FIT-FINITY

Health and Fitness based platform:

An Engineering Project in Community Service

Phase – II Report

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in partial fulfillment of the requirements for the degree of

Bachelor of Engineering and Technology

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Bonafide Certificate

Certified that this project report titled **"Fit-Finity"** is the bonafide work of "20BCE10374 Akshatt Chhabra , 20BCE11076 Madhav Mishra , 20BCE11082 Harshit Dwivedi , 20MIP10020 Ujjwal Srivastava , 20MIP10028 Anannya Manojawas , 20MIP10035 Ishika Shrivastava , 20BAI10194 Shrey Khanduja , 20BCY10005 Avinash Roy " who carried out the project work under my supervision.

This project report (Phase II) is submitted for the Project Viva-Voce examination held on 15th May 2023

12/5/23

Dr. Pankaj Kumar

VITBS
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Comments & Signature (Reviewer 1)

Dr. S. Periyanayagi

Comments & Signature (Reviewer 2)

Dr.Mayank Sharma

1. INTRODUCTION

As we all are known to a well said quote:

"**The First Wealth Is Health".**

Living ina society where stress at work and a lack of attention to one's own health make lifestyle and personal health the most overlooked issues is a reality for all of us.

Personalized recommended exercises can be a valuable tool for individuals who are looking to improve their physical fitness and overall health. These recommendations are tailored to an individual's specific needs and goals, and can help to ensure that their exercise routine is both effective and efficient.

Many people are using technology to measure and enhance their well-being as the value of keeping good health becomes more and more obvious. One way to achieve this is by using a health app, which can offer a number of functions like providing specialized recommendations for fitness routines, tracking and advising on diet and nutrition, and making suggestions for enhancing health.

We are here with a platform where recommended exercises are designed to fit the specific needs and goals of each individual, taking into account factors such as age, fitness level, and any health conditions or injuries. This ensures that the exercises are safe and effective for the individual. Through our webapp Fit-Finity, people can increase their physical fitness and general health by using personalized exercise recommendations.

Our webapp recommends specific exercises catering to the demands and objectives of each particular individual, thus making our applications more efficient and successful. So, to improve our fitness and to achieve our health goals, Fit-Finity is a great option.

Fit-Finity can be a valuable tool for individuals looking to improve their fitness and achieve their health goals. When individuals see progress and results from their exercise routine, this will encourage them to continue working towards their goals.

1.1 Motivation

Developing a platform that targets Physical Wellbeing is no small feat. It requires a significant investment of time, money, and resources, and can be a complex and challenging process. What prompted us to take on this work are the following points:

- The desire to assist others is a significant motivator. Our feeling of purpose and desire to have a positive influence on people's lives motivate us. We believe that our app has the power to significantly improve people's health and wellbeing.
- Individuals today are not able to take care of their physical well-being, which is one of the reasons why, irrespective of age, people are dealing with several medical complications.
- During this covid pandemic, people have realized the importance of having a good and strong immunity. So, this motivated us to build a platform so that we can help people enhance their immunity.
- This digital transition in the last couple of years has made people very anxious about leaving their homes and they expect everything at their place.

- It also promotes healthy habits and behaviors can have real health benefits for users. By creating an app that encourages exercise, healthy eating, or stress management, help people to improve their overall health and well-being.

- Creating a health app allows you to innovate and create something new and useful. There are many possibilities for what a health app could do, and you have the opportunity to be creative and come up with something innovative and useful for users.

- By creating an app that helps people improve their health, you could have a positive impact on society. It could help reduce healthcare costs, improve quality of life, and even save lives.

1.2 Objective

The main objective of developing a health centric platform is to provide userswith tools and resources to track and improve their health and well-being.

- **Promote Healthy Lifestyle:**
  To inspire people to lead healthy lives by getting them moving.

- **Personalized recommendation on workouts for improving physical fitness:**
  Fit-Finity gives personalized recommendations to users based on their medical complications.

- **Diet and nutrition:**
  To provide a generalized Balance Diet so that they can improve their dietary habits by giving nutritional knowledge on a regular basis.

- **Providing health and wellness information:**
  Fit-Finity offers a range of resources and information to help users learn more about their health and how to improve it via articles, videos, and other beneficiary materials.

- **Remotely Accessible:**
  Fit-Finity was created specifically to ensure users accessibility and participation in physical activity at any place.

- **Improve healthcare efficiency**
  Fit – Finity can be designed to improve healthcare efficiency by streamlining processes such as appointment scheduling, medical record sharing, or remote monitoring.

- **Improve health outcomes**:
  Fit Finity designed to help users achieve better health outcomes by tracking their progress, providing personalized recommendations, or connecting them with healthcare professionals.

2. Existing Work

During our research we found several platforms/applications that were based on Health and Fitness. Some of the platforms are as follows

.

- **Fitbit**: This app is designed to work with Fitbit's wearable fitness trackers to help users track their physical activity, sleep, and other health metrics.

- **Headspace:** This app provides guided meditation and mindfulness exercises to help users manage stress and improve mental health.

