habitlens
See your health, shape your future!

HabitLens

See your Health, Shape your Future!

DIVYAM DEDHIA - 60004210034
TANAY PARIKH - 60004210035
DEV PATEL - 60004210062
AAYUSH BHAGAT - 60004210064

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INTRODUCTION

FITNESS TRENDS IN INDIA

PHYSICAL INACTIVITY

30.9%  52.4% 

URBAN  51.7%

RURAL  36.1%

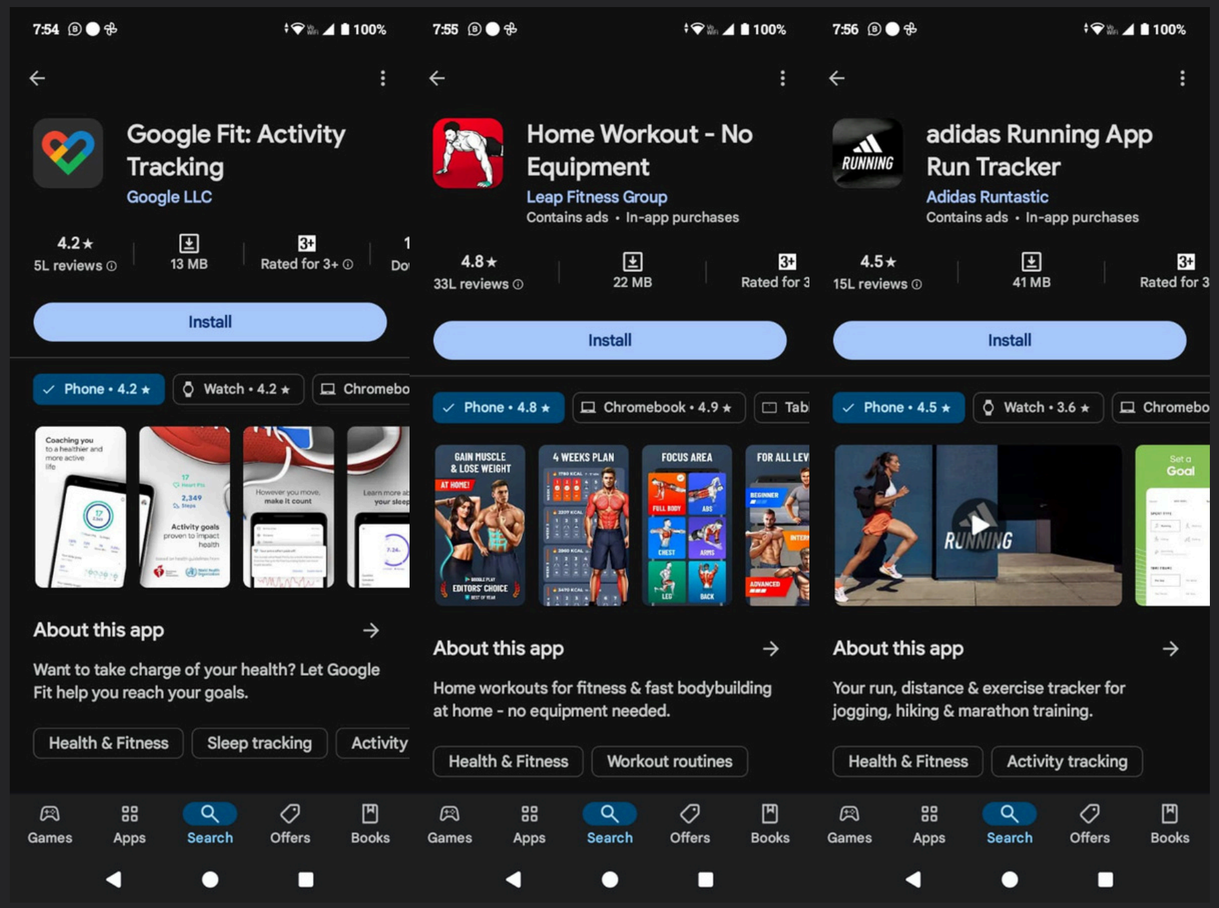
FITNESS ASPIRATIONS

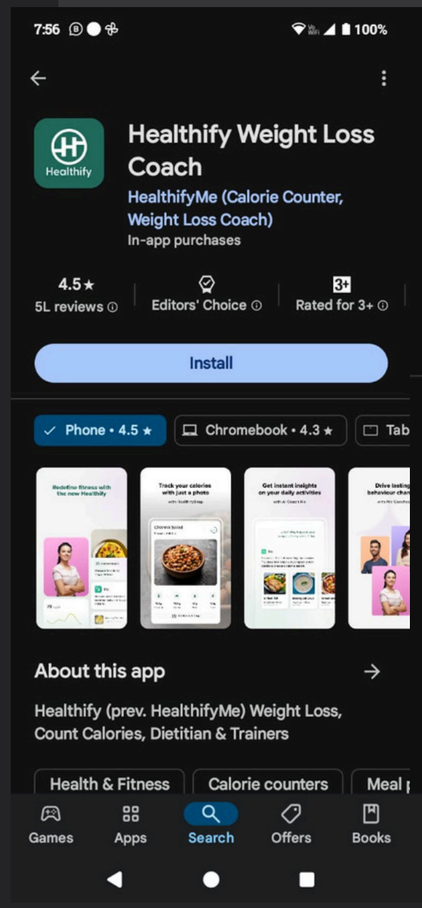
47%  61% 

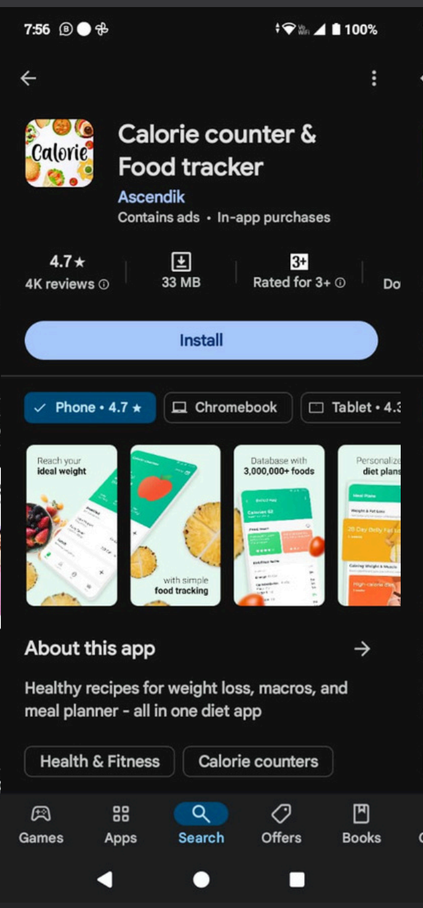
GYM MEMBERSHIPS

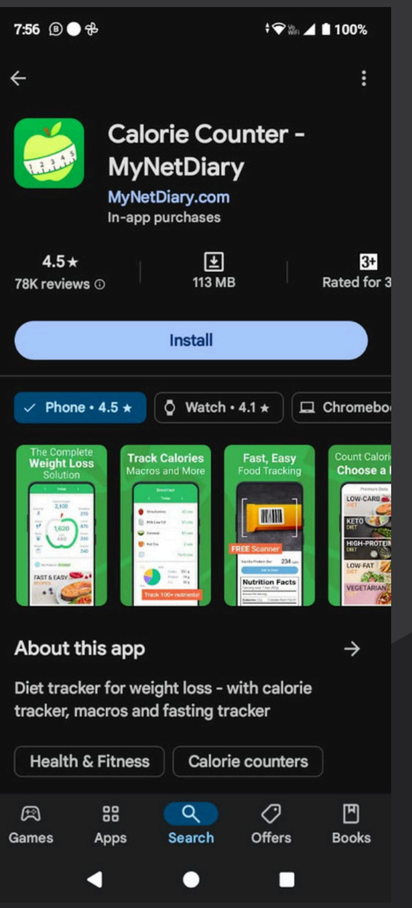
only 20.7%  only 18% 

NEED FOR THE PRODUCT...









