DISEASE PREDICTION AND MANAGEMENT APP- BUSINESS/FINANCIAL MODELLING

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PROTOTYPE SELECTION

The product is a disease prediction and management app that can predict the disease a user may have and would help the user manage the disease. The product satisfies all 3 criteria for prototype selection:

a. Feasibility:

Product/Service can be developed in the short-term future. Due to increasing advancements in machine learning, better algorithms are being created every day which can lead to more accurate prediction of disease. Also, with excellent mobile app development frameworks and cloud computing software, deployment and maintenance of the app is simplified.

b. Viability:

Product/Service would be relevant and be able to survive in the long term future. With digitalization in India and the need for better healthcare facilities, the product could only be more relevant in the upcoming years. The app can provide healthcare insights to users regardless of their geographic location or access to medical facilities. It also can lead to earlier detection which is vital for effective treatment. With an increasing focus on preventive healthcare and personalized medicine, there is a growing demand for digital health solutions like disease prediction and management apps.

c. Monetization:

Product/Service is monetizable directly. Most of the income is generated through subscription services offered for premium users. Income is also generated from free users after running commercials in the app.

PROTOTYPE DEVELOPMENT
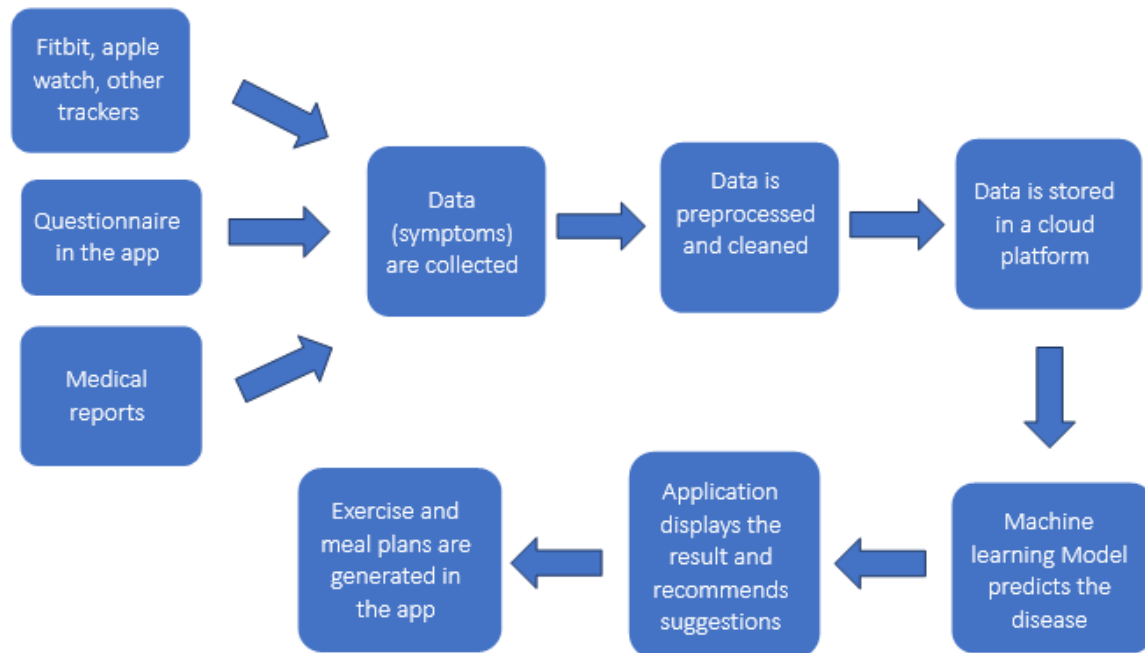
Using a Kaggle data set, a Random Forest classifier is used to accurately predict the disease through symptoms. In the data set 132 different symptoms are used to predict 42 diseases.

Code Link: https://github.com/Sreeparvathy-S-Menon/Disease-prediction

Prototype development has been implemented in the previous report.

BUSINESS MODEL

A freemium business model is adopted. Services provided by the company are divided into two parts:

1. Disease Prediction App
   - A disease prediction software that could predict a person's disease using data collected. Data is collected from three different sources: 1) Different wearables like Apple watch, Fitbit, etc., 2) a questionnaire created by medical professionals, and 3) Medical reports like blood test results.
   - This will be a free service provided to consumers. Income will be generated by running commercials on the platform.
   - Other features of the app are restricted to free service users.