- **Medi safe**: This app helps users manage their medications by providing reminders, tracking refills, and providing information about drug interactions and side effects.

- **Workout trainer**: Works as a personal trainer and provides guidance to do specific exercises, training sessions and recording.

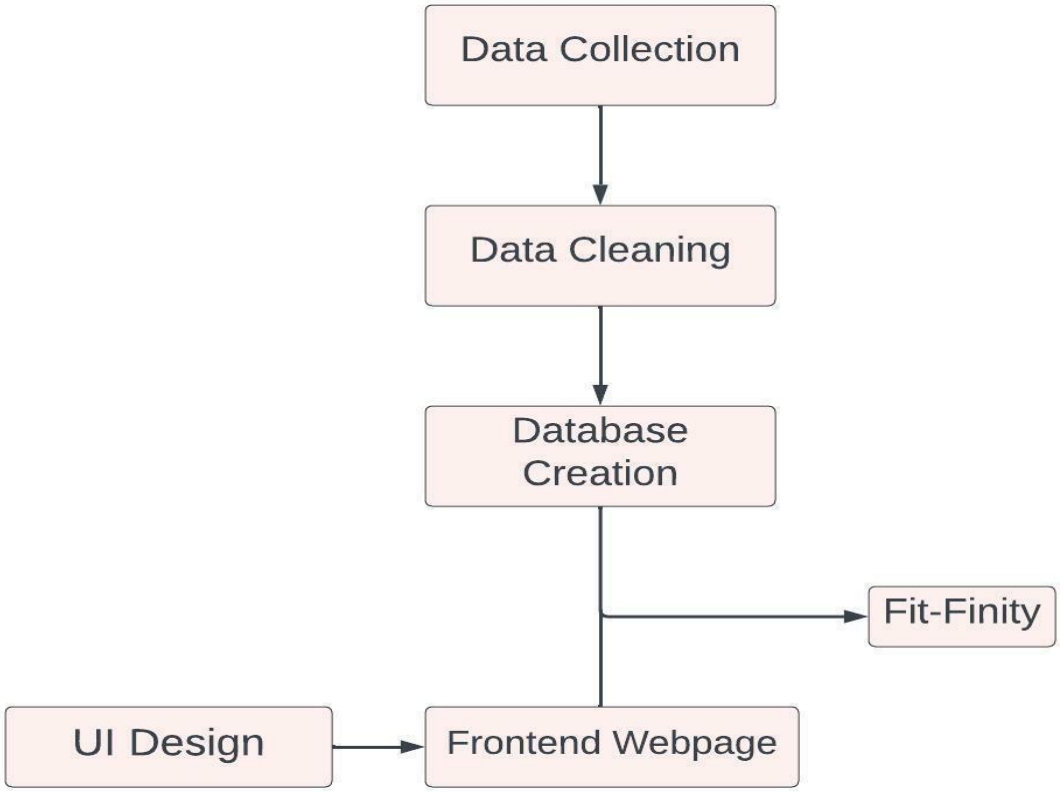
- **Strava:** Strava's activity tracking provides key statistics, such as speed, pace, distance, elevation gained, and calories burned during and after exercise.

- **JEFIT**: JEFIT enables you to track your workout routines and your rest time, and log and graph all body measurements as you progress

- **J&J:** Centered around research on high-intensity interval training (HIIT) and circuit training, which shows that short bursts of hard exercise with short recoveries can improve aerobic fitness quickly.

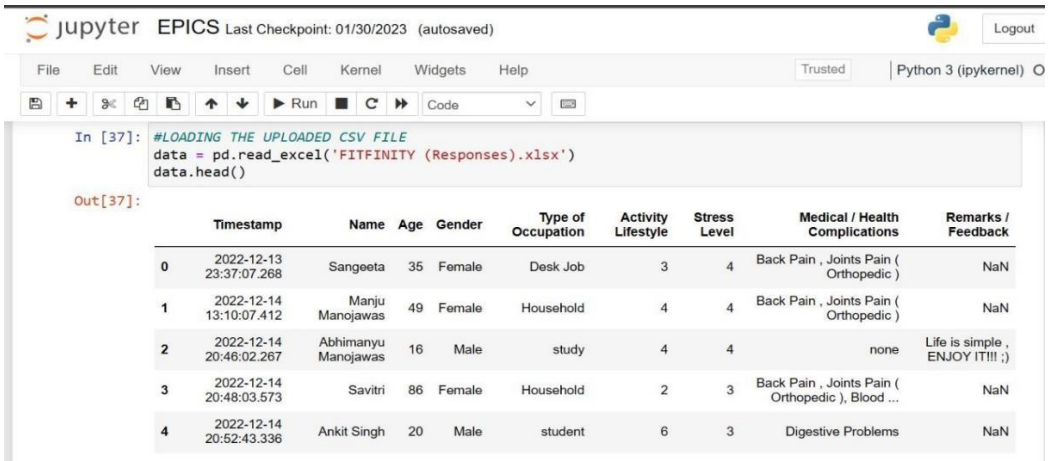
3. Topic of the work

a) System Design



b) Working Principle

- **Loading dataset**



jupyter EPICS Last Checkpoint: 01/30/2023 (autosaved) Logout

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

Run Code

```
In [37]: #LOADING THE UPLOADED CSV FILE
         data = pd.read_excel('FITFINITY (Responses).xlsx')
         data.head()
```

