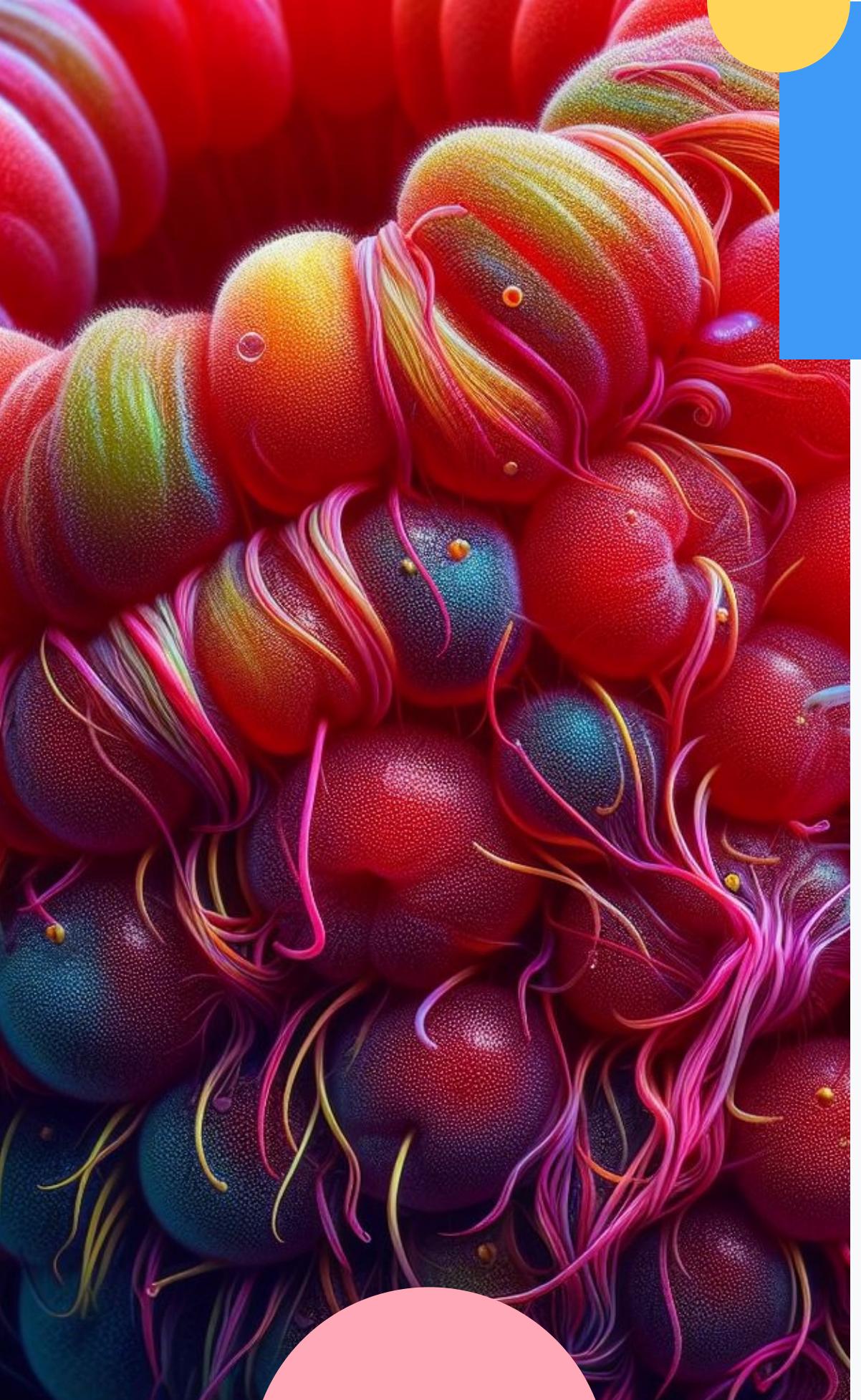


TEAM
RASPBERRY

DECEMBER 2023

PRESENTING

• *Rhythm* •



Problem Hypothesis

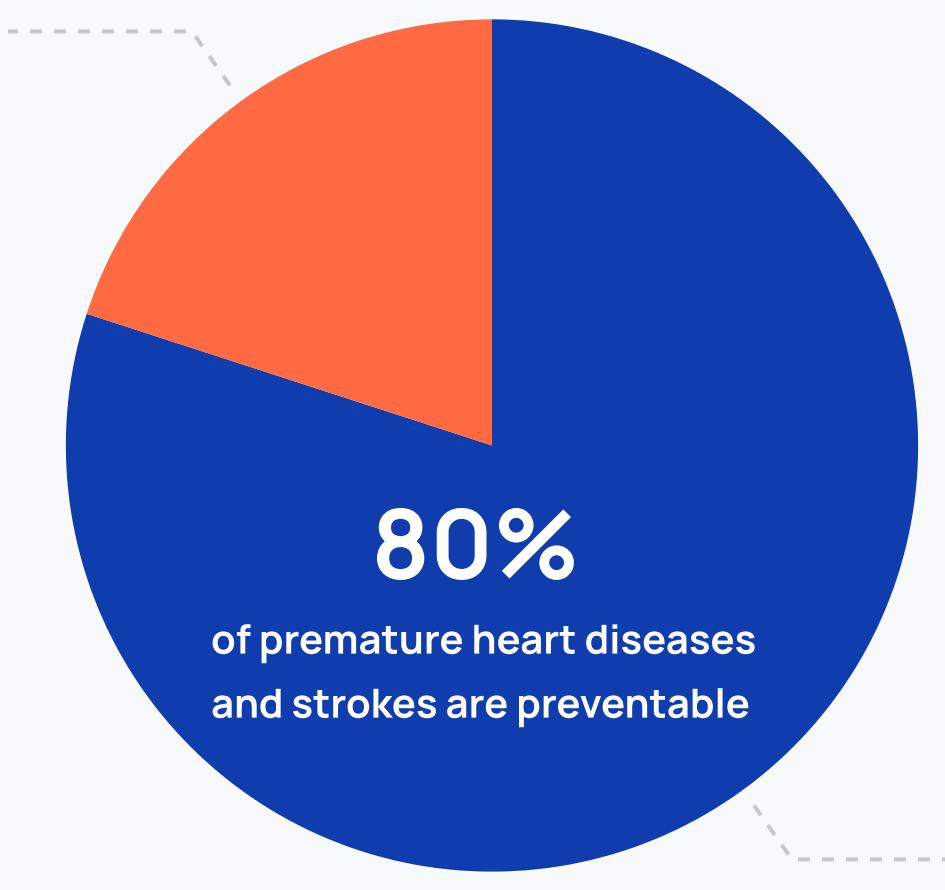
Globally more than 4 out of 5 individuals are at a risk of fatality due to Cardiovascular diseases (CVD) because of negligence to **modifiable risk factors**.

