
Personalized Health and Fitness Assistant

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Abstract

The Personalized Health and Fitness Assistant is an innovative mobile application that leverages machine learning algorithms to provide individuals with personalized guidance and support to achieve their health and fitness goals. Unlike existing applications, this assistant takes personalization to a higher level by analyzing a wide range of user data, including activity levels, sleep patterns, nutrition information, and individual goals. It adapts to each user's unique needs, preferences, and constraints, generating personalized workout plans, nutrition recommendations, and health predictions. The assistant incorporates advanced machine learning capabilities to continuously learn from user feedback, ensuring adaptive progress tracking and tailored recommendations. With comprehensive integration of wearable devices, health tracking apps, and other data sources, it offers a holistic view of the user's health and fitness. The assistant aims to provide an engaging user experience through features like progress tracking, rewards, social interaction, and personalized motivation. By addressing the limitations of existing solutions, the Personalized Health and Fitness Assistant empowers individuals to take control of their health, achieve their fitness goals, and maintain a sustainable and fulfilling lifestyle.

Problem Statement

Many individuals struggle with achieving their health and fitness goals due to a lack of personalized guidance and difficulty in maintaining consistent habits. Existing health and fitness apps often provide generic recommendations that do not consider individual preferences, limitations, or evolving needs. There is a need for a comprehensive solution that leverages machine learning to analyze user data and generate personalized health and fitness recommendations.

Market/Customer/Business Need Assessment:

1. Market Need:

Personalized Guidance and Support: Many individuals struggle with achieving their health and fitness goals due to the lack of personalized guidance and support. The idea addresses this need by leveraging machine learning to analyze user data and preferences, providing tailored workout plans, nutrition guidance, and motivational content. Users receive personalized recommendations based on their unique needs, fitness level, goals, and health conditions, fostering a more effective and sustainable approach to improving their well-being.

Data-Driven Insights: People are increasingly interested in tracking their health and fitness data to gain insights into their progress and make informed decisions. The Personalized Health and Fitness Assistant collects and analyzes user data from various sources, such as wearable devices and health tracking apps, to provide data-driven insights. Users can monitor their activity levels, sleep patterns, nutrition

intake, and other health metrics, empowering them to understand their habits and make positive changes.

Engagement and Motivation: Staying motivated and engaged in a fitness routine can be challenging for many individuals. The Personalized Health and Fitness Assistant addresses this need by offering gamification elements, social features, and personalized motivation. Users can set goals, track achievements, compete with friends, and participate in challenges, creating a supportive and motivating environment that encourages adherence to their fitness journey.

2.Customer Need:

Personalized and Effective Health Solutions: Customers need a health and fitness solution that caters to their individual needs, goals, and constraints. The Personalized Health and Fitness Assistant addresses this need by leveraging machine learning algorithms to provide customized workout plans, nutrition guidance, and lifestyle recommendations based on the user's unique profile and preferences. By tailoring the experience to each user, the idea offers more effective and relevant health solutions.

Data-Driven Insights and Progress Tracking: Customers are increasingly interested in data-driven insights to monitor their health and fitness progress. The Personalized Health and Fitness Assistant fulfills this need by collecting and analyzing data from various sources, such as wearable devices and health apps, to provide users with valuable insights into their activity levels, sleep patterns, nutrition habits, and overall well-being. This empowers users to track their progress and make informed decisions to improve their health.

Motivation, Engagement, and Accountability: Customers often struggle with staying motivated and committed to their health and fitness goals. The Personalized Health and Fitness Assistant addresses this need by incorporating gamification elements, social interaction features, and personalized motivation. Users can set goals, earn rewards, compete with friends, and receive encouragement, fostering a sense of accountability and creating an engaging and supportive environment to maintain their fitness journey.

3.Business Need:

Market Differentiation: In a competitive health and fitness market, businesses need to offer unique and innovative solutions to stand out. The Personalized Health and Fitness Assistant sets itself apart by utilizing machine learning to provide personalized recommendations, insights, and motivation, offering a distinctive value proposition that attracts and retains customers.

Customer Retention and Loyalty: For sustained business growth, it's essential to retain customers and build loyalty. The Personalized Health and Fitness Assistant addresses this need by fostering user engagement through tailored experiences, social interaction, and gamification elements. Satisfied and motivated users are more likely to remain loyal to the platform and recommend it to others.

Data-Driven Decision Making: Businesses need data insights to make informed decisions and optimize their offerings. The Personalized Health and Fitness Assistant collects and analyzes user data, enabling data-driven decision-making regarding user preferences, content effectiveness, and platform improvements. These insights can lead to continuous refinement and enhancement of the service.

Monetization Opportunities: To be financially sustainable, businesses must identify viable monetization strategies. The Personalized Health and Fitness Assistant can explore revenue streams such as premium subscriptions, in-app purchases for exclusive content or features, affiliate marketing with health-related products, and partnerships with fitness brands.

Scalability and Growth: As the business expands its user base, it must be prepared to scale the platform effectively. Cloud-based infrastructure and flexible software design can accommodate increased demand and ensure smooth performance as the user community grows. Scalability is crucial for managing business growth efficiently.