Out[37]:

	Timestamp	Name	Age	Gender	Type of Occupation	Activity Lifestyle	Stress Level	Medical / Health Complications	Remarks / Feedback
0	2022-12-13 23:37:07.268	Sangeeta	35	Female	Desk Job	3	4	Back Pain , Joints Pain (Orthopedic)	NaN
1	2022-12-14 13:10:07.412	Manju Manojawas	49	Female	Household	4	4	Back Pain , Joints Pain (Orthopedic)	NaN
2	2022-12-14 20:46:02.267	Abhimanyu Manojawas	16	Male	study	4	4	none	Life is simple , ENJOY IT!!! ;)
3	2022-12-14 20:48:03.573	Savitri	86	Female	Household	2	3	Back Pain , Joints Pain (Orthopedic), Blood ...	NaN
4	2022-12-14 20:52:43.336	Ankit Singh	20	Male	student	6	3	Digestive Problems	NaN

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Logout

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

Run Code

80 rows × 7 columns

In [40]:
```
data = data.drop('Name',axis = 1)
data.head()
```

Out[40]:

	Age	Gender	Type of Occupation	Activity Lifestyle	Stress Level	Medical / Health Complications
0	35	Female	Desk Job	3	4	Back Pain , Joints Pain (Orthopedic)
1	49	Female	Household	4	4	Back Pain , Joints Pain (Orthopedic)
2	16	Male	study	4	4	none
3	86	Female	Household	2	3	Back Pain , Joints Pain (Orthopedic), Blood ...
4	20	Male	student	6	3	Digestive Problems

- **Establish connection between MySQL and python**

jupyter EPICS Last Checkpoint: 01/30/2023 (autosaved)

Logout

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

Run Code

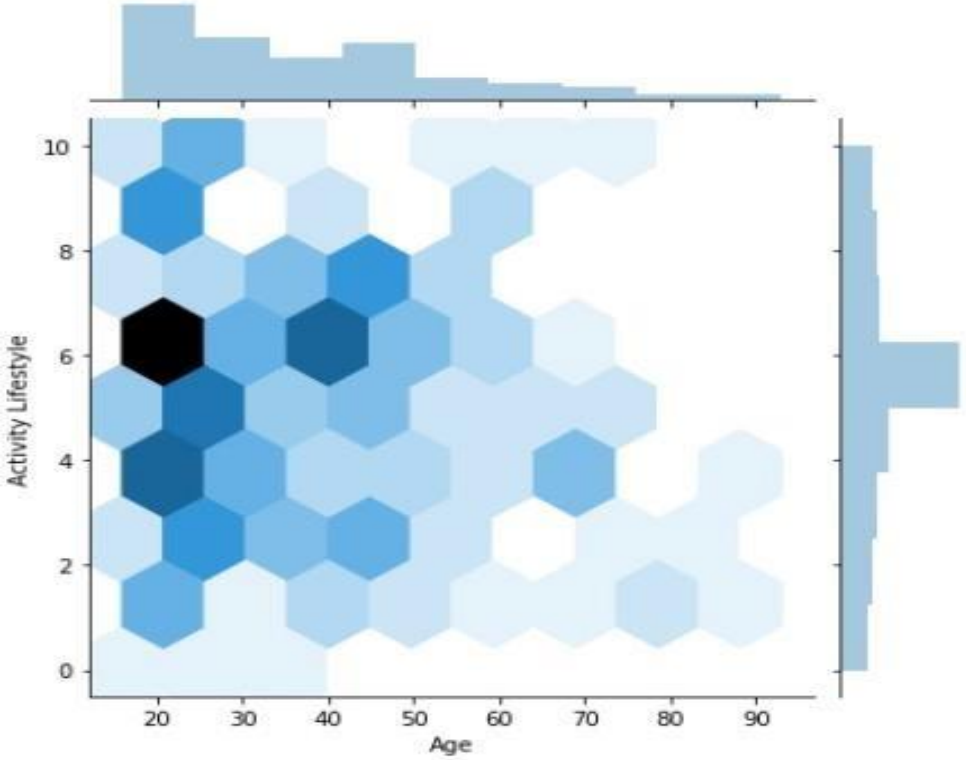
In [6]:
```
#CONNECTING THE MYSQL TO PYTHON
from mysql.connector import *

connection = mysql.connector.connect(user='root', password='root')
if (connection.is_connected()):
    print("Connection Successfull!!!")
else:
    print("Not connected")
```