FITNESS TRACKERS

FOOD TRACKERS

PROPOSED SOLUTION - HabitLens

- An app that can track both the **Intake & Outflow of Calories**
- **Calories Eaten** ✓ **Calories Burnt** ✓
- Make this the **User's Habit** using the **21-day method**

MOTIVATION

- Empowering Individuals to Take Control of Their Health
- Giving a Platform for All-Round Benefits
- Addressing the Growing Demand for Personalized Health Solutions

02
PRODUCT SHOWCASE AND FEATURES

WHAT IS OUR PRODUCT?

01 EXERCISE TRACKER

- Personally Designed Exercises
- Follow Along Exercises
- Input Completed Exercises
- Estimation of Calories Burnt
- Ability to Exercise Randomly

02 FOOD TRACKER

- Meals Accountability
- Indian Foods Available
- Input Consumed Foods
- Estimation of Calories Eaten
- Flexibility in Diet

WHAT IS OUR PRODUCT?

03 HABIT MAKER

- 21-Day Accountability Cycles
- Customization based on User
- Valuation Markers
- Combination of Exercise + Diet
- 21-Day Progress Photos

04 LONG-TERM PLANNER

- Based on Planned Goals
- Body + Duration + Intensity
- Goal: -ve Calories
- Plan changes based on progress\
- BMI Calculator

HEADLINE FEATURES - 1

THE QUEST FOR THE NEGATIVE CALORIES

- A feature that will keep users accountable daily is the Calorie Counter.
- This is a long-term planner that will keep in mind the end goal and the calories to be lost on a day-to-day basis.
- This will mean that the daily objective of the user is to get into a calorie deficit indicated by a **Green Counter** otherwise a **Red Counter** if failed.

THE BMI CALCULATOR

- ***BMI = weight (kg) / [height (m)]²***
- Optimal Range: 18.5 - 24.9
- HabitLens will have the BMI Calculator for regular accountability.

HEADLINE FEATURES - 2

EXERCISE SUGGESTIONS (EASY / MEDIUM / HARD)

Specific exercises are based on the user's ability and flexibility to choose the particular exercise.

DESIGNING A WORKOUT ROUTINE

Also, the user can choose the duration that he/she has, and a workout routine will be designed with the system choosing the intensity for the user.

EXERCISE POSTURE DETECTION

The system along with the instructions for the workout will also monitor using the phone's camera and auto-proceed the increments

HEADLINE FEATURES - 3

WEEKLY SCHEDULING ABILITY

On a tight schedule, the user can schedule multiple sessions whenever free during the week.