TARGET SPECIFICATION AND CHARACTERIZATIONS:

1.Target Specifications:

a. **Personalization:** This application is able to generate personalized recommendations for each user based on their individual goals, preferences, fitness levels, dietary requirements, and any specific health considerations.

b. **Data Integration:** This application seamlessly integrates with wearable devices, health tracking apps or other data sources to collect and analyze relevant user data, such as activity levels, heart rate, sleep patterns, and nutrition information.

c. **Machine Learning Algorithms:** This solution employs machine learning algorithms to analyze user data, generate personalized workout plans, nutrition recommendations, health predictions, and adaptive progress tracking. The algorithms continually learn and improve based on user feedback and evolving data patterns.

d. **User-Friendly Interface:** This mobile application has a user-friendly interface that is intuitive and easy to navigate. Users will be able to input their data easily, view personalized recommendations, track their progress, and provide feedback or adjust preferences.

e. **Engagement and Motivation:** This solution will include features that foster long-term engagement and motivation, such as progress tracking, rewards or challenges,

social sharing, and personalized messages. These elements will encourage users to stay committed to their health and fitness goals.

f. Scalability and Performance: The application is designed to handle a large user base and manage substantial amounts of data efficiently. It will deliver personalized recommendations and responses in a timely manner to ensure a smooth user experience.

2. Customer Characteristics:

a. Health and Fitness Enthusiasts: The primary target customers are individuals who are enthusiastic about improving their health and fitness levels. They may range from beginners looking to start a fitness routine to experienced athletes seeking personalized guidance and support.

b. Tech-Savvy Individuals: This solution is likely to appeal to customers who are comfortable using mobile applications and wearable devices. They are open to incorporating technology into their health and fitness routines and value the convenience and insights that digital solutions can provide. c. Goal-Oriented Individuals: The target customers are individuals who have specific health and fitness goals, such as weight loss, muscle gain, improved cardiovascular health, or general well-being. They are motivated to achieve these goals and are actively seeking tools and guidance to support their progress.

d. Individuals with Busy Lifestyles: This solution caters to individuals with busy lifestyles who may have limited time for exercise and meal planning. They seek efficient and effective solutions that can optimize their health and fitness routines within their constraints.

e. Varied Demographics: This solution is designed to cater to a wide range of demographics, including different age groups, genders, and fitness levels. It accommodates specific considerations for seniors, individuals with health conditions, or those with dietary restrictions.

f. Data-Driven Individuals: The target customers appreciate the value of data-driven insights. They are willing to provide their data, understand its importance in generating personalized recommendations, and trust the system's ability to protect their privacy and security

External searches (ONLINE INFO):

Link: <https://www.ijcrt.org/papers/IJCRT1803112.pdf>

Datasets:

Link: <https://www.kaggle.com/datasets/arashnic/fitbit>

Code Snippets

jupyter fitness-assistat-analysis Last Checkpoint 2 minutes ago (autosaved)

File Edit View Insert Cell Kernel Help Trusted Python 3 (ipykernel) Logout

In [4]:

```
1 daily_activity = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/dailyActivity_merged.csv')
2 hourly_steps = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/hourlySteps_merged.csv')
3 hourly_calories = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/hourlyCalories_merged.csv')
4 sleepday = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/sleepDay_merged.csv')
5 daily_calories = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/dailyCalories_merged.csv')
6 daily_intensity = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/dailyIntensity_merged.csv')
7 weight_log = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/weightLogInfo_merged.csv')
8 daily_steps = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/dailySteps_merged.csv')
9 heartrate_secs = pd.read_csv('../input/fitbit/Fitabase Data 4.12.16-5.12.16/heartRateSeconds_merged.csv')
10
11
```

DATA EXPLORATION

In [5]:

```
1 daily_activity.head()
```

Out[5]:

	Id	ActivityDate	TotalSteps	TotalDistance	TrackerDistance	LoggedActivitiesDistance	VeryActiveDistance	ModeratelyActiveDistance	LightActiveDistance	SedentaryDistance
0	16039693088	4/12/2018	13162	8.98	8.60	0.0	1.88	0.56	0.0	0.0
1	16039693088	4/13/2018	10735	8.87	8.87	0.0	1.57	0.88	0.0	0.0
2	16039693088	4/14/2018	10460	8.74	8.74	0.0	2.44	0.40	0.0	0.0
3	16039693088	4/15/2018	9762	8.28	8.28	0.0	2.14	1.28	0.0	0.0
4	16039693088	4/16/2018	12969	8.16	8.16	0.0	2.71	0.41	0.0	0.0

In [6]:

```
1 hourly_steps.head()
```

Out[6]:

	Id	ActivityHour	StepTotal
0	16039693088	4/12/2018 12:00:00 AM	378

jupyter fitness-assistat-analysis Last Checkpoint 4 minutes ago (autosaved)

File Edit View Insert Cell Kernel Help Trusted Python 3 (ipykernel) Logout

In [14]:

```
1 print("Daily Activity:",daily_activity.columns)
2 print("Hourly Steps:",hourly_steps.columns)
3 print("Hourly Calories:",hourly_calories.columns)
4 print("Sleepday:",sleepday.columns)
5 print("Daily Calories:",daily_calories.columns)
6 print("Daily Intensity:",daily_intensity.columns)
7 print("Weight Log:",weight_log.columns)
8 print("Daily Steps:",daily_steps.columns)
9 print("Heart Rate:",heartrate_secs.columns)
```

Daily Activity: Index(['Id', 'ActivityDate', 'TotalSteps', 'TotalDistance', 'TrackerDistance', 'LoggedActivitiesDistance', 'VeryActiveDistance', 'ModeratelyActiveDistance', 'LightActiveDistance', 'SedentaryActiveDistance', 'VeryActiveMinutes', 'FairlyActiveMinutes', 'LightlyActiveMinutes', 'SedentaryMinutes', 'Calories'], dtype='object')

Hourly Steps: Index(['Id', 'ActivityHour', 'StepTotal'], dtype='object')

Hourly Calories: Index(['Id', 'ActivityHour', 'Calories'], dtype='object')

Sleepday: Index(['Id', 'SleepDay', 'TotalSleepRecords', 'TotalMinutesAsleep', 'TotalTimeInBed'], dtype='object')