2. Disease Management App
   - This service of the app aims at the management of the disease predicted by the app and is cross-verified and diagnosed by a certified doctor.
   - Various services are carefully curated according to the World Health Organization's recommendations aiming to avoid further progression of the disease, manage the disease, and if possible, completely mitigate the disease.
   - Meal plans and meal timings will be curated for patients (especially for patients struggling with diabetes, obesity, eating disorders, high blood pressure, high cholesterol, etc.), monitoring of blood sugar levels, monitoring of weight and BMI, etc. will be done. It is an all-encompassing app that will help patients reach their health goals.
   - These services are provided to a set of customers who will pay a premium subscription fee every year.


BUSINESS MODEL
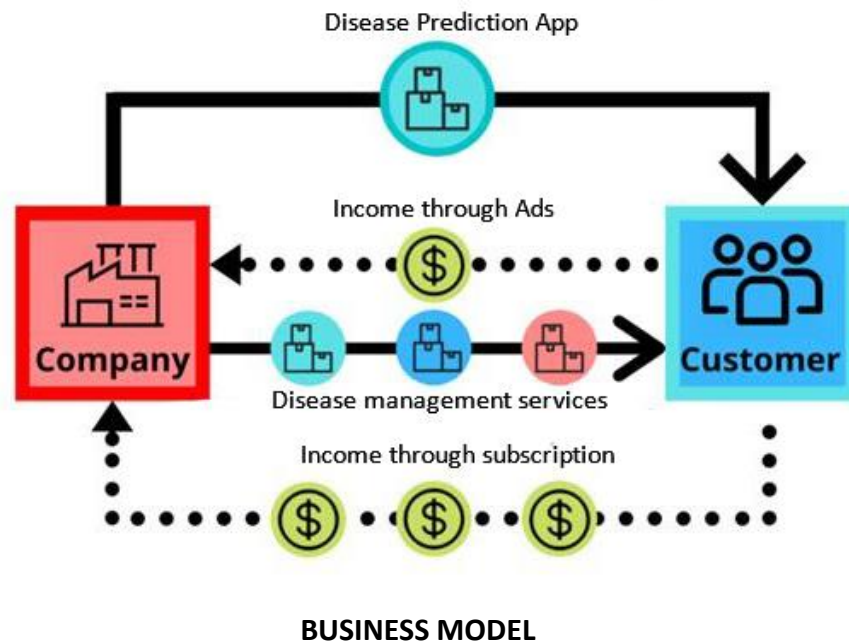
FINANCIAL MODELLING

The product will be launched in the mobile health market or mHealth market.

The global mHealth market was estimated to be 56.7 billion USD in 2023. The historical trends from 2019 to 2023 are given below.