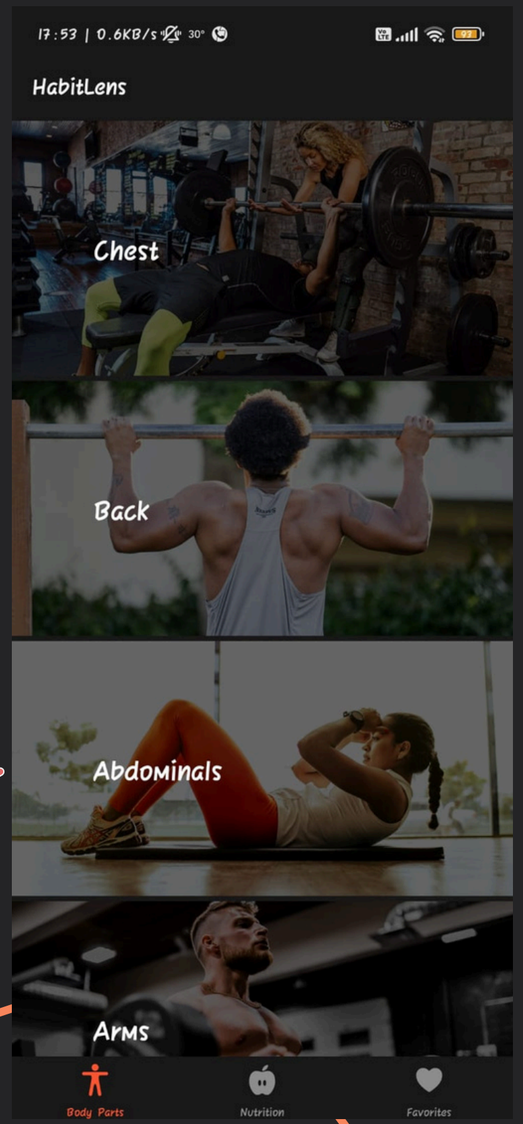
CUSTOM PEDOMETER

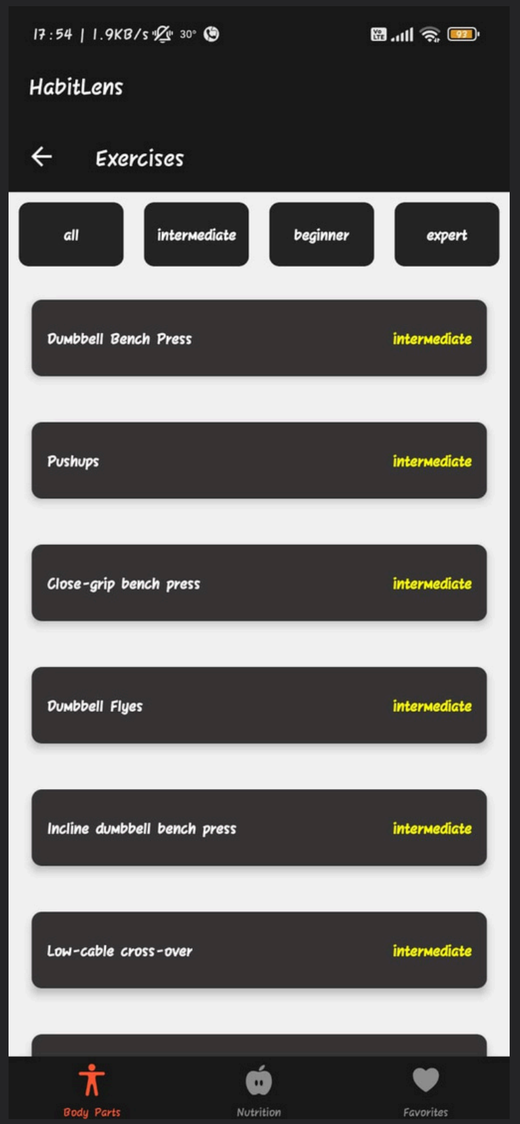
For passive exercises eg: walking, the app will have an inbuilt pedometer such that the calories burnt while walking can be calculated. [GFit, Apple Health]