Daily Calories: Index(['Id', 'ActivityDay', 'Calories'], dtype='object')

Daily Intensity: Index(['Id', 'ActivityDay', 'Calories'], dtype='object')

Weight Log: Index(['Id', 'Date', 'Weightkg', 'Weightpounds', 'Fat', 'BMI', 'IsManualReport', 'LogId'], dtype='object')

Daily Steps: Index(['Id', 'ActivityDay', 'StepTotal'], dtype='object')

Heart Rate: Index(['Id', 'Time', 'Value'], dtype='object')

In [15]:

```
1 daily_activity.dtypes
```

Out[15]:

	Id	ActivityDate	TotalSteps	TotalDistance
	int64	object	int64	float64

Benchmarking Alternate Products:

For the Personalized Health and Fitness Assistant idea involves comparing it with existing health and fitness applications that offer similar or related features. Here are some popular alternative products in the market:

MyFitnessPal: MyFitnessPal is a widely used health and fitness app that helps users track their diet, exercise, and overall health. It offers calorie and nutrient tracking, personalized meal plans, and a large food database. While it focuses on nutrition and diet tracking, it may lack the personalized workout plans and comprehensive fitness guidance offered by the Personalized Health and Fitness Assistant.

Fitbit: Fitbit is a well-known brand offering wearable fitness trackers and a mobile app. It tracks steps, heart rate, sleep, and other health metrics. While it excels in activity tracking, it may not provide personalized workout plans or extensive nutrition guidance like the Personalized Health and Fitness Assistant.

Nike Training Club: Nike Training Club is a fitness app that offers a variety of workout programs and video tutorials led by trainers. While it provides workouts and training plans, it may not have the extensive data-driven insights and personalized recommendations of the Personalized Health and Fitness Assistant.

8fit: 8fit is a health and fitness app that offers personalized workout plans, meal plans, and recipes. It targets both exercise and nutrition aspects, making it a closer alternative to the Personalized Health and Fitness Assistant. However, it may not have the same level of machine learning-driven customization.

Sworkit: Sworkit is an app that provides customizable workout plans based on users' fitness goals and time availability. It focuses on creating personalized workouts, but it may lack the comprehensive data analysis and social integration features of the Personalized Health and Fitness Assistant.

Aaptiv: Aaptiv is an audio-based fitness app that offers guided workouts with music. While it provides motivating workouts, it may not have the same level of data-driven personalization and nutrition guidance offered by the Personalized Health and Fitness Assistant.

Applicable Regulation:

- Data Privacy and Protection Regulations
- Health and Fitness Data Compliance
- Personalized Health Recommendations Guidelines
- Advertising and Endorsement Regulations
- User Consent and Data Sharing Policies
- Ethical Use of Artificial Intelligence in Health and Fitness Applications.

Applicable Constraints:

- Data Security and Privacy Constraints
- Compliance with Health and Fitness Industry Standards
- Resource and Infrastructure Limitations
- User Acceptance and Adoption Challenges
- Integration with Third-Party Services and APIs
- Ethical and Legal Constraints on Personalized Recommendations.

Business Opportunities:

The Personalized Health and Fitness Assistant model presents several promising business opportunities in the dynamic health and fitness industry. Firstly, by offering personalized and data-driven health solutions, the platform can attract health-conscious individuals seeking tailored guidance and support. The ability to analyze user data, track progress, and provide valuable insights creates a competitive advantage over generic fitness apps and traditional fitness programs. This level of personalization enhances user engagement and increases customer retention, leading to potential revenue streams through premium subscriptions and in-app purchases for exclusive content and features.

Secondly, the platform's data analytics capabilities open opportunities for strategic partnerships and collaborations. Fitness equipment manufacturers, health food companies, and wellness brands could leverage the wealth of user data to offer targeted promotions, product recommendations, and co-branded initiatives. Such partnerships can provide additional revenue streams through affiliate marketing and commission-based collaborations.

Furthermore, the Personalized Health and Fitness Assistant can explore expansion into corporate wellness programs. Partnering with companies to offer employees personalized health and fitness plans can enhance workforce well-being and productivity. Corporations increasingly recognize the value of

investing in their employees' health, making this a potentially lucrative avenue for the platform to pursue.

The application's social integration features also present opportunities for community building and user-generated content. By fostering a supportive and interactive user community, the platform can establish itself as a go-to platform for health and fitness enthusiasts, attracting a wider audience and potential sponsorships from fitness influencers and experts.

Moreover, as the platform accumulates a vast amount of health and fitness data, there is potential for conducting research and contributing to scientific studies in the field of wellness and human behavior. Such contributions can enhance the platform's credibility, attract researchers, and potentially lead to collaborations with academic institutions and healthcare organizations.

Concept Generation:

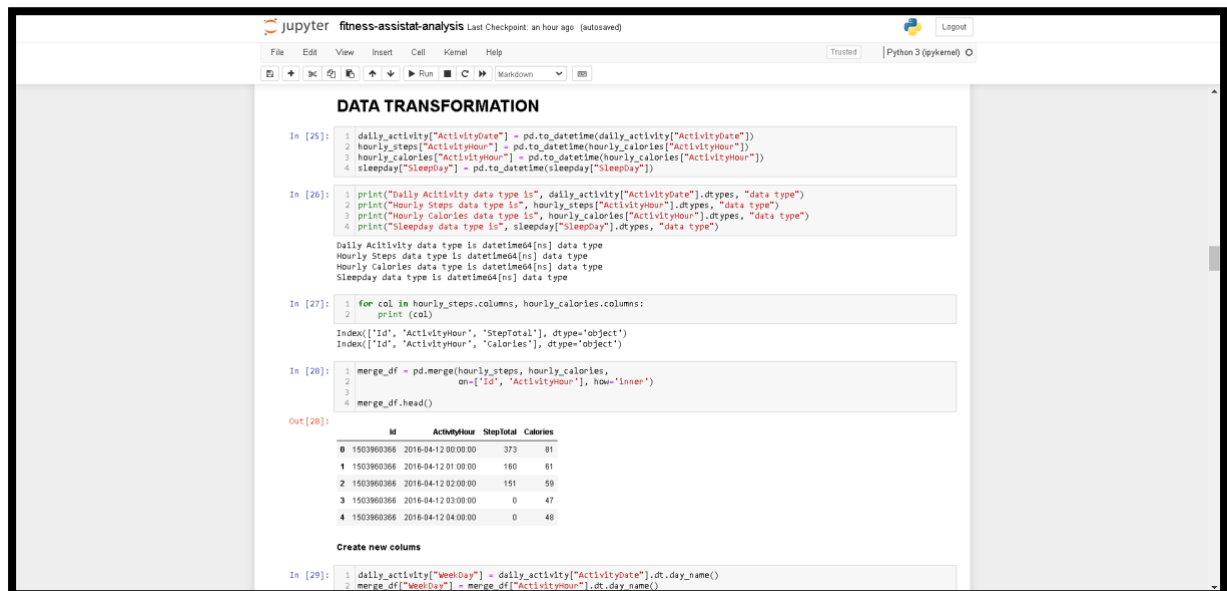
The concept generation for the Personalized Health and Fitness Assistant model involves envisioning an intelligent and user-centric platform that revolutionizes the way individuals approach their health and fitness goals. The concept is built on the foundation of machine learning algorithms that analyze user data, including fitness levels, health conditions, preferences, and progress, to create tailored workout plans, nutrition guidance, and personalized recommendations. The application's user interface is intuitive, offering seamless navigation and an engaging experience. To enhance motivation and adherence, gamification elements are incorporated, enabling users to set goals, earn rewards, and compete with friends. Additionally, social integration features foster a supportive community where users can share achievements and challenges. With a focus on data privacy and security, users can trust the platform with their sensitive health information. The ultimate vision is to empower users to lead healthier lifestyles, achieve sustainable fitness outcomes, and embark on a transformative wellness journey with the support of cutting-edge technology and personalized guidance.

Concept Development:

Concept development for the Personalized Health and Fitness Assistant model involves refining the initial idea into a comprehensive and actionable plan. The development process encompasses defining the target audience, conducting market research, and identifying specific user needs and pain points. A multidisciplinary team of machine learning engineers, software developers, data scientists, UX/UI designers, and domain experts collaborate to create a detailed roadmap. Data collection and storage mechanisms are

established, ensuring compliance with data privacy regulations. Machine learning algorithms are carefully selected and fine-tuned to provide accurate and personalized recommendations based on user data. The user interface is designed to be intuitive, visually appealing, and responsive across various devices. Social features are incorporated to encourage user engagement and foster a sense of community. Iterative testing and user feedback are integral to refining the concept, making data-driven improvements, and optimizing the user experience. The ultimate goal is to deliver a cutting-edge, personalized, and scalable health and fitness solution that enriches the lives of users, empowers them to make positive lifestyle changes, and cements the platform as a leading force in the health and wellness industry.

