**
- **Direct Embedding: Facilitates the embedding of surveys directly on websites or blogs for smooth, direct access to users.**

In summary, the survey detection app provides a comprehensive set of functionalities that streamline the survey process—from automatically identifying surveys to collecting responses, analyzing data, preventing fraud, and providing actionable insights. Its purpose is to enhance the overall user experience, ensuring higher engagement rates and more reliable, accurate data collection for better decision-making.

APPLICATION SCREENSHOTS:

Register

Username

Email

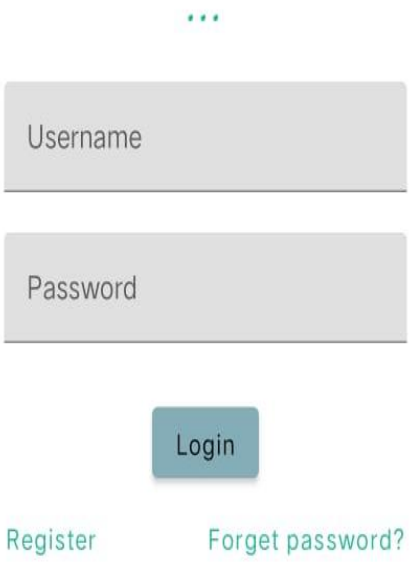
Password