Modifiable risk factors : factors that are often preventable; in most cases risk can be reduced with medical treatment and lifestyle changes

Cardiovascular diseases cause more deaths each year than all cancers combined



Many strokes and heart attacks can be prevented

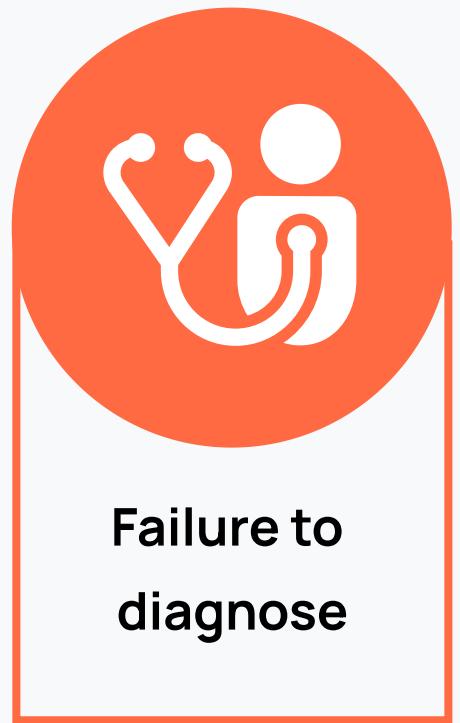


Why have we selected the problem?

- CVD risks can be reduced by **80 %** by simple lifestyle changes & monitoring.
- Increased need for **pre operative self-care** for patients about to undergo cardiac surgeries.
- Lack of **streamlined communication & monitoring platform** for patients & cardiologists.
- Lack of **awareness** leading to high negligence.



Failure to use proven first line treatments



Failure to diagnose



Failure to make risk factor modifications

Can reduce odds of CVD by **80%**

Solution



Our innovative solution - "Rhythm" involves the development of an **integrated app and website ecosystem** to revolutionize preventive healthcare specifically with regard to Cardio vascular diseases.

We aim to tackle the rapidly increasing CVD by **addressing the issues to its roots** with help of our feature-packed platform encouraging users to a healthy lifestyle whilst creating a centralized eco-system as well at the same time



How are we solving

01



USERS APPLICATION

- Application that is connected to the watch to collect data. Data including - heartrate, sleep, steps.
- Based on this data Daily and weekly reports of patient health will be generated.
- This data will be useful for future operations.

02



DOCTORS DASHBOARD

- Doctor will have dashboard containing patients details.
- Machine learning model will help doctors to detect risk and major factors for cardiac issues .
- Doctors will get real-time logs of the patient health.

03



PATIENTS REPORT

- User will be able to access their personal report resulted from analysis of their data.
- Workout & dietary changes will be provided as well with help of this data

