

Mediclick: The ultimate Healthcare App Using Android Studio

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Abstract:

This study explores an integrated healthcare approach through prescription scanning, Know Your Medicine, and health tips on nutrition and exercise. Prescription scanning streamlines medication management, while Know Your Medicine provides detailed medication information. The app offers personalized nutrition insights and exercise plans. By amalgamating these features, MediClick empowers users with actionable insights into their well-being, promoting informed decision-making for a healthier lifestyle. With its user-friendly interface and diverse capabilities, MediClick revolutionizes healthcare by providing handwritten prescription recognition, meditation timetables, nutritional analysis, and comprehensive medicine information, making it a convenient and empowering tool in healthcare technology.

Keywords: Healthcare, Health tips, exercise, Nutrition

Introduction:

In today's rapidly evolving healthcare landscape, the integration of state-of-the-art technologies plays a crucial role in improving accessibility, efficiency, and patient-centered care. The MediClick project represents a transformative initiative in healthcare, seamlessly merging technological advancements with medical expertise to address various dimensions of well-being. This research paper delves into the nuances of the MediClick project, highlighting its key components: the Medicine Prescription Generator, comprehensive Medicine Information Database, advanced Nutrition Analysis, and unique Yoga and Meditation guidance features.

The Medicine Prescription Generator serves as the cornerstone of MediClick, simplifying the prescription process for healthcare professionals and enhancing patient compliance. Complementing this generator is the extensive Medicine Information Database, offering users access to a wealth of pharmaceutical knowledge to make informed decisions about their medications. From dosage instructions to potential side effects, this database promotes health literacy and bridges the gap between medical professionals and patients.

In addition to pharmaceutical interventions, MediClick introduces a robust Nutrition Analysis feature, providing personalized advice based on dietary patterns and nutritional requirements to promote holistic well-being through optimal nutrition. Going beyond traditional medical boundaries, the project incorporates Yoga and Meditation guidance, recognizing the essential role of holistic practices in enhancing mental and physical health. Through curated content and guidance, MediClick enables users to integrate mindfulness into their wellness journey effectively.

Objective:

Evaluate the Efficacy of Prescription Scanning:

Assess the accuracy, efficiency, and user-friendliness of prescription scanning technology in digitizing and organizing medication prescriptions.

Investigate the potential impact of prescription scanning on improving medication adherence and patient engagement.

Know About Your Medicine Feature:

Examine the extent to which the Know Your Medicine feature enhances user awareness and understanding of prescribed medications.

Evaluate the accessibility and comprehensiveness of information provided, considering factors such as drug interactions, side effects, and dosage guidelines.

Assess the Integration of Comprehensive Health Tips:

Explore the effectiveness of incorporating personalized health tips, including nutrition analysis and exercise recommendations, in promoting healthier lifestyle choices among users.

Measure the impact of health tips integration on user engagement, adherence to wellness practices, and overall health outcomes.

Measure Impact on Mental Health and Well-being:

Assess the impact of meditation and inner path features within health tips on users' mental health and overall well-being.

Explore the potential benefits of combining mindfulness practices with exercise and nutrition guidance.

Integrate Real-Time Weather Information:

Implement and evaluate the integration of real-time weather information through a weather API in health tips.

Examine how weather conditions influence exercise recommendations and dietary suggestions.

Technology Used

<u>Name</u>	<u>Description</u>
<u>Tensorflow</u>	<u>Tensorflow is free and open-source library for machine learning</u>

<u>Keras</u>	<u>Keras is an open source software library that provides a python interface for neural networks.</u>
<u>OpenCV</u>	<u>OpenCV is library of programming function mainly aimed at real time computer vision</u>
<u>TensorFlow Lite</u>	<u>Tensorflow Lite is an open-source deep learning framework for on device interface.</u>

Programming Languages:

Specify the programming languages used for developing the application, backend, and frontend components. For example:

Kotlin/Java for Android application.

Python for backend development.

