Final report  
Course: Native mobile development

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SE-2313

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**Calorie Tracker app**

**1. Introduction**

This project is part of our Mobile App Development course and was developed as a group project. The goal was to create a fully functional mobile application for Android using Android Jetpack Compose. Our team, consisting of three members, built the app entirely from scratch. The app serves as a complete calorie tracker, allowing users to monitor their daily calorie intake efficiently.

**2. Relevance**

With increasing awareness of health and fitness, calorie tracking has become an essential tool for individuals striving to maintain a healthy lifestyle. Our app addresses this need by offering an intuitive and efficient solution for tracking daily food intake. Unlike many other calorie-tracking apps, our solution provides seamless user experience and real-time data persistence.

**3. The Idea and Purpose of the Project**

The purpose of this app is to help users track their calorie intake efficiently. Users can add food items manually or via barcode scanning, categorize them into meals, and monitor their daily consumption. The app also includes visual data representation through graphs, allowing users to analyze weight trends over different time spans (days, months, years).

**4. Comparison Analysis**

Compared to existing calorie tracker apps, our app offers:

* **Real-time data persistence**: Users can exit the app, and upon reentry, all changes remain saved.
* **Barcode Scanning**: Allows quick addition of food items.
* **Weight Trend Graphs**: Provides insights into weight changes over time.
* **User-friendly Design**: Built using Jetpack Compose for a smooth and modern UI.

**5. Work Division of Members**

* **Takhir Mukhametzhan**: Developed the UI/UX using Jetpack Compose. Also made presentation and wrote report.
* **Ilyas Kuzubayev**: Focused on backend logic and data persistence. Made UI/UX using Jetpack Compose.
* **Bagdaulet Rzakul**: Implemented features like barcode scanning and graphical data representation. Made UI/UX using Jetpack Compose.

**6. Architecture of Mobile App**

The app follows the **MVVM (Model-View-ViewModel)** architecture to ensure clean separation of concerns.

* **Model Layer**: Manages data storage and business logic.
* **ViewModel Layer**: Handles user interactions and updates UI accordingly.
* **View Layer**: Built with Jetpack Compose for a modern and responsive design.

**7. Diagrams**

* **Entity-Relationship Diagram (ERD)**: 
* **Use Case Diagram**: Изображение выглядит как круг, диаграмма, текст, линия

  Контент, сгенерированный ИИ, может содержать ошибки.

**8. Functional Requirements**

* Add, view, and delete food items.
* Custom and barcode-based food entry.
* Daily calorie reset at midnight.
* Persistent storage for user data.
* Graphical representation of weight trends.

**9. Non-Functional Requirements**

* High performance and smooth UI transitions.
* Secure storage of user data.
* Scalability to handle multiple users.
* Compatibility with different Android devices.

**10. Used Technologies**

* **Programming Language**: Kotlin
* **Framework**: Android Jetpack Compose
* **Database**: Room Database (SQLite)
* **Barcode Scanner**: ML Kit
* **Graph Library**: MPAndroidChart

**11. User Interface (UI)**

The UI consists of:

* **Home Screen**: Displays total daily calorie intake.
* **Add Food Screen**: Allows users to enter food manually or scan barcodes.
* **Meal Overview**: Lists all items added to a specific meal.
* **Graphs & Insights**: Visual representation of weight trends.

**12. SWOT Analysis**

* **Strengths**: Unique barcode scanning, user-friendly UI, real-time data tracking.
* **Weaknesses**: Limited food database compared to larger competitors.
* **Opportunities**: Potential for expansion with community-driven food databases.
* **Threats**: Competition from established apps like MyFitnessPal.

**13. Experimental Verification of Economic Effectiveness**

By providing a free but feature-rich calorie tracker, we attract users who are looking for an alternative to expensive premium apps. The potential revenue model includes in-app purchases and premium features.

**14. Business Model**

The app could generate revenue through:

* **Freemium Model**: Basic features for free, with premium add-ons.
* **Ads**: Integrating non-intrusive advertisements.
* **Subscription Plans**: Offering exclusive features like personalized diet plans.

**15. Practical Value**

This app provides a valuable tool for individuals who want to maintain a healthy lifestyle by tracking their calorie intake and weight trends. The combination of barcode scanning, real-time data persistence, and graphical analysis sets it apart as a reliable and effective fitness companion.

**Conclusion**

Our calorie tracker app successfully meets the requirements of a modern fitness tool, offering an intuitive user experience and essential health tracking features. With further improvements, including AI-based diet recommendations and integration with wearable devices, this project has the potential for widespread adoption in the fitness and health industry.