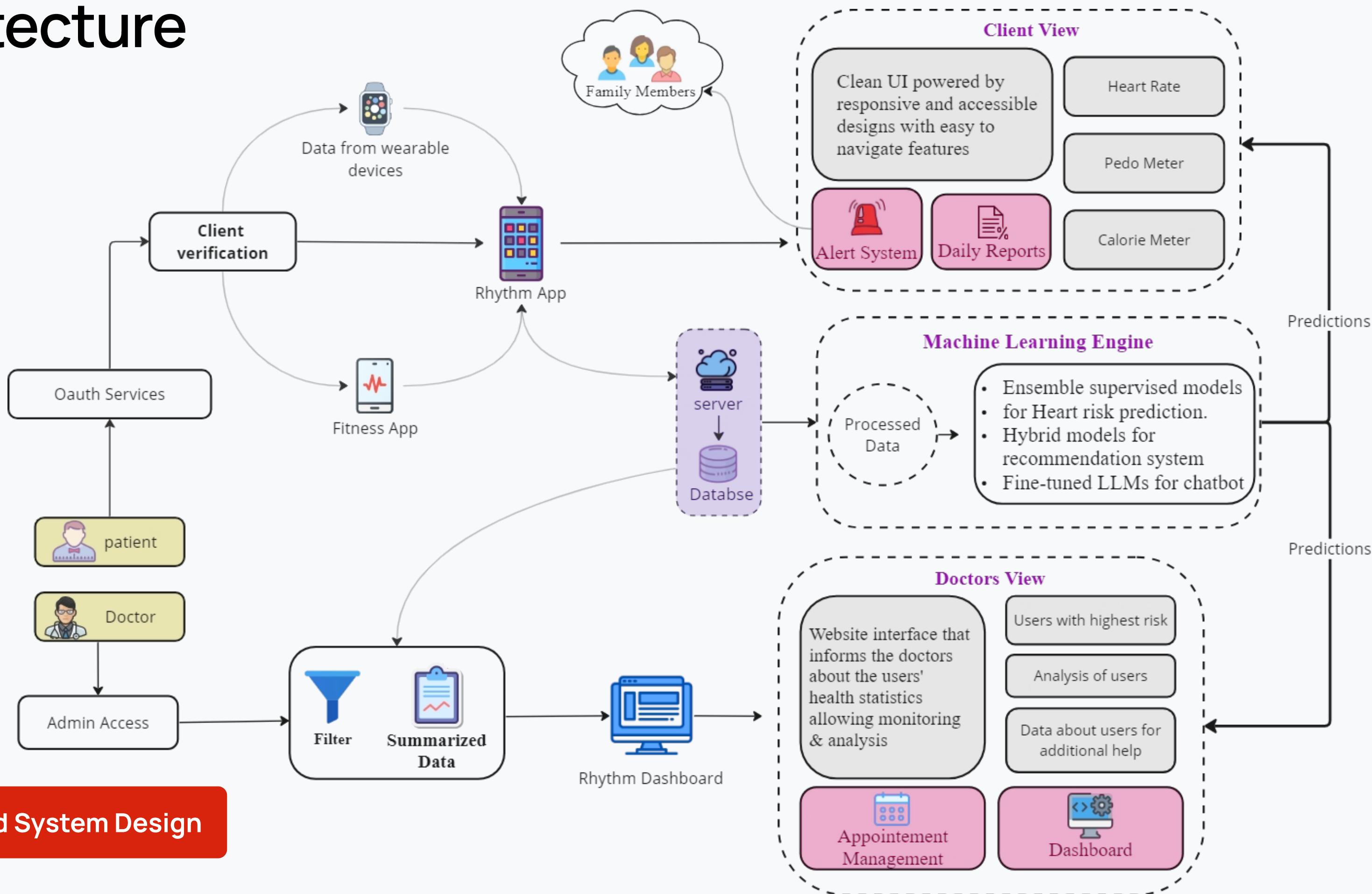
04



PERSONALIZED CONTENT

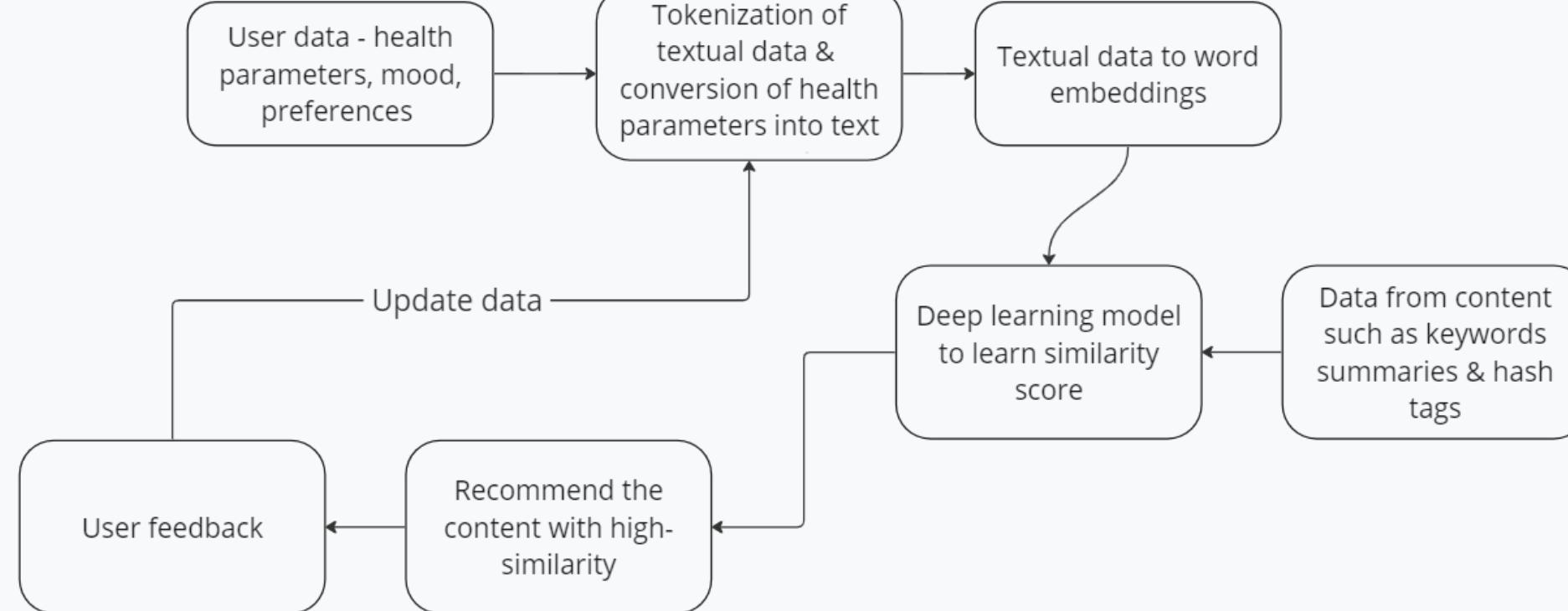
- Personalized educational content regarding preventive self-care to increase awareness among users.