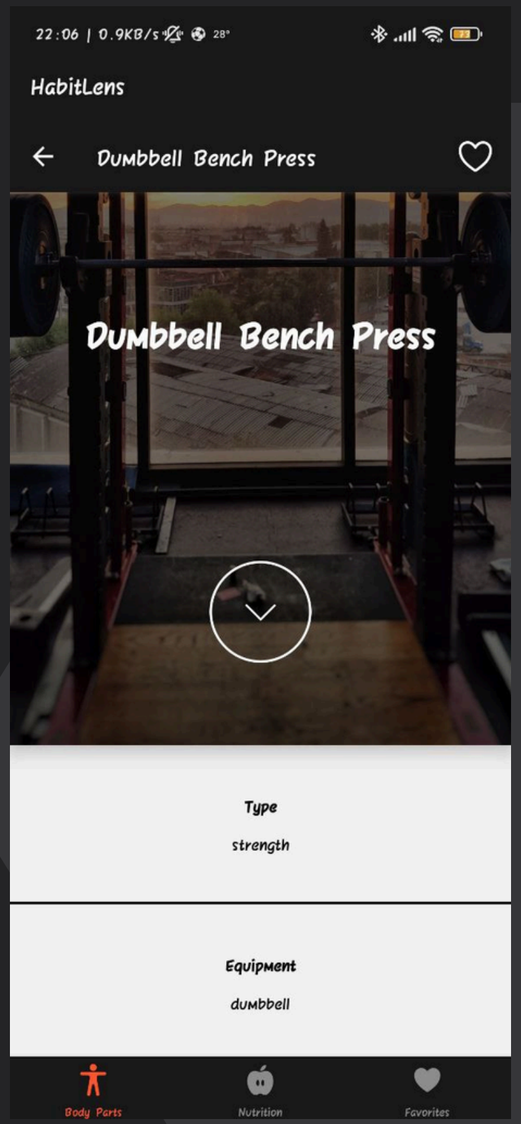
EASY RECIPE OPTION

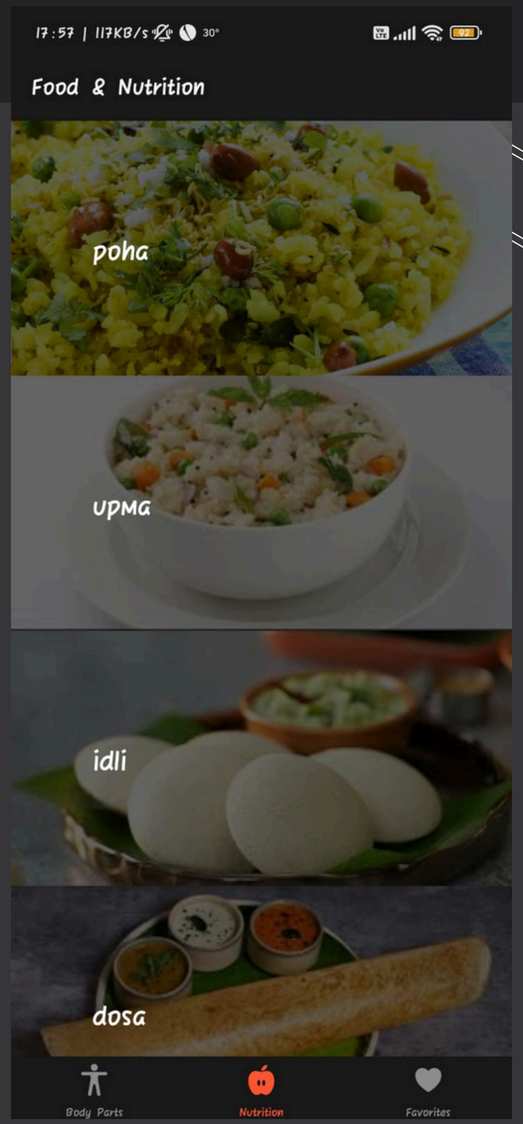
If on a time crunch, the app will have designated recipes that could be prepared with the available ingredients.

INITIAL DEMONSTRATION









04

TECHNICAL IMPLEMENTATION

PROJECT ARCHITECTURE

LAYERED ARCHITECTURE

- **Presentation Layer:** This layer handles user interaction, including the app's visual elements, user input, and output.
- **Business Layer:** The core functionalities include ML functionalities, API Fetching, and App Logic.
- **Application Layer:** Provides the hardware and software infrastructure to run the application including APIs.
- **Data Access Layer:** Including data communication Django database management
- **Advantages:** Modularity, Reusability, Maintainability, Scalability, Testability

ML MODELS - 1

POLYNOMIAL REGRESSION

For user engagement patterns over time by learning from past habit completion data, then normalising the results.

k NEAREST NEIGHBOUR

KNN can classify exercises based on similarities. If the user’s workout intensity and calorie requirements are similar to others in the training dataset.