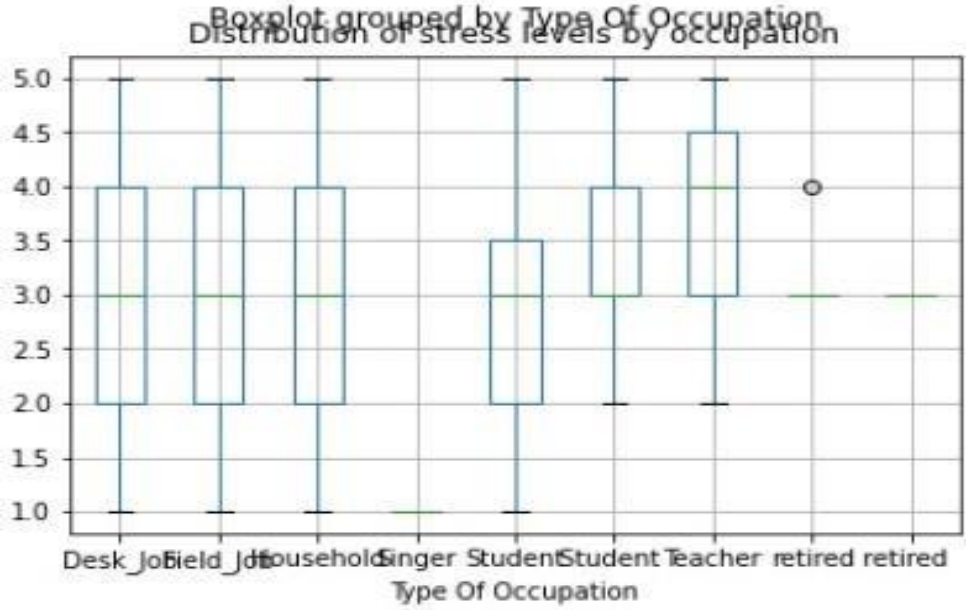
```
Connection Successfull!!!
```

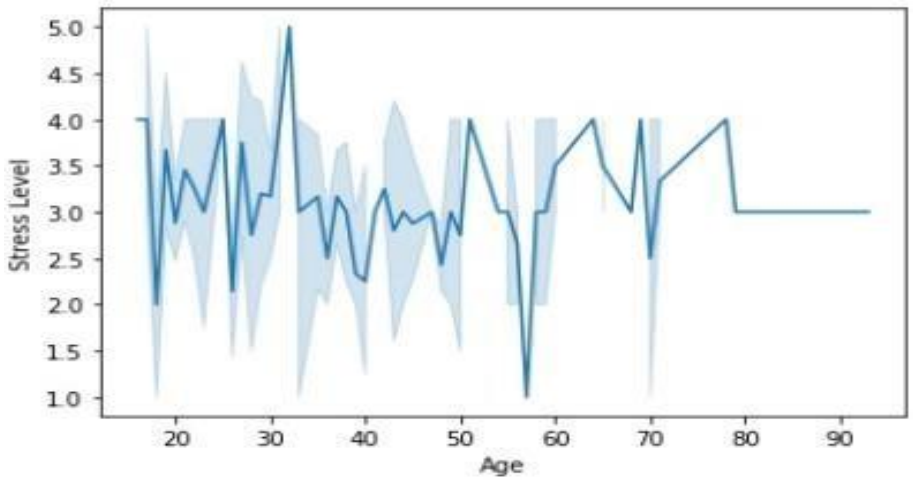
In [7]:
```
#ESTABLISHING A CURSOR TO WORK WITH THE CONNECTION
cursor = connection.cursor()

def create_database(database):
    cursor.execute("CREATE DATABASE {}".format(database))
```

```
7 rows in set (0.04 sec)

mysql> select * from health_info;
+-------+-------+--------+--------------------+--------------------+--------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------+
| index | Age   | Gender | Type of Occupation | Activity Lifestyle | Stress Level | Medical / Health Complications                                                                                                                                  |
+-------+-------+--------+--------------------+--------------------+--------------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------+
|     0 |    35 | Female | Desk Job           |                  3 |            4 | Back Pain , Joints Pain ( Orthopedic )                                                                                                                          |
|     1 |    49 | Female | Household          |                  4 |            4 | Back Pain , Joints Pain ( Orthopedic )                                                                                                                          |
|     2 |    16 | Male   | study              |                  4 |            4 | none                                                                                                                                                            |
|     3 |    86 | Female | Household          |                  2 |            3 | Back Pain , Joints Pain ( Orthopedic ), Blood Pressure, Eyes related issues, Digestive Problems                                                                 |
|     4 |    20 | Male   | student            |                  6 |            3 | Digestive Problems                                                                                                                                              |
|     5 |    70 | Female | Household          |                  6 |            4 | Back Pain , Joints Pain ( Orthopedic ), Blood Pressure, Diabetes                                                                                                 |
|     6 |    71 | Male   | Retired            |                  2 |            3 | Back Pain , Joints Pain ( Orthopedic ), Diabetes, Eyes related issues, Digestive Problems                                                                       |
```