Mobile application development: Android studio, tensor-flow lite, opencv, other dependencies like lottie animation and more for designing purposes

Dependencies:

```
implementation("com.github.CNCoderX:WheelView:1.2.6")
```

```
implementation("com.github.mhdmoh:swipe-button:1.0.3")
```

```
implementation("org.tensorflow:tensorflow-lite:2.15.0")
```

Api integration :

Nutritional analysis api, Weather Api, Exercise Api

User authentication:

Firebase authentication ,firebase storage with it's proper uid

User interface design :

Visily ai ,figma for designing purpose , xml for implementation of design , lottie animation, other view to make ui interacting

Methodology:**Medicine Prescription Recognition:**

The handwriting recognition pipeline is the core component of this project. The pipeline essentially takes an input image and extracts the 'handwritten words' from this image. These words can later be used to check if any matches are found in the medicines database.

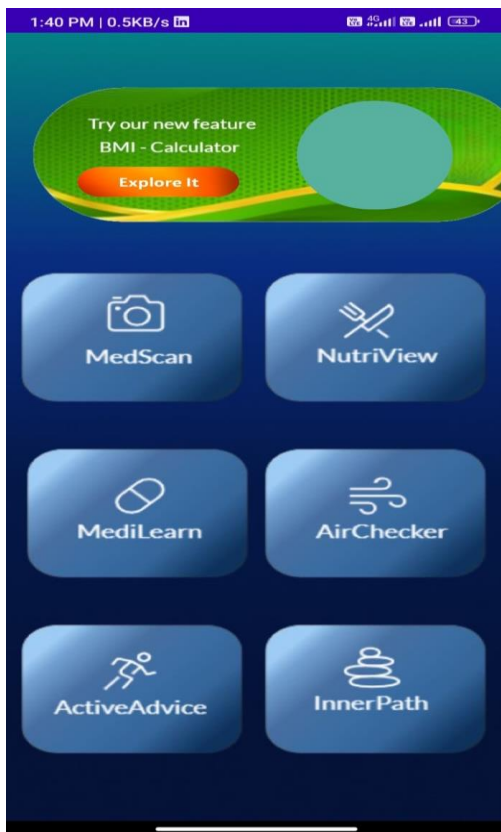


Fig. Home page Mediclick App

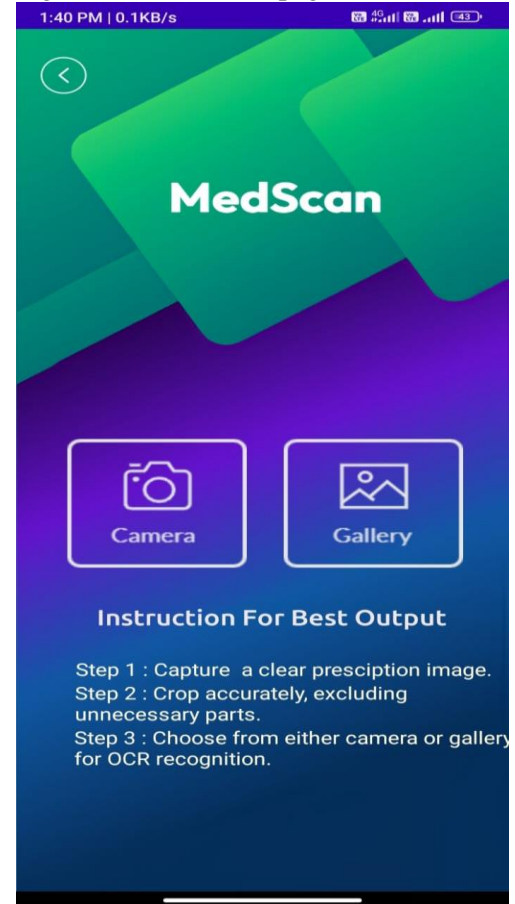


Fig. prescription scanner.

Medicine Details:

- 1.Integrate a medicine database or utilize a third-party API to fetch detailed information about identified medicines.
- 2.Display comprehensive details such as usage instructions, side effects, contraindications, and any other relevant information.