LSTM

An LSTM model to analyse the food based on the users preferences and constraints based on the time available.

ML MODELS - 2

RNN / LSTM

For user engagement patterns over time by learning from past habit completion data.

K-MEANS CLUSTERING

For analyzing the kind of cluster the user belongs in based on the pattern of the other users.

LOGISTIC REGRESSION

A binary classification model to predict if a user will succeed in forming a habit within a certain timeframe.

05

DATASETS

DATASETS - 1

WORKOUT DATASETS

- https://www.kaggle.com/datasets/niharika41298/gym-exercise-data
- https://github.com/andrebert/body-weight-exercises
- https://github.com/davejt/exercise
- https://airtable.com/appkYan810K83xj00/shrKZ9lPpw7EvjZ3X/tblvscpkbagqlWKkH

DATASETS - 2

FOOD N NUTRITION DATASETS

- https://support.cronometer.com/hc/en-us/articles/360018239472-Data-Sources
- https://foodb.ca/
- https://eightportions.com/datasets/Recipes/#fn:1

DATASETS - 3

PEOPLE SURVEY DATASETS

- https://www.kaggle.com/datasets/aakashjoshi123/exercise-and-fitness-metrics-dataset
- https://www.kaggle.com/datasets/ydalat/lifestyle-and-wellbeing-data
- https://github.com/Haramide/Fitness-Survey Fitness Survey Datasets all imp

DATASETS - 4 [FUTURE SCOPE]

ASPIRATIONAL DATASETS

- https://www.cdc.gov/nchs/nnyfs/index.htm
- https://www.mynetdiary.com/food-database.html
- https://www.nutritionix.com/database Future Scope n Paid Datasets

Literature survey

Refered Papers

- 2022 Fitness Trends from Around the Globe. (2022). This article outlines global fitness trends influenced by the COVID-19 pandemic, focusing on regional adaptations across Australia, Brazil, China, Europe, Mexico, Spain, and the U.S. Study published in 2022.
- National Youth Fitness Survey Plan, Operations, and Analysis, 2012. (2014). The report describes the methodology and findings of the National Youth Fitness Survey (NNYFS), assessing physical activity and fitness levels in U.S. youth aged 3–15 years.
- Grafen, A. (2006). Optimization of Inclusive Fitness. Journal of Theoretical Biology, 238, 541–563. DOI: 10.1016/j.jtbi.2005.06.009

Literature survey

Refered Papers

- Personalizing Mobile Fitness Apps using Reinforcement Learning. (2018). This study presents CalFit, a fitness app utilizing reinforcement learning to personalize and adapt daily step goals, showing improved outcomes compared to static goals.
- Mobile Fitness Application for Beginners. (2021). Describes the development of a mobile fitness application tailored for beginners, focusing on user-friendly design and satisfaction based on user feedback.
- Aldenaini, N., Alslaity, A., Sampalli, S., & Orji, R. (2022). Persuasive Strategies and Their Implementations in Mobile Interventions for Physical Activity: A Systematic Review. International Journal of Human-Computer Interaction. DOI: 10.1080/10447318.2022.2075573

Literature survey

Refered Papers

- Mobile Applications to Support Physical Exercise – Motivational Factors and Design Strategies. (2015). This study explores user-centered design strategies for mobile fitness applications, emphasizing cultural differences in Finland and urban India.
- Khaghani Far, I., Nikitina, S., Báez, M., Taran, E., & Casati, F. (2016). Fitness Applications for Home-Based Training. IEEE Pervasive Computing. DOI: 10.1109/MPRV.2016.76
- Direito, A., Pfaeffli Dale, L., Shields, E., Dobson, R., Whittaker, R., & Maddison, R. (2014). Do Physical Activity and Dietary Smartphone Applications Incorporate Evidence-Based Behavior Change Techniques? BMC Public Health, 14, 646. DOI: 10.1186/1471-2458-14-646

THANK YOU