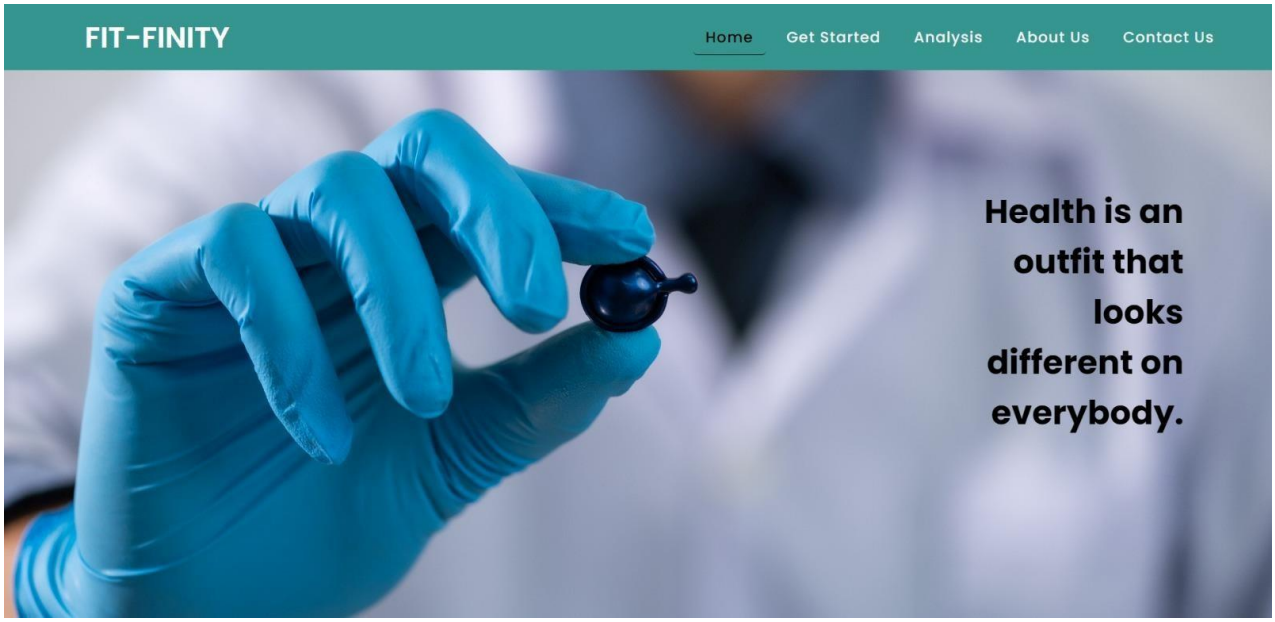
- **Analysing Trend**

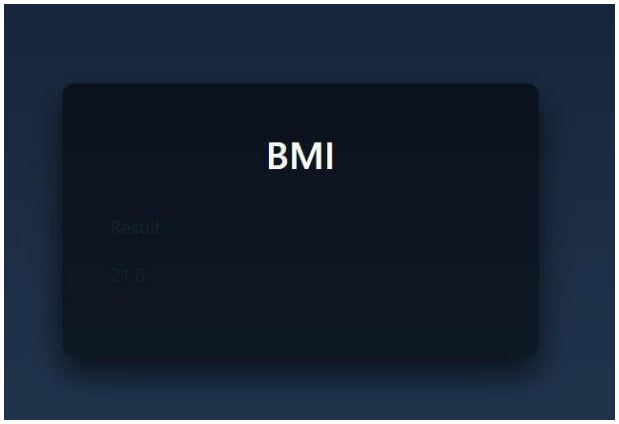


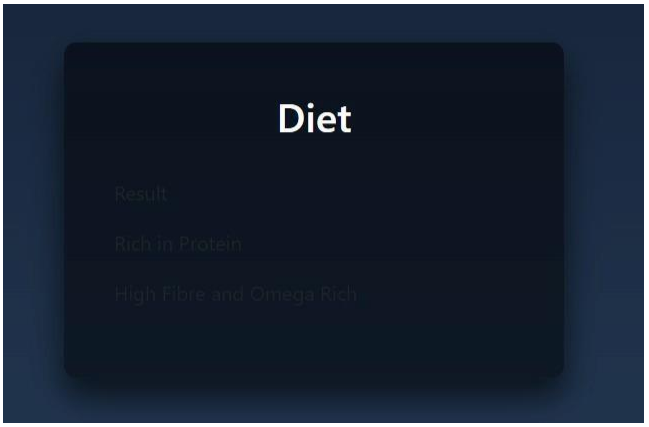


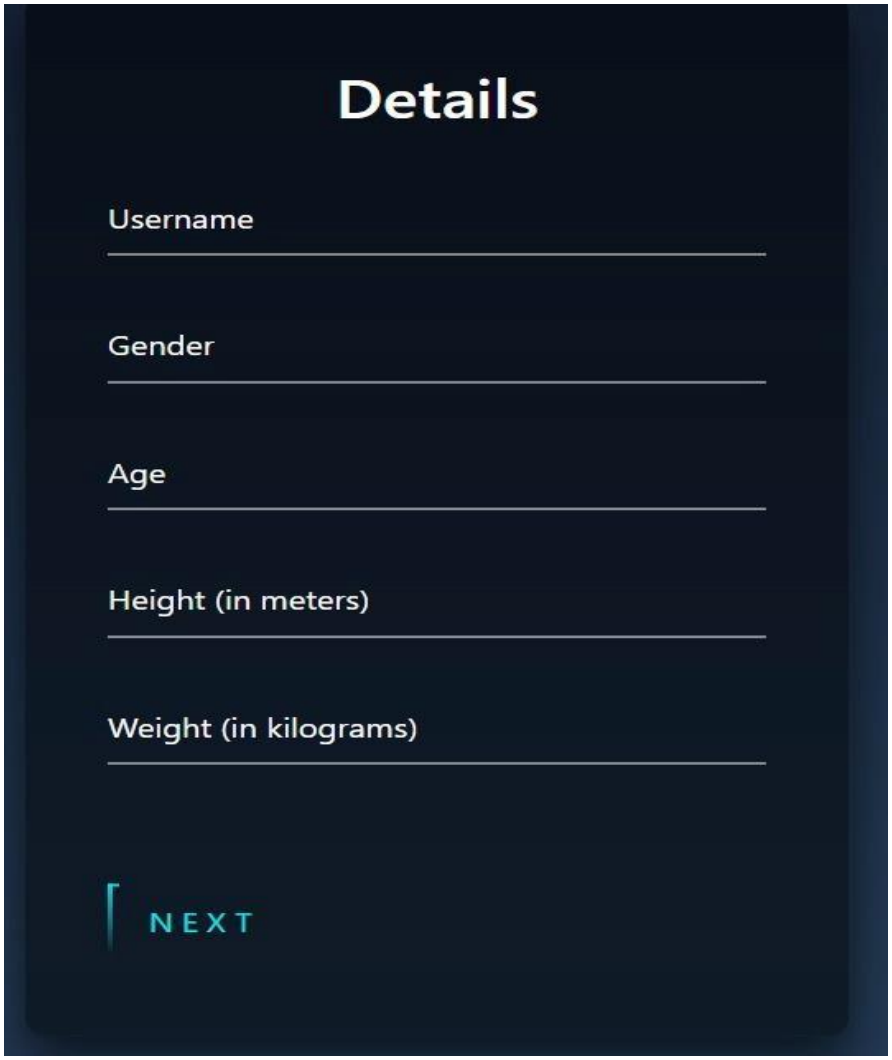

Stress Level
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
20
30
40
50
60
70
80
90
Age

- **Frontend**


FIT-FINITY
Home
Get Started
Analysis
About Us
Contact Us
Health is an outfit that looks different on everybody.


BMI
Result
21.6


Diet
Result
Rich in Protein
High Fibre and Omega Rich


Details
Username
Gender
Age
Height (in meters)
Weight (in kilograms)
NEXT


Excercises
Result
COW POSE
BRIDGE POSE
CHILD POSE

c) Results and Discussion

During the first phase of our project, we focused on identifying the problem and understanding its causes. We researched various health and fitness issues people face, such as lifestyle issues and stress-related problems. We also explored the existing solutions available, like FITBIT, J&J and Strava.

However, we discovered that existing solutions had limitations. The recommended diet is just a typical, well-balanced diet, not a personalized diet. Similarly, standard yoga routines didn't address personalized needs or target specific health issues. We realized there was a need for a more tailored and comprehensive approach. To address these limitations, we conducted extensive research and development (R&D) to propose new solutions. This helped us formulate personalized diet and nutrition recommendations and curate specific yoga poses for different health issues.

In the next phase, we focused on checking the validity of our proposed solutions. We conducted surveys to gather feedback and validate the effectiveness of our personalized recommendations.

We moved on to the last phase, where we decided to built a website using SQL, HTML, CSS, JS, Python Notebook, and Flask, integrating all our research and recommendations. The website allows users to input their health information and specific health concerns to generate personalized diet plans and yoga poses.
By offering personalized diet and nutrition recommendations, as well as tailored yoga poses, we can provide people with effective solutions to their health issues, empowering them to lead healthier lifestyles.

d) Individual Contribution (20BCE11076)

During the Development of Fit-Finity, my role primarily focused on frontend development, database cleaning, and UI design. I made significant individual contributions to these areas, which played a crucial role in the overall success of the project.

As a frontend developer, my responsibility was to create the user-facing interface of the platform. I worked closely with my group member to and decides everyoune's to mock up fully functional web pages. This involved writing clean, efficient, and maintainable code using HTML, CSS, and JavaScript. Also drew close attention to detail, ensuring that the UI elements were visually appealing, intuitive to use, and responsive across different devices and screen sizes. Along with it, took the initiative to improve the performance and user experience of the application.