Architecture

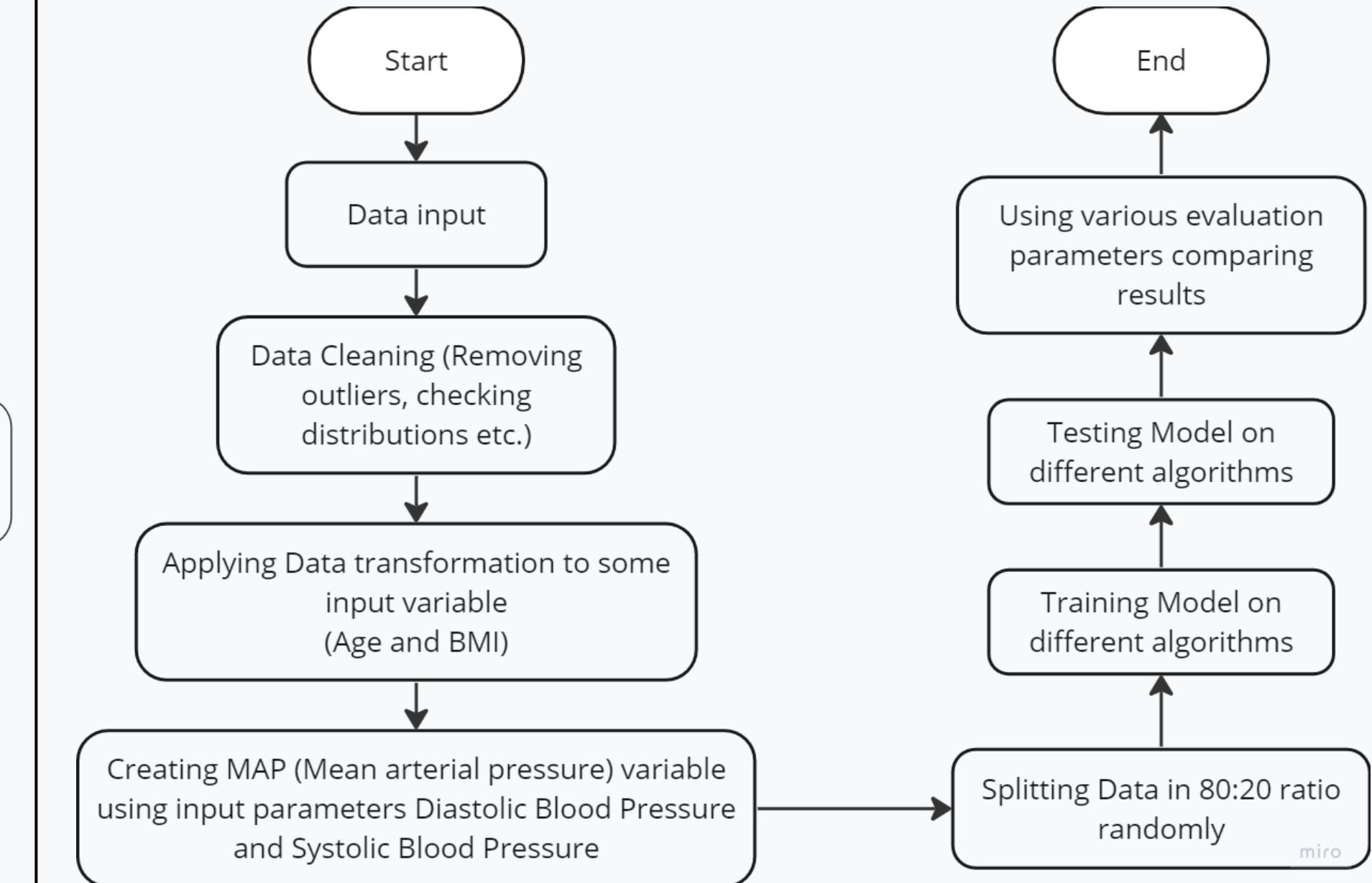


ML Architecture

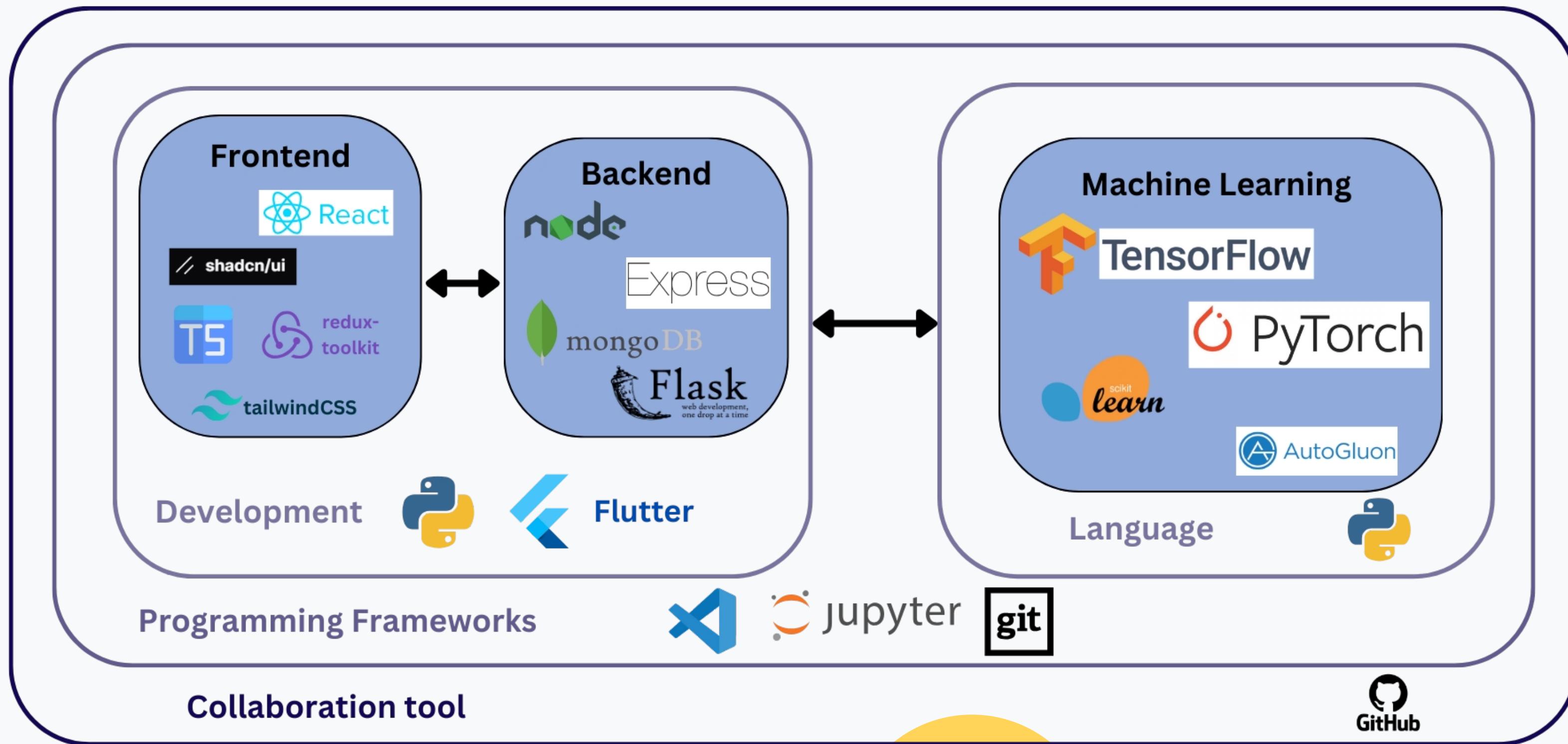
Recommendation system overview



Prediction model workflow



Frameworks and Stack



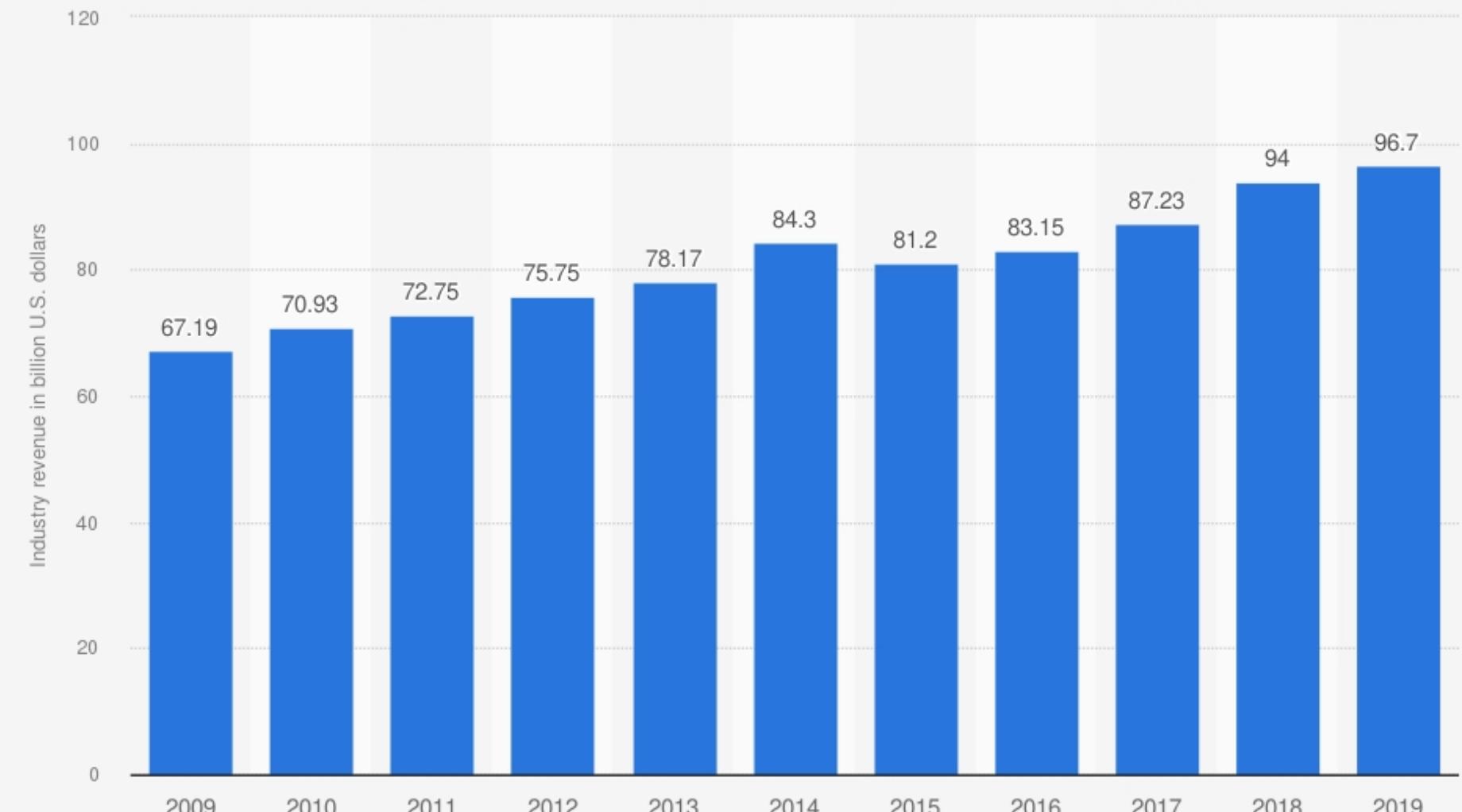
Target Market/ Market Size

There are around **620 million people** living with heart and circulatory diseases across the world which is around **1 in 13** people globally.

