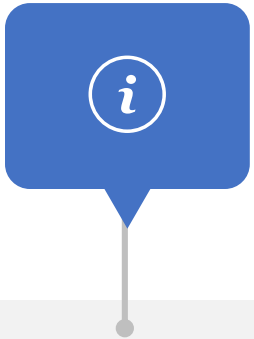
Blockchain based population descriptor sharing

Software Engineering 1

Group 2

PRESENTATION ROADMAP

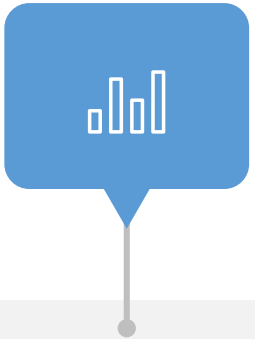


Customer Problem Statement

Functionalities

Tech Stack and usage

Plan of work



List of contributions

Customer Problem Statement

- Expensive health check-ups and inadequate facilities remain an obstacle to most people who wish to know the condition of their body and the ways to improve on it.
- Crucial inferences can be drawn by analyzing the blood pressure stats, blood sugar levels, sleeping patterns and so on. Most people are aware of the consequences but always relied on medical help, which led them to incur monetary expenses.
- We propose a digital ledger of sorts for the various users on the internet. This ledger contains data entered by the user. This data contains many important metrics such as BMI, blood pressure, blood sugar, sleep patterns etc.
- One of the critical needs of such an application is that any user should know how healthy or unhealthy he is as compared to others.
- People would be naturally apprehensive to allow their personal details to be shared with this application, due to the concern of getting hacked and so the system should offer guarantees against possible information leaks.

Functionalities

STORE PERSONAL HEALTH DATA OF THE USER IN A SECURE MANNER

ALLOW THE USER TO CARRY OUT DATA ANALYSIS OF THE HIS DATA AS COMPARED TO THE DATA OF THE OTHER USERS OF THE SOFTWARE

ALLOW THE USER TO REPORT BUGS AND SYSTEM PROBLEMS TO THE ADMINISTRATOR

GIVE HEALTH RECOMMENDATIONS BASED ON DATA ANALYSED

ALLOW THE USER TO COMMUNICATE WITH OTHER USERS

Tech stack and Usage

We have implemented the blockchain in JavaScript, the blocks are JSON objects that are added with the hashes to the linked list stored in the database

We have used the data visualization library, Plotly.js, to display the results of data analysis done by the user on the data.

The MongoDB database is maintained on the AWS cloud.

The user interface and front-end implementation is done by using Bootstrap and Embedded JS.

Hash Verification Among Users

- Socket.IO is a JavaScript library for realtime web applications. It enables real time, bi-directional communication between web clients and servers.
- Socket.IO provide a chatroom for users and servers.

- Flow:
  1. Each user submits their block to the server.
  2. The server broadcasts the newly added block into the “Chatroom”.
  3. Every other user verify this block and return a result.
  4. The server compare the hash and decide if that’s a legal block.
  5. Add legal block to the Blockchain.

Smart App

Simple, intuitive form to be filled by the user to enter the health parameters.

Automatically this data is added to the database queried by the program and the users history gets updated.

Graphs of all parameters are plotted in the History tab.

The average of all the users data for each parameter is updated after data entry and the users data is compared with the average.

Health recommendations are automatically made based on this comparison.

Thank You