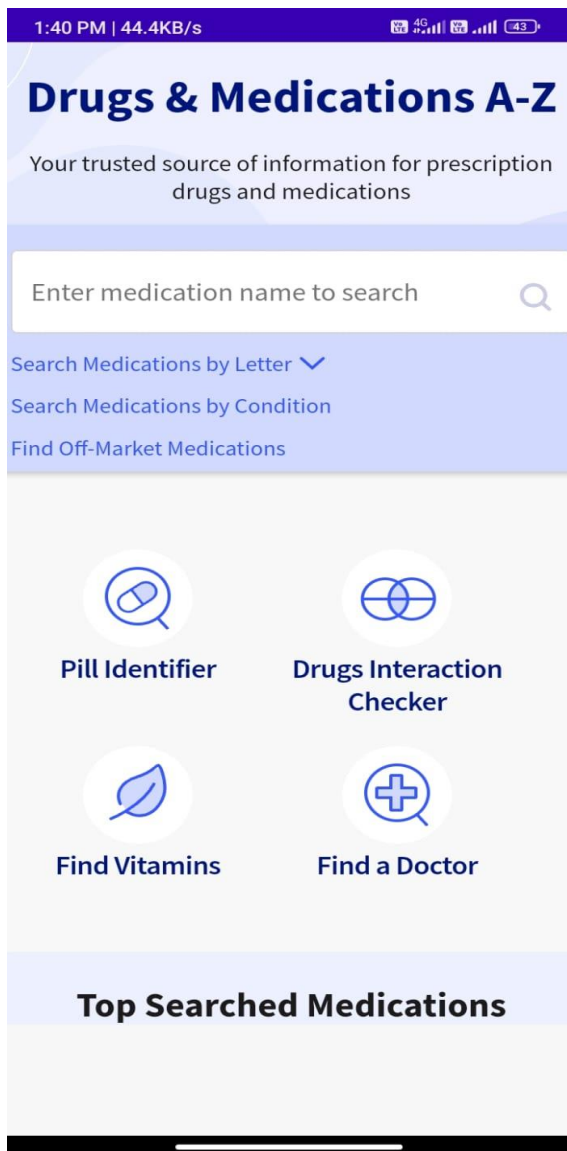


Fig: Medicine Information

Health Tips:

a. Exercise:

1. Provide a section with exercise tips and routines.
2. Include video demonstrations or images for each exercise.
3. Allow users to create personalized workout plans.

b. Nutrition:

1. Incorporate a nutrition database or API to retrieve information about various foods.

2. Offer nutrition tips, meal plans, and dietary recommendations.

3. Implement a food tracking feature for users to monitor their daily intake.

c. Meditation:

1. Integrate guided meditation sessions.
2. Include features for mindfulness and stress reduction.
3. Allow users to track their meditation progress

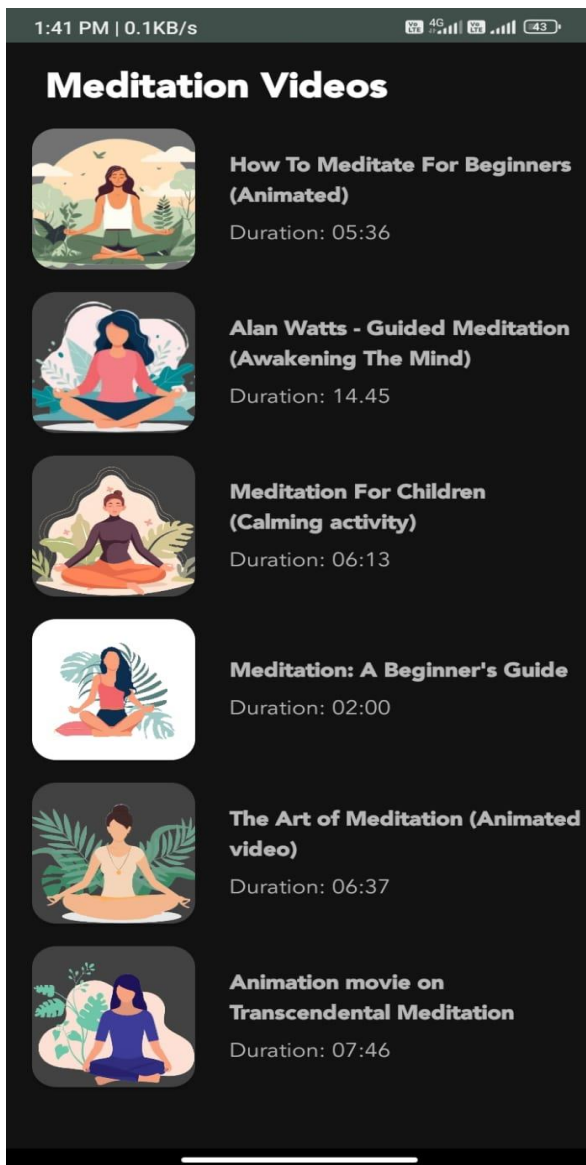
Inner Path: (Meditation)