I collaborated with the members involved in Frontend i.e; Harshit and Shrey to create a cohesive and engaging user experience that aligned with the project's goals and requirements. Also involved in the creation of a Google Form to collect user data, feedback, or any other relevant information, along with Harshit and Ishika.

Another significant contribution I made was in database cleaning. I collaborated with the The team working on Backend i.e; Anannya, Ishika and Ujjwal, to analyze and clean the existing database. I performed data validation and verification, ensuring accuracy and consistency of the information stored. By removing duplicate or outdated records, resolving inconsistencies, and organizing the data structure, I helped enhance the overall data integrity and efficiency of the system.

In summary, my individual contributions in frontend development, database cleaning, and UI design were instrumental in the development of Fit-Finity. Throughout the project, I effectively managed my time and tasks, ensuring timely delivery of frontend components, database cleaning updates, and UI design enhancements.

Individual Contribution (20MIP10028)

My role in this health project was to manage SQL databases, facilitate data integration, and analyse data using Python notebooks. I made significant contributions that were essential to the analysis of the gathered health data, effective data administration, and easy system integration.

I conducted a thorough study on the gathered health data using Python, as well as packages for data analysis including pandas, numpy, and seaborn.

In order to acquire insights into the data and find patterns, trends, and correlations pertinent to the project's goals, I used exploratory data analysis (EDA) approaches.

I took charge of managing the SQL databases for the health project. This involved designing the database schema, ensuring proper table structures, and establishing efficient relationships between entities.

I implemented best practices for data normalization, ensuring data integrity, minimizing redundancy, and optimizing database performance.

In order to ensure data quality within the SQL databases, I created and put into place the necessary data validation and cleansing processes in collaboration with Ujjwal, Shrey, and Ishika.

Working with the project's systems and Ujjwal, Avinash, and Akshat, I supported data integration.

I actively collaborated with all the group members, such as data collection, frontend, and backend developers, to understand their requirements and provide data-driven solutions.

Individual Contribution (20BAI10194)

I was a key contributor to the creation of the frontend portion of this health project, with an emphasis on creating a form that computes the user's BMI and offers individualised workouts and dietary recommendations. To design a dynamic and visually appealing interface, I used HTML, CSS, and JavaScript. Additionally, I continued to be actively involved in integrating the frontend and backend data to guarantee smooth data interchange and improve user experience.

I created and developed the form interface to gather the essential user inputs for computing the BMI by utilising my knowledge in HTML, CSS, and JavaScript.

I used JavaScript to develop form validation mechanisms to guarantee the precision and thoroughness of user-provided data.

I built the form to compute the BMI depending on the user's inputs for height and weight using the necessary algorithms and formulas.

I actively contributed to linking the frontend with the backend's data and functionalities while continuing to work with Ujjwal and Anannya.

Working together with Avinash and Akshat to incorporate personalised exercise and food data into the front end, providing accurate and timely updates.

Employing responsive design principles, I made the form and recommendations adaptable to different screen sizes and devices, facilitating a seamless experience across platforms.

Through my contributions in frontend development, form design, BMI calculation, personalized recommendations, and frontend-backend data connection, I significantly enhanced the health project's user experience and functionality.

Individual Contribution (20BCY10005)

In this health project, I played a crucial role in collecting samples of data for efficient data analysis and conducting research analysis on yoga poses. My contributions focused on gathering comprehensive data samples and researching the accurate processes and potential complications associated with various yoga poses. Through my efforts, I facilitated data-driven decision-making and provided valuable insights for promoting health and well-being.

I ensured the collected data samples were representative of different yoga styles, difficulty levels, and target areas of the body, enabling comprehensive analysis and research.

I actively documented the collected data samples, research findings, and accurate processes for performing yoga poses.

Along with Harshit and Ujjwal, I had my role in providing the necessary data samples and insights for incorporating yoga-related variables into the analysis.

I made an important contribution to the health project's success through my work collecting data, researching yoga positions, and documentation. The establishment of trustworthy tools for practitioners and the use of evidence-based decision-making were made possible by the thorough data samples and correct information on yoga postures.

Individual Contribution (20BCE10374)

I played a pivotal role in managing spreadsheets to ensure the organization and accessibility of project data.

Collaborating with Harshit Ujjwal, Madhav and Anannya , I developed a structured system for storing and categorizing data gathered through forms, ensuring data integrity and ease of use.

I utilized spreadsheet software, such as Microsoft Excel or Google Sheets, to create and maintain organized spreadsheets, allowing for efficient data analysis and reporting. I actively took part in various group discussions to interpret the findings, contributing to discussions and brainstorming sessions to formulate actionable next steps. I consulted yoga resources, literature, and expert guidance to curate a

comprehensive list of yoga poses tailored to each health issue. I along with Shrey and Avinash documented the poses, their descriptions, and potential benefits, ensuring accurate and reliable information for future project development.

Through my contributions in spreadsheet management, response creation and researching yoga poses for health issues, I significantly contributed to the progress and development of the health project.