CODE IMPLEMENTATION



The screenshot shows a Jupyter Notebook interface with the title 'fitness-assistat-analysis'. The notebook contains several code cells for data transformation. The first cell (In [25]) converts 'ActivityDate' and 'ActivityHour' columns to datetime objects. The second cell (In [26]) prints the data types of 'daily_activity', 'hourly_steps', 'hourly_calories', and 'sleepday'. The third cell (In [27]) prints the columns of 'hourly_steps' and 'hourly_calories'. The fourth cell (In [28]) merges 'hourly_steps' and 'hourly_calories' on 'Id' and 'ActivityHour'. The output (Out [28]) shows a table with columns 'Id', 'ActivityHour', 'StepTotal', and 'Calories'. The fifth cell (In [29]) creates new columns 'WeekDay' and 'Day' from 'ActivityDate'.

```
In [25]: 1 daily_activity["ActivityDate"] = pd.to_datetime(daily_activity["ActivityDate"])
2 hourly_steps["ActivityHour"] = pd.to_datetime(hourly_calories["ActivityHour"])
3 hourly_calories["ActivityHour"] = pd.to_datetime(hourly_calories["ActivityHour"])
4 sleepday["SleepDay"] = pd.to_datetime(sleepday["SleepDay"])

In [26]: 1 print("Daily Activity data type is", daily_activity["ActivityDate"].dtypes, "data type")
2 print("Hourly Steps data type is", hourly_steps["ActivityHour"].dtypes, "data type")
3 print("Hourly Calories data type is", hourly_calories["ActivityHour"].dtypes, "data type")