Register

Have an account? Log in


VALIDATION
LOGIN


VALIDATION
LOGIN


Username
Password
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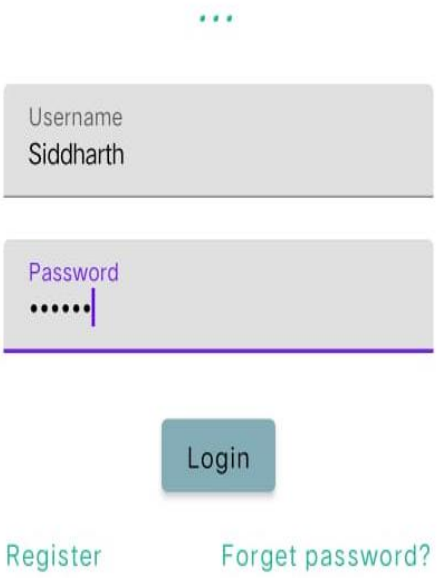
Register
Forget password?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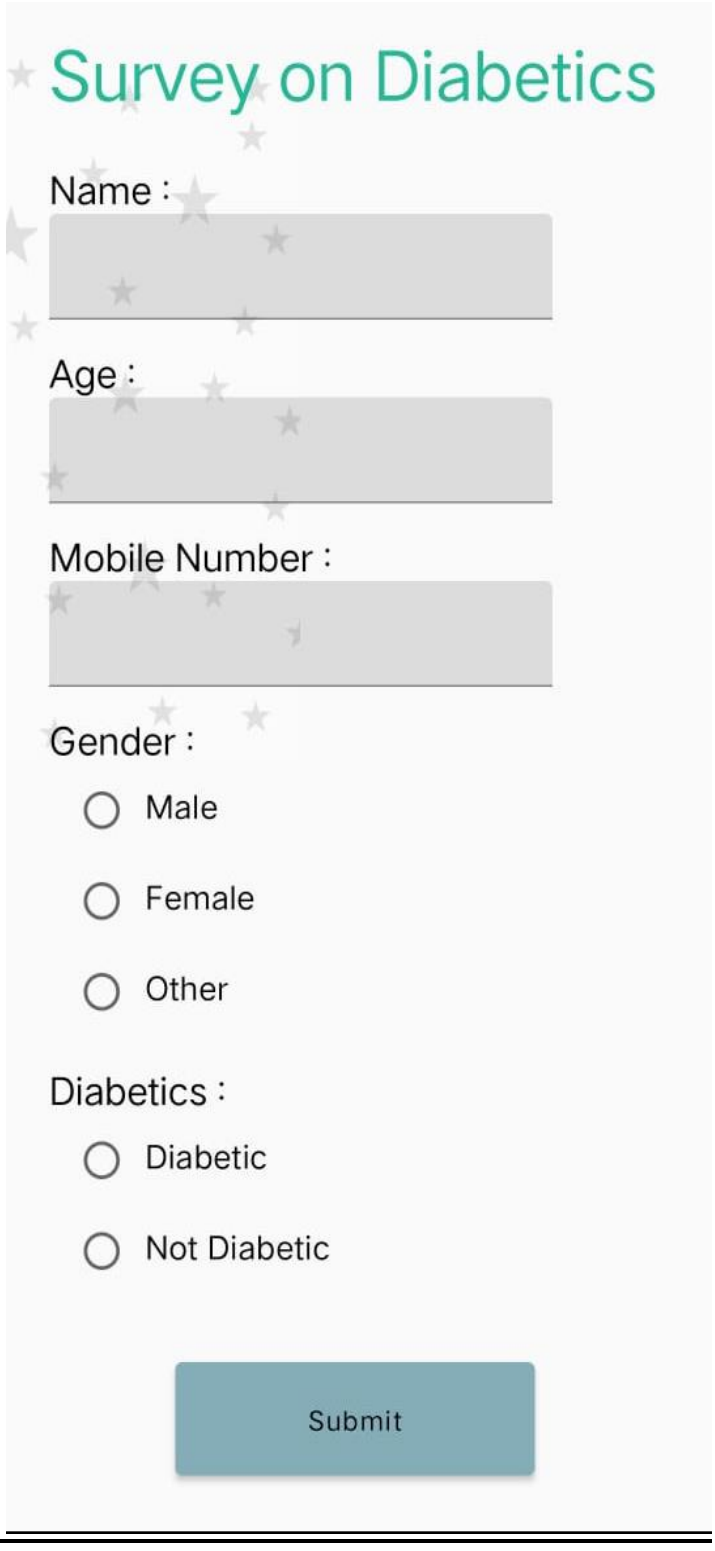
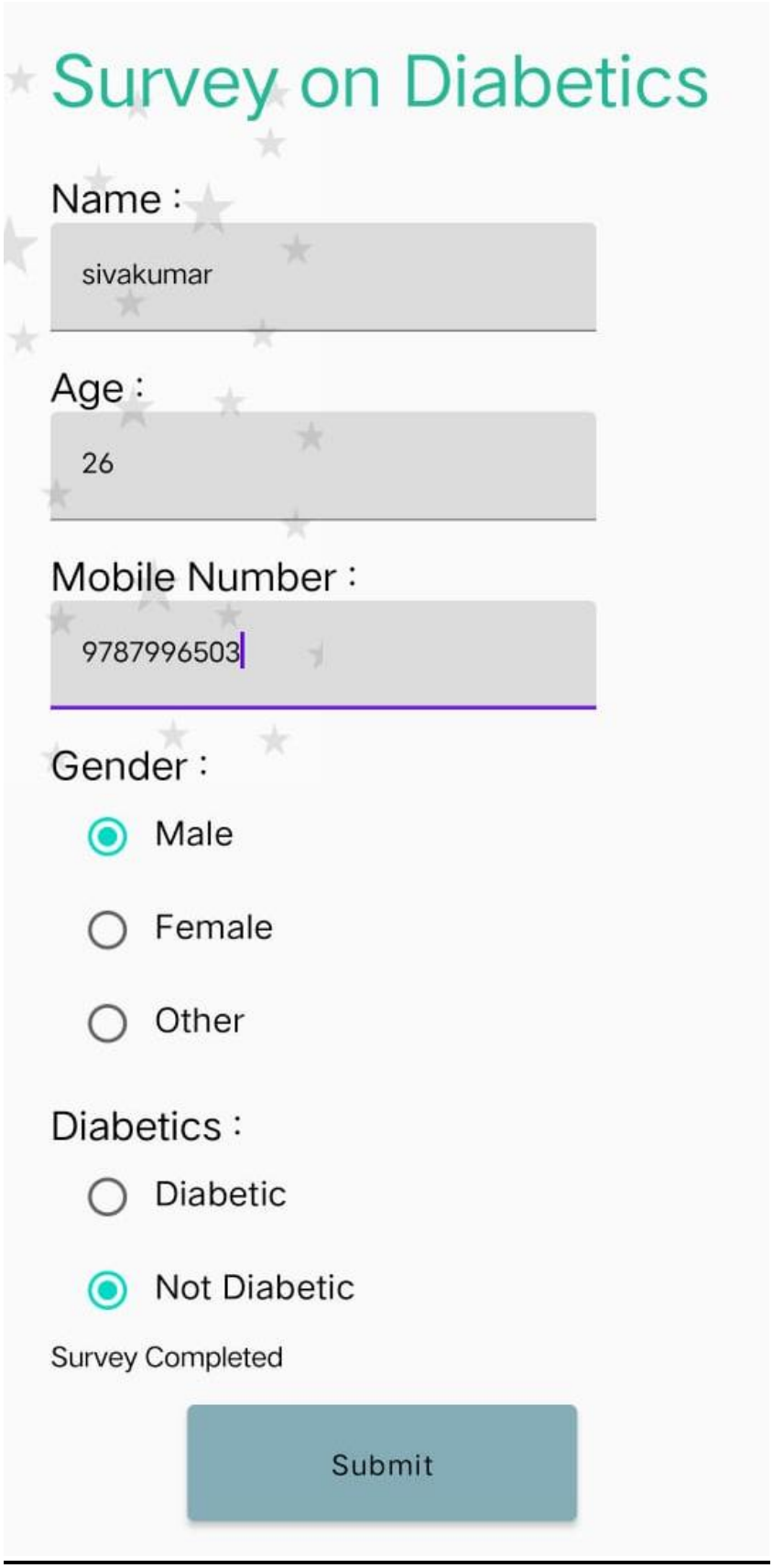
Forget password?


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···
1295

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.

Video Demo Link:

https://drive.google.com/file/d/1xjQ7KYxqrMyduu5Xa5B-PyELJQzPgM2Z/view?usp=drive_link

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.