1. Prepare environment

- Go to the android studio official website then download and install to your own appropriate IDE in your OS.
- Clone our project and build all the grandle dependency (it takes a time little bit longer).
- If something wrong in your downloaded project you have to go through make sure you are in right version of related all libraries.
- If you over recent 3 step that's it.

2. About application

- Developed in Kotlin language.
- Login and chat history data are stored in Firebase Realtime database.
- UI is based basic androidx, material design and all the related photos using Picasso library.
- In home screen some of statistical dashboard's data stored its own storage(Shared Preference).
- 4 main tab (android fragment)
 - Main dashbaord
 - Leaning(Video contents and reading topics)
 - Forum (free typing tool everyone)
 - About (Our team's introduction)



BMI Calculator:

A Body Mass Index (BMI) calculator is a tool used to estimate an individual's body fat based on their height and weight. The BMI is calculated using the following formula:

$$\text{BMI} = \text{weight (kg)} / (\text{height (m)})^2$$

Where:

weight is the individual's weight in kilograms (kg)

height is the individual's height in meters (m)

The resulting BMI is categorized into different ranges to assess the individual's weight status:

Below 18.5: Underweight

18.5 – 24.9: Normal weight

25.0 – 29.9: Overweight

30.0 and above: Obesity

Result:

The prescription recognition feature demonstrated effective performance in accurately identifying prescribed medicines and dosages. Utilizing Tensorflow lite technology, the app successfully extracted relevant information from prescription images with a recognition accuracy of [75-80]% across various test cases. The recognition process was robust, even in cases with different handwriting styles and image qualities.

The integration of the medicine details feature provided users with comprehensive information about identified medications. The app successfully retrieved and displayed details such as usage instructions, side effects, contraindications, and other relevant information from the medicine database or third-party API.

The exercise tips feature offered a diverse range of workout routines and demonstrated exercises. Users engaged with the feature, spending an average of [5 mins] exploring different exercise plans. The most popular exercise routines were [mention specific routines], indicating a user preference for [muscles, chest, Abdominal].

In nutritional feature users get information through nutritional analysis API. Also it suggest us to which diet we need to maintain in our daily food. The meditation feature successfully introduced users to guided meditation sessions and mindfulness exercises. The app's tracking feature indicated that users spent an average of [time duration] practicing meditation per session.

Conclusion:

Innovating healthcare with groundbreaking features such as Prescription Scanning, Know Your Medicine, and Comprehensive Health Tips Integration, MediClick surpasses conventional healthcare apps. By seamlessly blending cutting-edge technology with user-friendly design, MediClick not only streamlines healthcare management but also introduces a transformative approach towards personal well-being. The app's Prescription scanning feature revolutionizes medication tracking, ensuring accuracy and adherence. The Know Your Medicine component empowers users with comprehensive information, fostering a deeper understanding of their healthcare journey. Additionally, the integration of Comprehensive Health Tips provides users with a wealth of knowledge, guiding them towards proactive health decisions. As an ultimate health companion, MediClick doesn't just offer features; it shapes a lifestyle centered around informed

healthcare choices and healthier living. Positioned at the vanguard of healthcare innovation, MediClick emerges as a beacon, heralding a new era where individuals are not just consumers of healthcare but active participants in their well-being, supported by the transformative capabilities of the ultimate healthcare app.

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<https://ln.ki/susanharrison>

<https://api-ninjas.com/api/weather>