Individual Contribution (20MIP10035)

I was heavily involved in organising Google Form answers for this health project. I managed the gathering, arranging, and analysing of the information supplied through the form along with Harshit and Madhav. The systematic collection and storage of form responses was also done, with data security, accessibility, and integrity all being guaranteed.

Together with Ujjwal and Anannya, I organised the data using Google Sheets or other suitable tools in a uniform and understandable style to speed up analysis and reporting.

To ensure effective communication and collaboration throughout the project, I actively worked with everyone.I provided the essential information and direction to design the user interface in close collaboration with Shrey, Harshit, and Madhav, ensuring that it met the needs of data gathering and the goals of the user experience. I facilitated the Google Form replies' integration into the backend architecture in cooperation with Ujjwal and Anannya, ensuring smooth data transfer and analysis.

I had a significant impact on data collecting because I oversaw the procedure for gathering pertinent health data from the Google Form and other sources. I helped define the parameters, variables, and procedures for data collecting in collaboration with Akshat and Avinash to make sure that complete and reliable data was collected. Also presented research findings in a comprehensive and understandable manner, ensuring the delivery of actionable insights.

d) Individual Contribution (20MIP10020)

In this health project, I played a crucial role in the backend of data analysis using Python notebooks and establishing connections using Flask. My contributions were on building a strong backend architecture to support data processing and utilising data analytics techniques to extract useful insights from health-related facts.

I utilized Python's data analysis libraries, such as pandas, numpy, and seaborn to explore, clean, and preprocess health datasets. This involved handling missing data, standardizing formats, and performing necessary transformations.

I implemented the Flask framework, a powerful and lightweight web framework in Python, to establish the backend infrastructure of the health project.
I collaborated with the Madhav, Harshit, Shrey, Ishika and Anannya to integrate the backend with the appropriate database system i.e.,MySQL.
I actively participated in the deployment process, along with Anannya and Shrey, ensuring the successful deployment of the Flask backend and the associated data analysis components.
I collaborated with my group members to optimize the backend performance, making necessary improvements in terms of response time, scalability, and efficiency.

My contributions to the health project considerably improved the backend infrastructure and data analysis tools. Real-time analysis, rapid data processing, and smooth communication between the frontend and backend components were all made possible by the seamless integration of Python notebooks and Flask.

Individual Contribution (20BCE11082)

I was instrumental in creating the frontend for this health project utilising HTML, CSS, and JavaScript. My contributions concentrated on developing a simple and user-friendly user interface, gathering user information using a Google Form, and establishing effective backend communication.

I created the frontend interface for the health project by utilising my expertise in HTML, CSS, and JavaScript. Working closely with Shrey, Ujjwal, Madhav, Ishika and Anannya, I made sure the website's design and layout were aesthetically pleasing, open to users, and user-friendly.

I implemented responsive design techniques to ensure compatibility across various devices and screen sizes, providing an optimal user experience.

Working closely with Ishika and Madhav, I collaborated in the creation of a Google Form to collect user data, feedback, or any other relevant information. contributed to designing the form, incorporating necessary fields, and ensuring a logical flow of information. Leveraging Google Forms' features and customization options, I implemented validations and conditional logic to enhance the form's usability and accuracy.

I had regular involvement with the Shrey, Ujjwal,and Annanya to ensure effective communication and connectivity between the frontend and backend components.

I actively collaborated with all group members to align frontend development with content requirements and backend capabilities.

I participated in regular meetings and discussions, providing updates on the frontend progress, addressing any challenges, and coordinating tasks with other team members.

I played a crucial role in the success of the health project. The intuitive and user-friendly frontend interface, coupled with the Google Form, facilitated efficient data collection and feedback from users.

4. CONCLUSION

We all are living in a world, where both lifestyle and health of people are the most neglected factors taken into consideration the work stress and lack of focus to one's own health. So, at this point, our app FitFinity comes to the aid by providing people a sigh of relief by lending them a hand to take care of their health and keeping a check on their body. One of the most popular and organic way is yoga.

The most significant plus point of yoga is that it does not have any side effects. Considered as the logical solution to fitness, yoga helps curb your stress levels, clear your head, and strengthen your muscles. It offers a complete workout, not just for the body but also for the mind and soul. It promotes inner peace by striking a harmony between the physical, emotional, and spiritual wellbeing of a person. Owing to its multitudinous physical and psychological benefits, yoga has become a popular wellbeing routine. One needs an able yoga teacher to identify the cause of suffering and decide postures and pranayamas. In the absence of such a teacher, the Internet is where one searches for information. However, Internet is like a treasure chest full of information and picking specific information becomes a tedious task for a person.

So, the users can follow a number of specific yoga poses being recommended by our app, which would generally be considering the health problems mentioned by the user. With a regular routine of our recommended yoga practice, one can better both their health and their lifestyle too.

5. Reference:

1. https://forms.gle/SoW4jcrrEDqVX81s7
2. www.ncbi.nlm.nih.gov
3. https://www.andiappanyoga.com/yoga-therapy-various-diseases/