4 print("Sleepday data type is", sleepday["SleepDay"].dtypes, "data type")

Daily Activity data type is datetime64[ns] data type
Hourly Steps data type is datetime64[ns] data type
Hourly Calories data type is datetime64[ns] data type
Sleepday data type is datetime64[ns] data type

In [27]: 1 for col in hourly_steps.columns, hourly_calories.columns:
2     print(col)

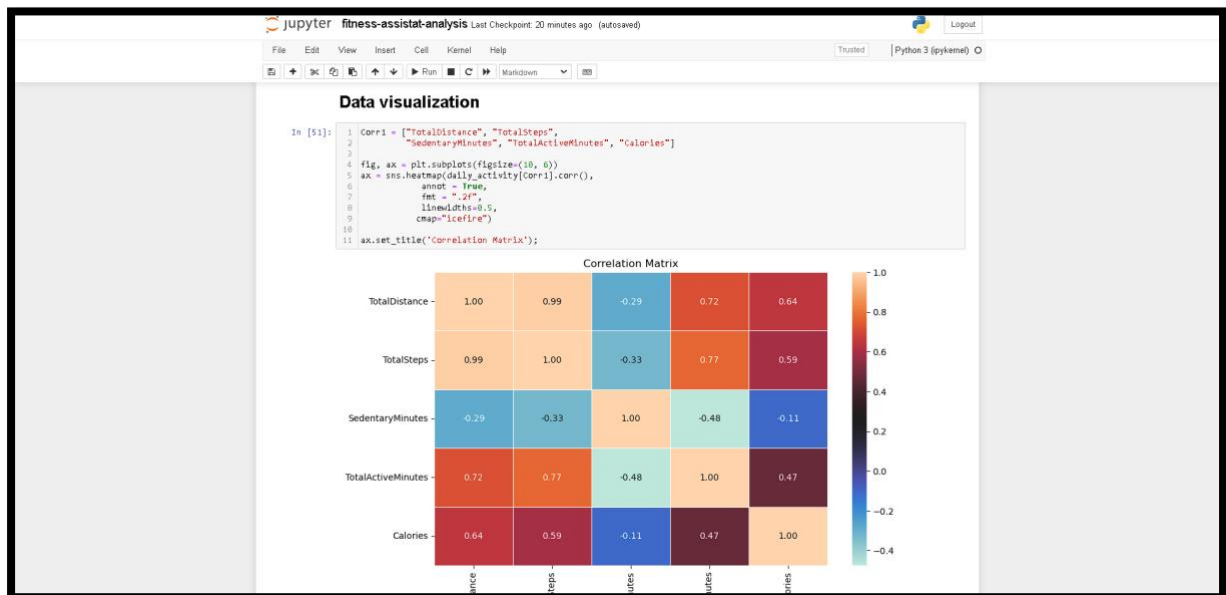
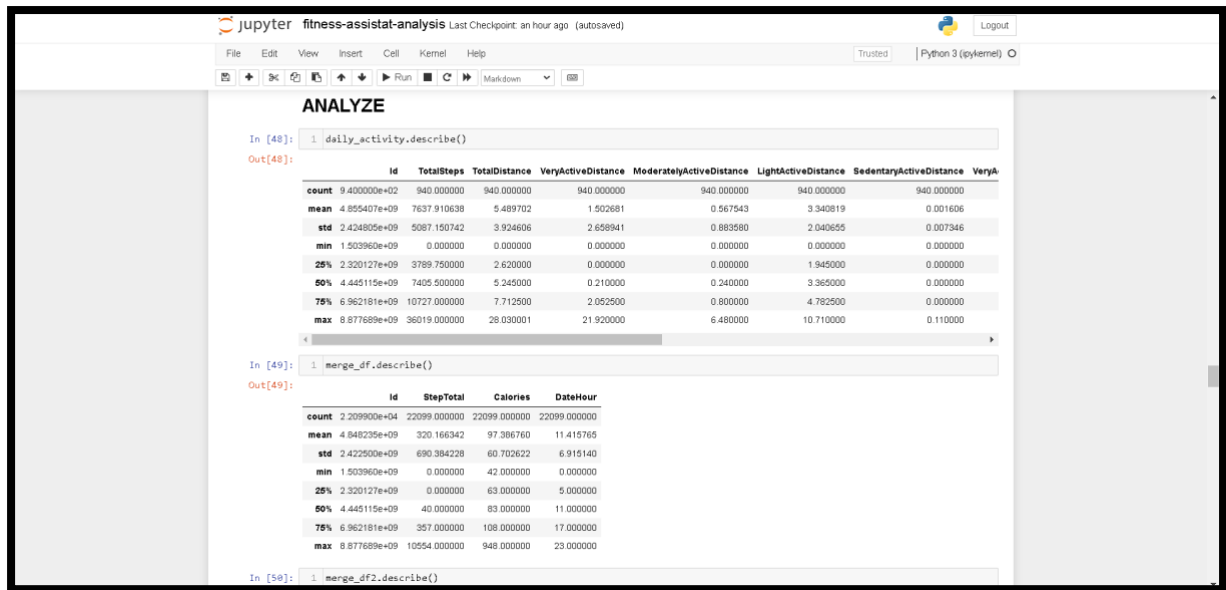
Index(['Id', 'ActivityHour', 'StepTotal'], dtype='object')
Index(['Id', 'ActivityHour', 'Calories'], dtype='object')

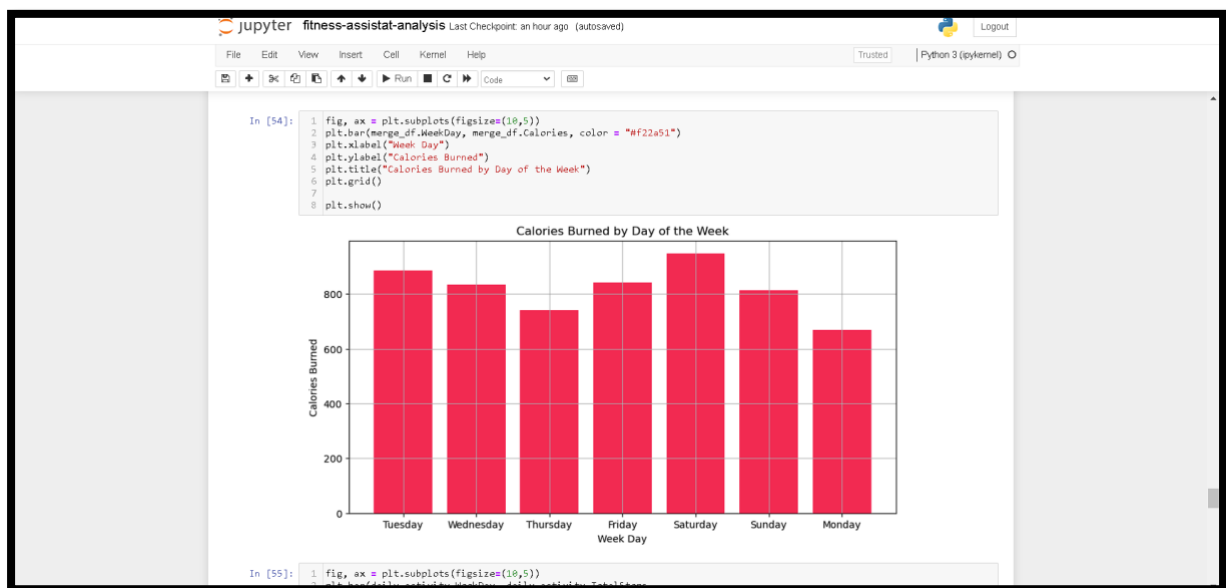
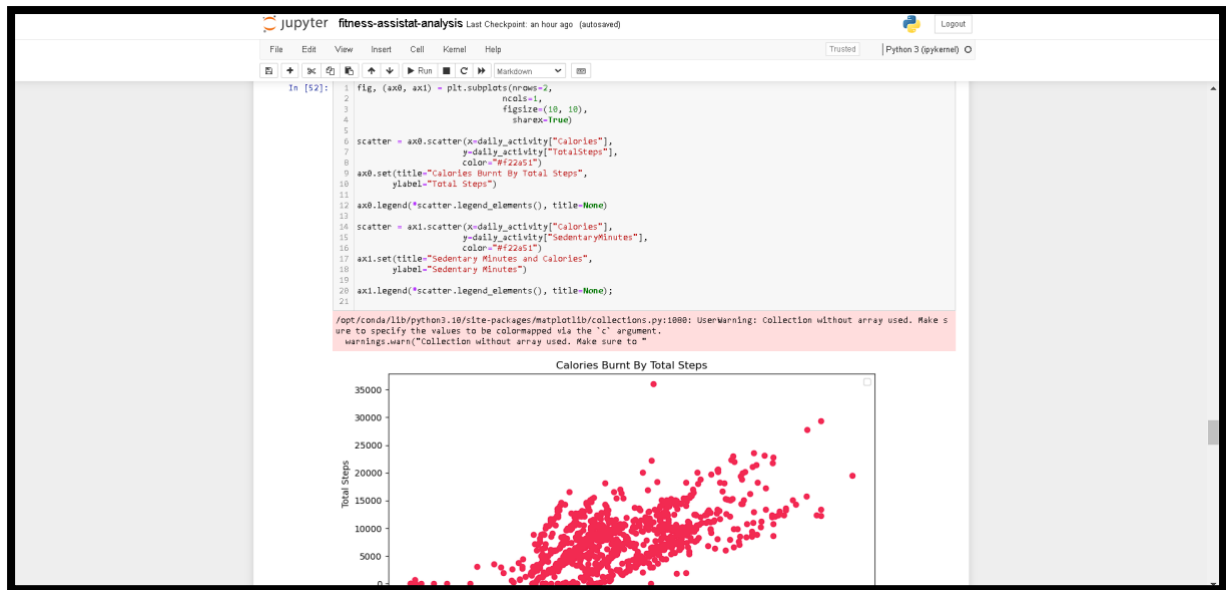
In [28]: 1 merge_df = pd.merge(hourly_steps, hourly_calories,
2                               on=['Id', 'ActivityHour'], how='inner')
3
4 merge_df.head()

Out[28]:
   Id  ActivityHour  StepTotal  Calories
0  1503960368  2016-04-12 00:00:00      373      81
1  1503960368  2016-04-12 01:00:00      180      61
2  1503960368  2016-04-12 02:00:00      151      59
3  1503960368  2016-04-12 03:00:00        0      47
4  1503960368  2016-04-12 04:00:00        0      48

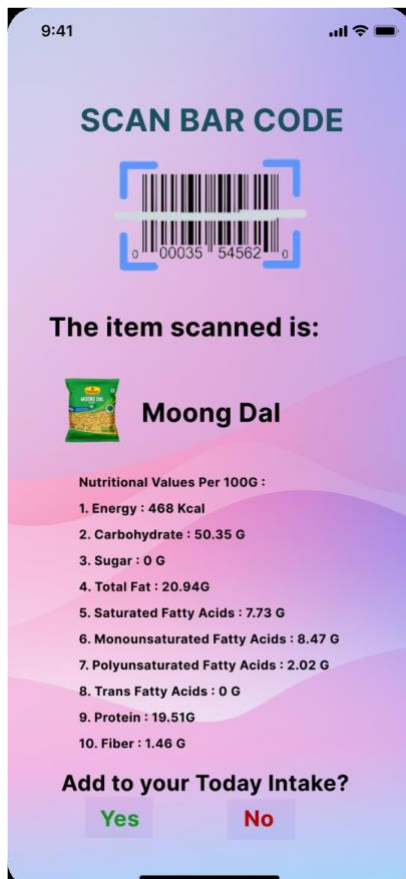
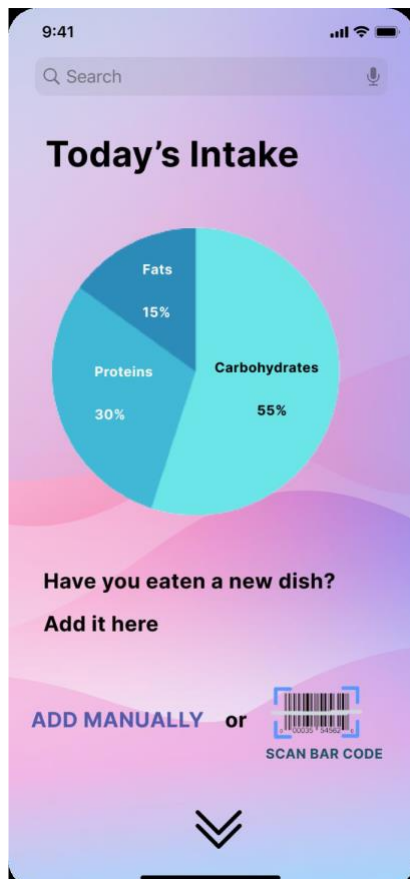
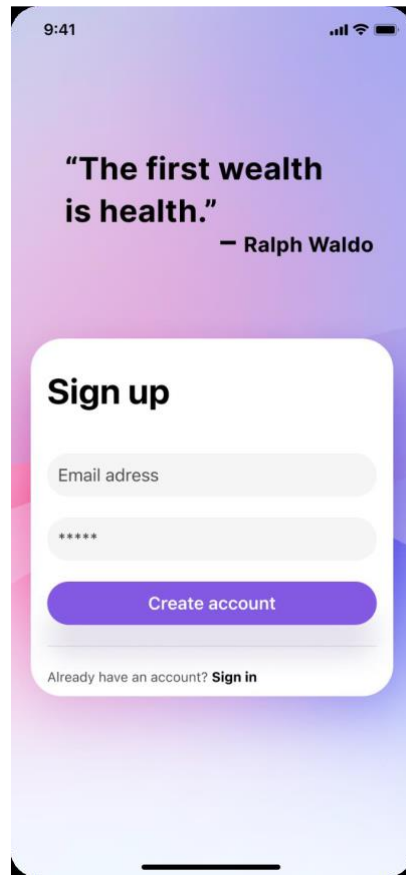
Create new colums

In [29]: 1 daily_activity["WeekDay"] = daily_activity["ActivityDate"].dt.day_name()
2 merge_df["WeekDay"] = merge_df["ActivityHour"].dt.day_name()
```