Out of which around **500 million risks** could have been avoided by preventive self-care & this is the segment we want to cater to primarily.

As the health industry experiences rapid growth, driven by an increasingly **fitness-conscious population**, our **secondary target customers** encompass individuals actively seeking to enhance their overall well-being through proactive cardiovascular health management.

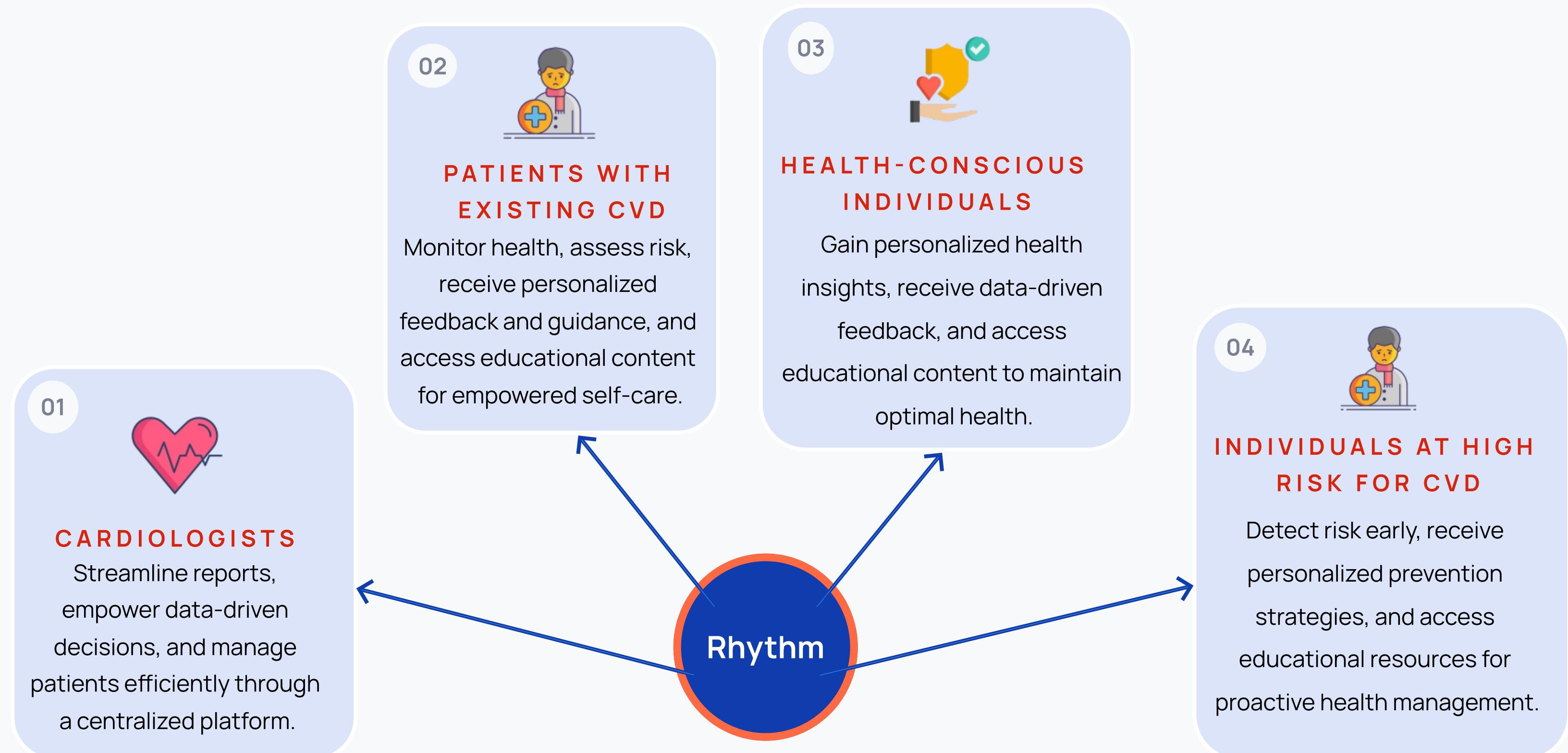
Market size of the global health club industry from 2009 to 2019 (in billion U.S. dollars)