YEAR	MARKET SIZE
2019	15.15B USD
2020	24.93B USD
2021	38.89B USD
2022	43.5B USD
2023	56.7B USD

The global mHealth Apps market size is predicted to reach 340.5 billion USD in 2030 at a compound annual growth rate of 26.79%.
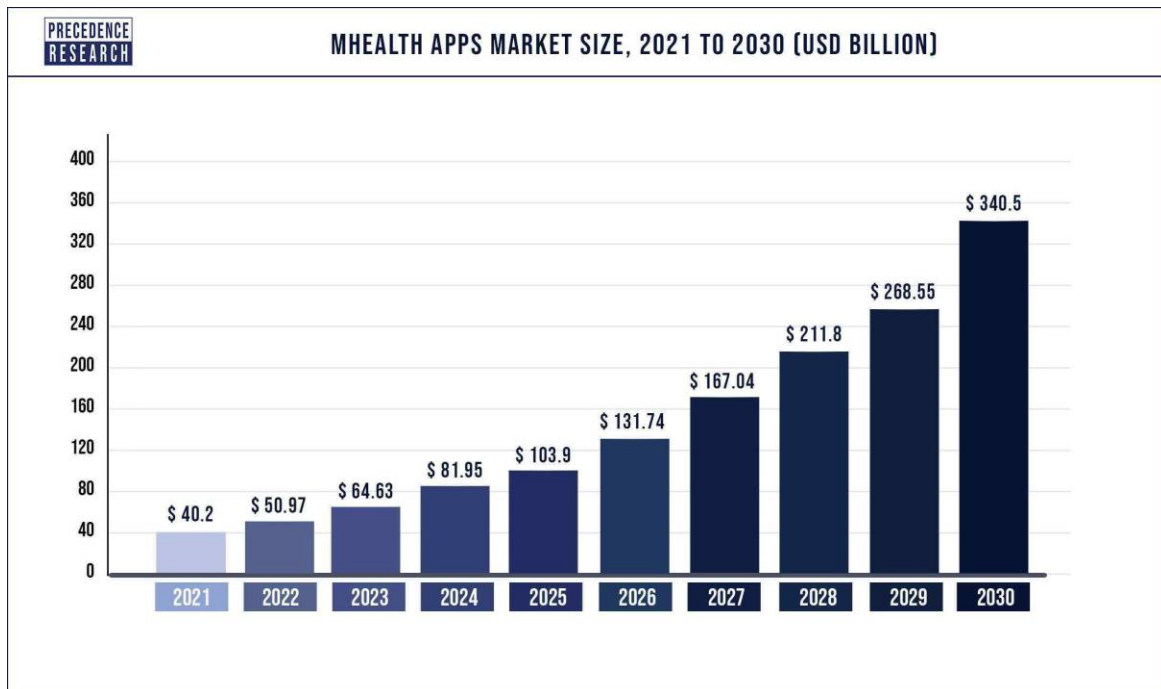
Source: Precedence Research

Hence, an exponential growth is predicted.

Major income comes from the subscription service. Subscription service is provided at Rs 500/month. This will account for Rs 6000/ year. We aim to acquire 5000 users by year 1. An income of 3 crore INR will be generated.

The production and maintenance costs would include:

- Research and development cost for data collection of machine learning model
- Development of Machine learning model cost
- App development and maintenance
- App deployment fee
- Cloud software costs
- Payment of healthcare professionals and other experts

- Legal Payments

The total production and maintenance cost would be 5 crore INR.
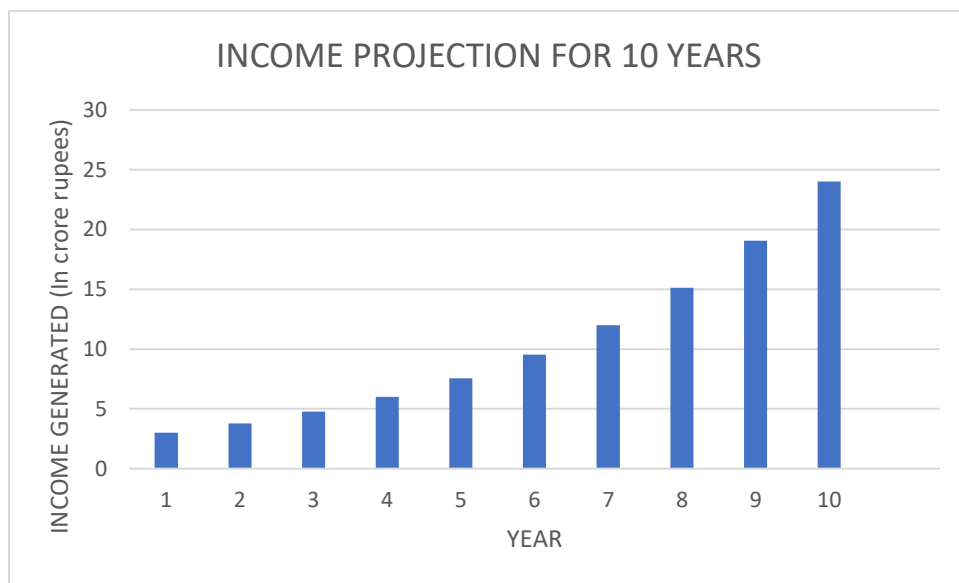
The income generated in the exponential model is given by

$$X_t = X_0(1+r)^t$$

X_0 = value of starting income = 3CR rupees

r = rate of increase = 0.26

t = time in years

INCOME PROJECTION FOR 10 YEARS

Income generated in 1st year would be 3 crores. Initial costs can be recovered within the span of the first two years.

Income generated in the 10th year of app deployment would be 24 crores.

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