Final Product Prototype





Product Details:

Personalized Recommendations: The app analyzes user data, including fitness levels, health conditions, preferences, and progress, to create tailored workout plans, nutrition guidance, and lifestyle recommendations. Each user receives a customized roadmap to help them achieve their specific fitness objectives.

Data Tracking and Analysis: The application seamlessly integrates with wearable devices and health tracking apps to collect and analyze user data. Users can monitor their activity levels, sleep patterns, calorie intake, and other health metrics, gaining valuable insights into their wellness journey.

Gamification and Social Interaction: To enhance motivation and engagement, the app incorporates gamification elements. Users can set goals, earn rewards, and compete with friends, fostering a supportive and interactive community.

User-Friendly Interface: The app boasts an intuitive and visually appealing user interface, ensuring a seamless user experience across various devices, including smartphones and tablets.

Data Privacy and Security: Data privacy and security are prioritized, with robust encryption and adherence to data protection regulations, ensuring users' sensitive health information is safeguarded.

Ongoing Updates and Improvements: The app undergoes continuous refinement based on user feedback and data analysis. Regular updates enhance the user experience and add new features to meet evolving needs.

Prototype Development:

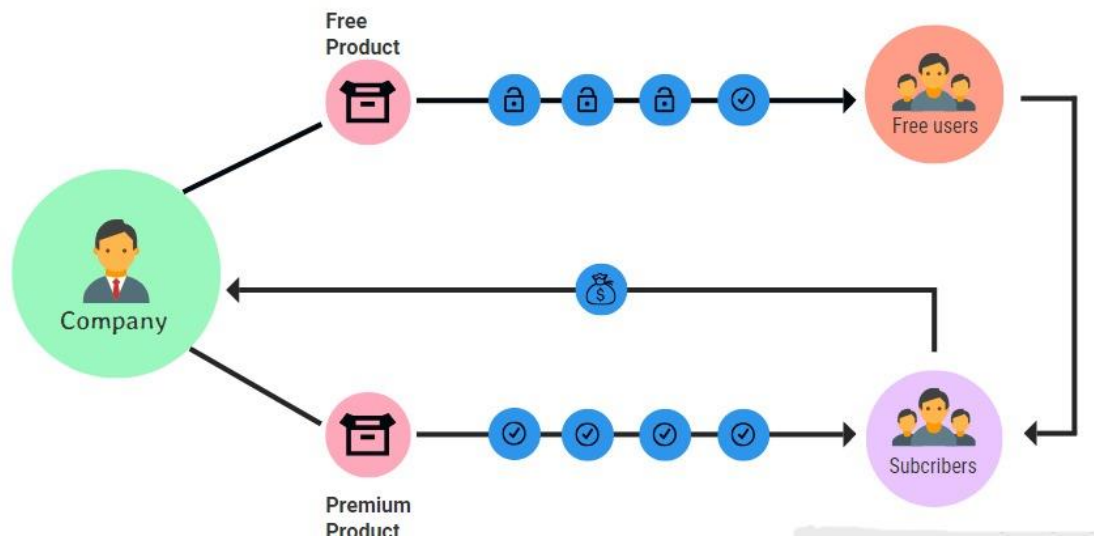
Github Link

[https://github.com/Ajith-13/Fitness assist Analysis Feynn Labs](https://github.com/Ajith-13/Fitness_assist_Analysis_Feynn_Labs)