Source
IHRSA
© Statista 2023

Additional Information:
Worldwide; IHRSA; 2009 to 2019

Customer Base



Competition & USP

Various apps are currently present in the market in cardio healthcare segment. But most of them have one-dimensional use case majorly being examination purposes. Some top examples are

1. Instant heart rate - provides heart-rate

2. PulsePoint Respond - alert system

3. Blood pressure monitor - self-explanatory

4. Hello Heart - BP & BMI reports

5. My Cardiac Coach - logging & tracking

6. Qardio - detailed heart health metrics
& so on.....

What do we provide ?

There is a clear vacancy for a streamlined, easy-to-use & all in one platform for preventive self-care. This is what Rhythm brings to the table. Along with some basic features such as appointment management & heart health, **key features in the upcoming slide**

Key features

SEAMLESS INTEGRATION

The application integrates with fitness wearable devices to get statistical data and analyze every individual's data.

MONITORING & ANALYSIS

Streamlined, detailed reports for cardiologists. Empowers precise, data-driven decision-making. This is powered by Machine learning models.

ENHANCED COMMUNICATION

Creating a centralized platform for cardiologists & patient. Cardiologists can monitor patient's health basis various parameters & also update or create wellness plans accordingly.

EARLY DETECTION OF CVD

Risk assessment using AI algorithms to analyse a comprehensive set of data, including genetic information, lifestyle factors, wearable device data to identify individuals at high risk for CVD development.

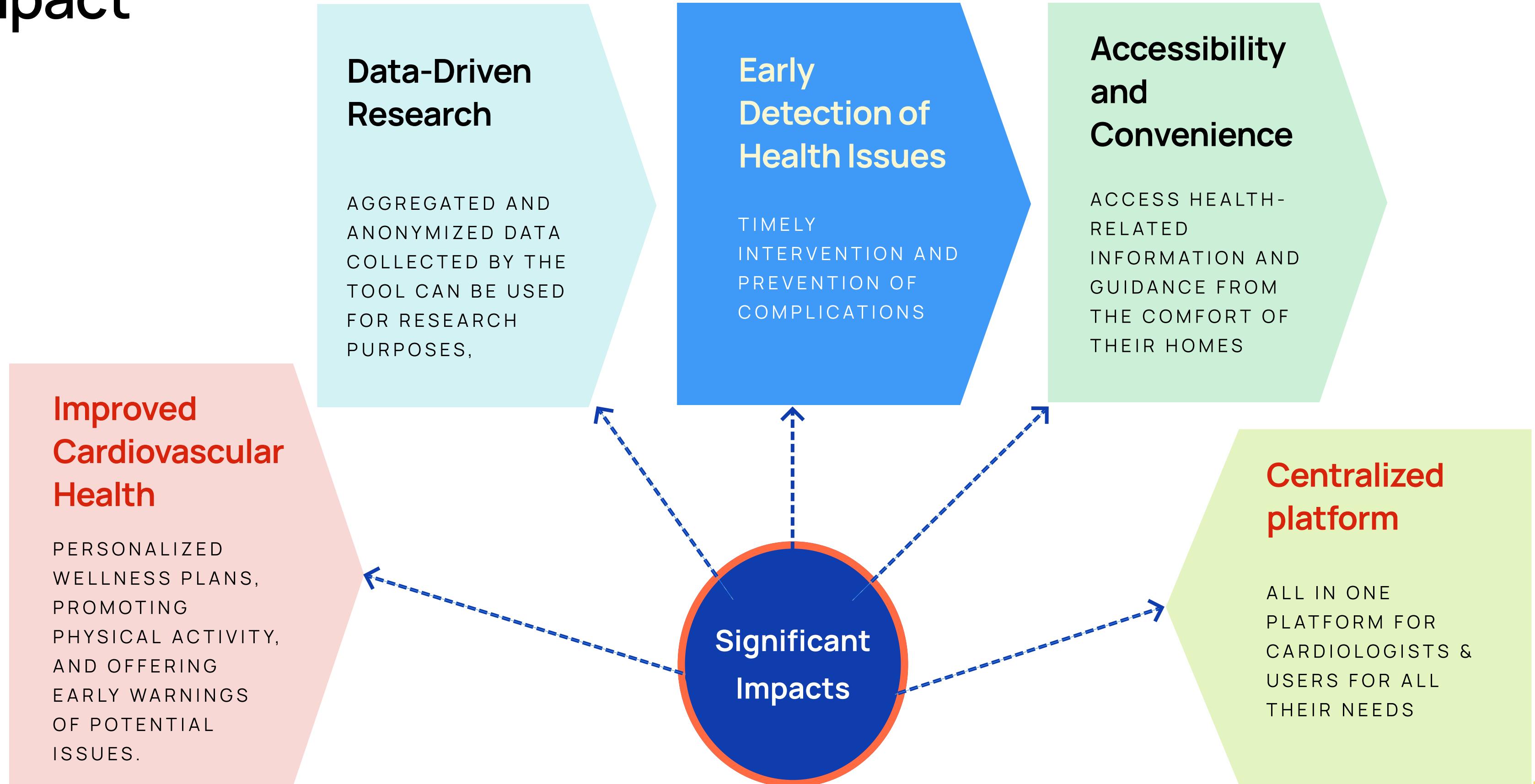
INCREASED AWARENESS

Users can make changes in their lifestyle based on the real-time automated feedback generated from their data. Users can also access personalized educational content regarding preventive health care powered by recommendation system.

