

Florida International University

Summer 2024 Senior Design Project

Flex Workout App

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PROBLEM

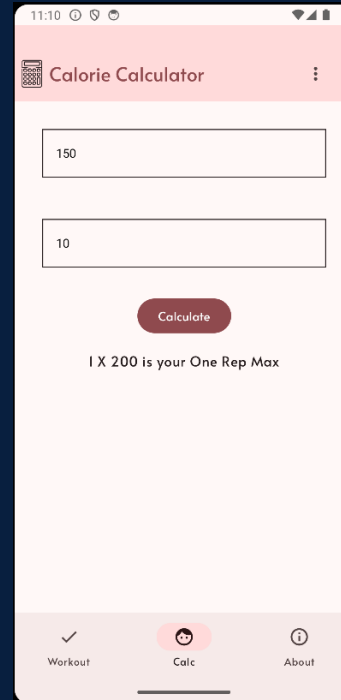
Develop a comprehensive solution for users to meticulously monitor their workout routines, incorporating functionalities to accurately compute Basal Metabolic Rate (BMR) and One Repetition Maximum (1RM).

SYSTEM DESIGN

Implemented a robust two-tier architecture utilizing a client-server model. The client layer interfaces with the local database, handling data input/output operations, while the server layer manages persistent data storage and retrieval.

VERIFICATION

Employed manual regression testing methodologies to systematically identify and resolve bugs. Iterative testing cycles ensured the reliability and stability of the application, validating all functional requirements.



CURRENT SYSTEM

Developed using Kotlin for seamless integration with the Android ecosystem, leveraging a local database to ensure efficient data management and offline capabilities.

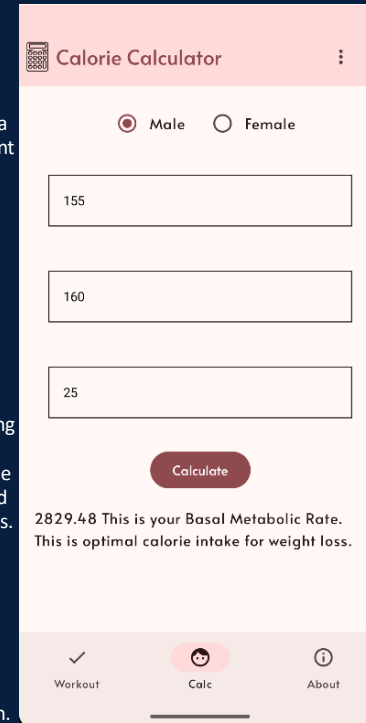


OBJECT DESIGN

The system architecture encapsulates objects representing workouts and exercises. Each workout object includes a routine object, enabling the addition and management of various exercises. Each exercise object is characterized by attributes such as name, description, and associated routine. The routine object further encapsulates set and repetition data, allowing for intricate tracking of exercise parameters and user progression.

SUMMARY

The application provides an integrated platform for users to meticulously track their workout routines, caloric intake, and compute their BMR and 1RM. Built with Kotlin, Material3, and SQLite, the app offers a seamless and efficient user experience.



REQUIREMENTS

Design and implement a structured system to facilitate meticulous tracking of workout routines. Integrate advanced features for calculating Basal Metabolic Rate (BMR) and One Repetition Maximum (1RM), ensuring precision and user-friendly interaction.

IMPLEMENTATION

Utilized Kotlin in conjunction with a local database to ensure efficient data handling and retrieval. The frontend was designed using Material3, enhancing the user interface with modern, responsive components. Android Studio was employed as the Integrated Development Environment (IDE) for streamlined development and debugging.

REFERENCES

[Calorie Calculator](#)
[Athlean X 1RM Calculator](#)
[Kotlin Documentation](#)
[Material3 Documentation](#)
[YouTube Player API for Android](#)