Conclusion:

the Personalized Health and Fitness Assistant represents a groundbreaking solution that harnesses the power of machine learning, data analytics, and user-centric design to reshape the health and fitness landscape. By offering personalized workout plans, nutrition guidance, and lifestyle recommendations based on individual preferences and data, the app empowers users to take control of their well-being and embark on a transformative wellness journey. With seamless integration of wearable devices and health tracking apps, users gain valuable insights into their health metrics, fostering a deeper understanding of their progress and achievements. The gamification elements and social interaction features create an engaging and supportive environment, enhancing motivation and adherence to fitness goals. As data privacy and security are paramount, the app ensures the safeguarding of sensitive health information, building trust and confidence among its users. Continuous updates and improvements, fueled by user feedback and data analysis, keep the platform at the forefront of innovation, consistently delivering an unparalleled user experience. The Personalized Health and Fitness Assistant aspires to be the go-to companion for individuals seeking a holistic and data-driven approach to health and fitness, empowering them to lead healthier, more active, and fulfilling lives. Its vision is to inspire positive lifestyle changes, promote well-being, and become a transformative force in promoting a healthier future for users worldwide.

BUSINESS MODEL:



This system works using various modules listed below.

1. User - This module of the system describes the different views the system will provide. As shown in there will be two views.

They are:

a) Registered User - This view will be provided by the system to the authenticated user who has successfully registered into the system. Only the registered user will be allowed to experience further functionality (i.e to obtain customized diet plan and workout routine) of the system. Moreover, registered user can also use different health and fitness calculating tools like food fat calculator, BMI calculator, daily protein requirement calculator etc.

b) Guest User - This view will be provided by the system to the guest user. Guest user can use different health and fitness tools, but cannot use other important functionality of the system.

2. Authentication – This module deals with authenticating and verifying whether the user is registered user or not. The user gets to user other privileges once successfully authenticated.

3. User Input – This module of the system deals with taking inputs from the user. The users have to enter their current diet routine and the workout type they want along with some basic user information like height, weight, disease/disorder etc.

4. Activity Planner - This module receives the input from user input module. This basically comprises of machine learning algorithm which are trained using the training data provided and verified by various dieticians and gym trainers. The two-classification algorithm used to implement the model are:

a) Decision Tree - This algorithm is used to design classification model. This algorithm consist of various nodes, each interior nodes corresponds to input variable or attribute and is divided into various children nodes and each leaf node represents a target variable. This algorithm classifies with respect to various parameters and predicts most appropriate workout and diet plan based based on inputs given by the user.

b) Random Forest - This is another classification model which classifies using answer of multiple decision trees. It not only gives high accuracy and precision but also reduces overfitting.

At the end of this step a new diet and workout plan is generated considering all the parameters given by the user. These plans are saved in database for future applications

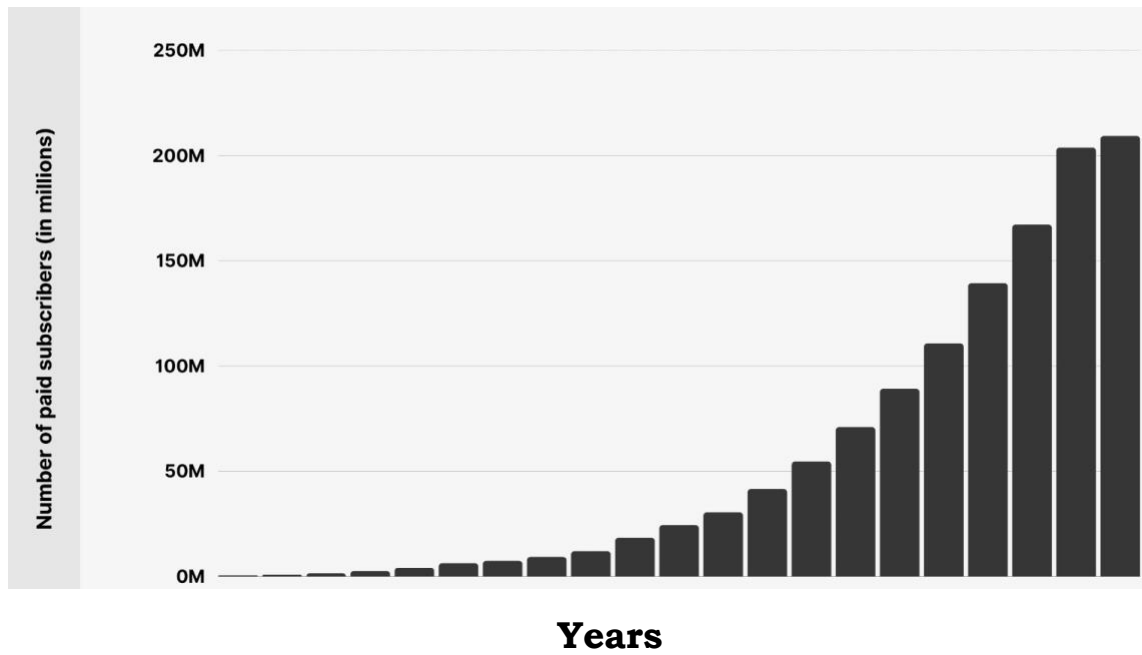
5. Daily Tracker - This module keeps track of user activities by taking inputs from user like workouts done and diet eaten

regularly, and comparing them with the original plan which was stored in the database in the above step, if there are any

dissimilarities between inputs provided by the user and plan retrieved from the database then these changes are loaded back again

to activity planner for creating the new plan, else system notifies users that their task is accomplished successfully.

FINANCIAL EQUATION:



Total Revenue (TR) = (Number of Users) * (Average Revenue per user)

Total Cost (TC) = (Development Cost) + (Ongoing Maintenance cost) + (Cloud Service cost) + (Marketing and promotion cost) + (Other operating costs)

Net Profit (NP) = Total Revenue (TR) – Total Cost (TC)