GRIEVANCE SYSTEM

Specialized ChatBot for query answering regarding preventive self-care with regard to cardiovascular health

Impact



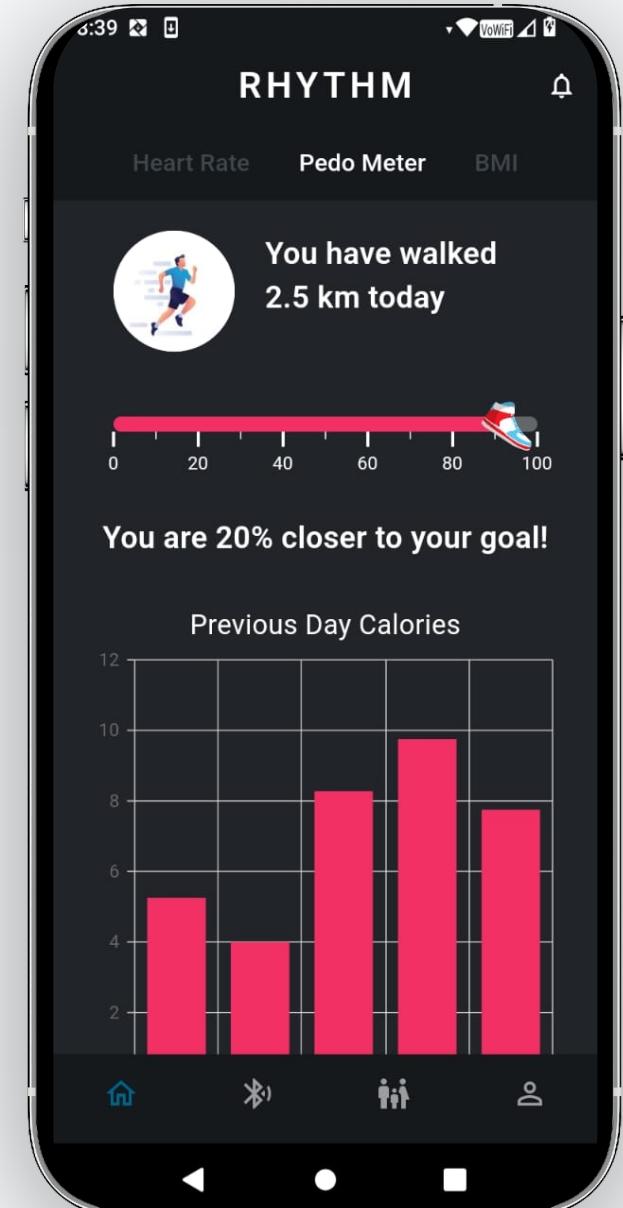
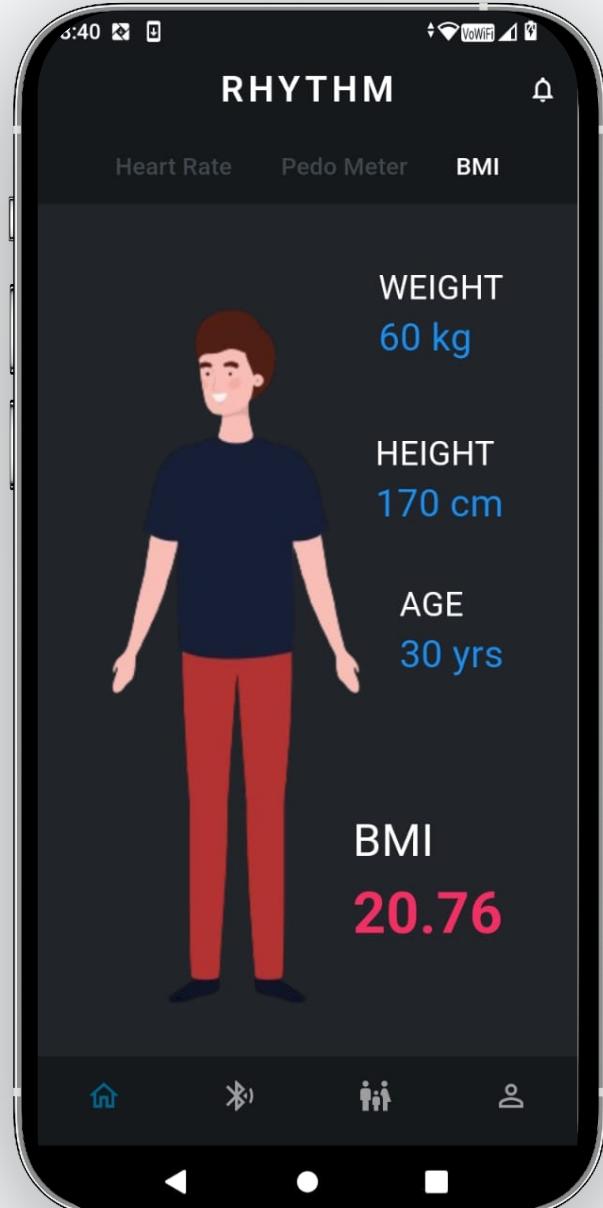
Business Model Canvas

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Healthcare providers and hospitals. Product & service-based companies in the health sector Wellness programs and fitness trackers. Research institutions and universities.	Developing and maintaining the platform. Raising funds Customer acquisition Partnering with doctors.	Offer doctors & users detailed insights through reports. Personalized educational content for awareness and betterment. Early detection of potential complications and risks.	Educational webinars and workshops. Interactive sessions between the doctor and a patient.	Users looking to improve their lifestyle. Cardiac Patients. Pre-operative cardiac patients.
	Key Resources Platform architecture IP such as ML algorithms User health & fitness parameter data.	Simplify patient understanding with a Heart Health Score Streamlined communication and collaboration with patients.	Channels Blogs & other social media Recommendations via already partnered doctors Advertisements at Clinics, TV & public places	Heart Surgeons and Cardiologists.
Cost Structure Development & maintenance cost Marketing & advertising	Cloud services costs. Customer services cost.	Revenue Streams Freemium model for users Partnerships with cardiologists	Fees for promotion through in-app content Revenue from ads for free users	

Snapshots & GIT Repository

<https://github.com/VESITAIDS25/Raspberry-Rhythm>

Rhythm App



Rhythm Dashboard

The Rhythm Dashboard for Dr. Manoj Kumar. The top section displays the doctor's profile with information: Username (DrManoj), Fullname (Manoj Kumar), Email (drmanojkumar@gmail.com), and Phone (9977234531). Below this is a line graph showing heart rate over time. The right side features a "Latest Activities" timeline with entries such as reviewing patient records, conducting stress tests, attending a cardiology conference, scheduling appointments, and conducting echocardiograms.

The Rhythm Dashboard showing a list of patients. The table includes columns for ID, First Name, Last Name, Age, Blood Group, Heart Problem, Prescribed Medications, Last Visit, Upcoming Appointment, and Action. The patients listed are Alice Smith, Robert Johnson, Emily Garcia, William Brown, Sarah Jones, Michael Miller, Karen Davis, David Rodriguez, Jessica Martinez, and Daniel Hernandez.

ID	First Name	Last Name	Age	Blood Group	Heart Problem	Prescribed Medications	Last Visit	Upcoming Appointment	Action
1	Alice	Smith	55	O+	Arrhythmia	Metoprolol, Warfarin	2023-11-10	2024-01-05	
2	Robert	Johnson	62	A-	Coronary Artery D...	Atorvastatin, Clopidogrel	2023-11-18	2024-02-10	
3	Emily	Garcia	48	AB+	Heart Failure	Furosemide, Carvedilol	2023-12-05	2024-03-20	
4	William	Brown	65	B+	Atrial Fibrillation	Diltiazem, Rivaroxaban	2023-11-25	2024-01-15	
5	Sarah	Jones	58	O-	Hypertrophic Car...	Verapamil, Enalapril	2023-12-08	2024-02-25	
6	Michael	Miller	52	A+	Valvular Heart Dis...	Digoxin, Apixaban	2023-12-02	2024-02-18	
7	Karen	Davis	60	B-	Cardiomyopathy	Spironolactone, Metolazone	2023-11-28	2024-01-20	
8	David	Rodriguez	47	AB-	Myocarditis	Ibuprofen, Colchicine	2023-12-15	2024-03-05	
9	Jessica	Martinez	50	O+	Pericarditis	Indomethacin, Prednisone	2023-11-22	2024-01-10	
10	Daniel	Hernandez	55	A+	Cardiogenic Shock	Dobutamine, Milrinone	2023-12-10	2024-02-28	

Team responsibilities



Ritesh Bhalerao

Project Manager &

Data Science specialist

Performing data analysis and streamlining the Data Flow, cleaning and preprocessing data .



Aum Kulkarni

Developer (Backend)

Develop backend systems integrating ML models and creating APIs.



Atharva Sardal

Developer & UI/UX

Developing and designing dashboard website for healthcare professionals and patients. Integrating APIs from fitness apps.



Himanshu Goyal

Developer (Mobile App)

Create a mobile app for patients and normal users as their daily driver and integration for smart watches & wearables.

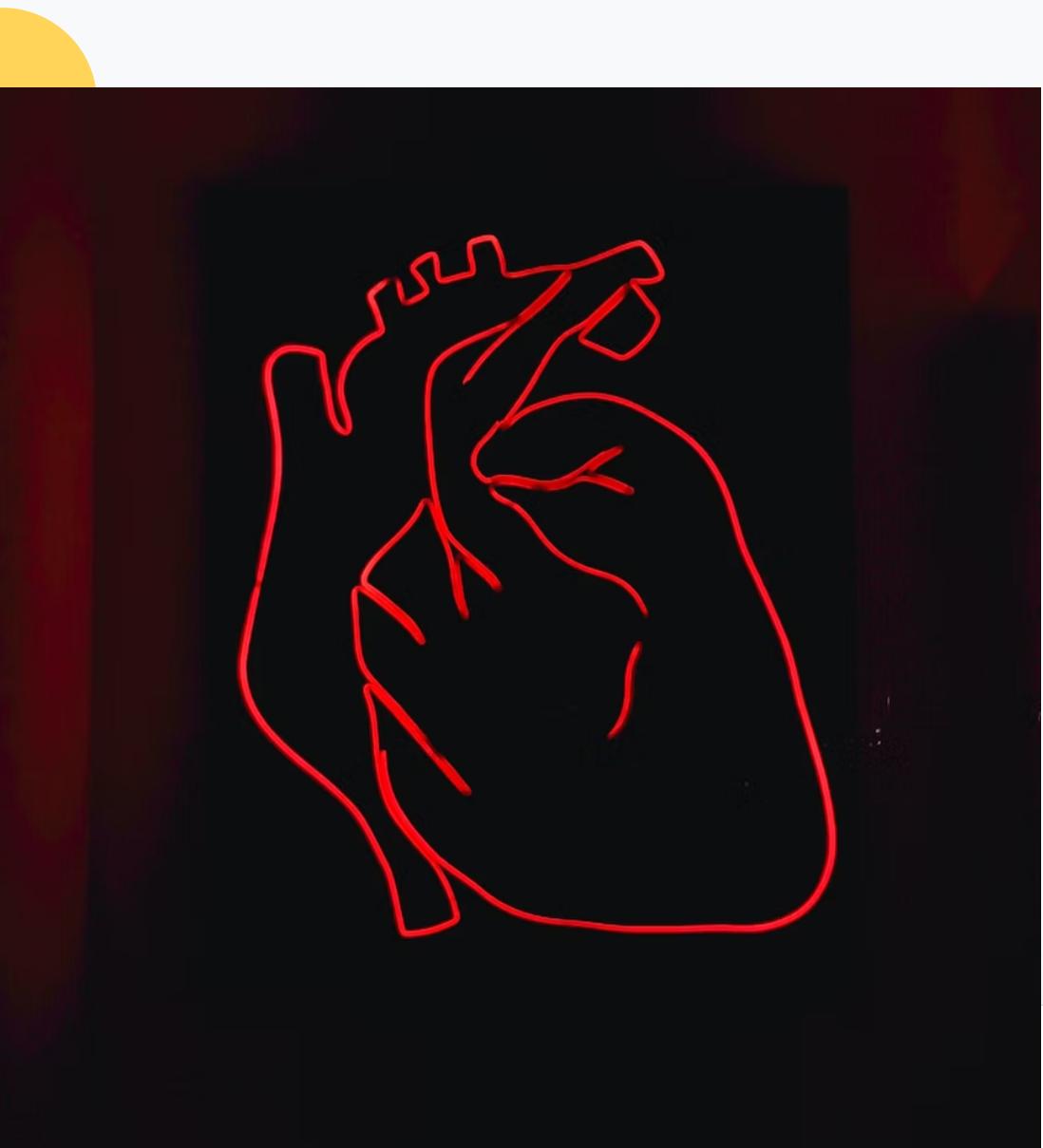


Dyotak Kachare

Machine learning & UI/UX

Develop and train ML models for risk assessment and personalized recommendations.

Thank you



 *Rhythm*

A red line graph representing an electrocardiogram (ECG) or pulse trace. It features a series of sharp, vertical peaks and troughs connected by a wavy line. The word "Rhythm" is written in a bold, italicized, red serif font across the center of the graph.