PFIT - PERSONALISED FITNESS APP

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***Abstract*— The deliverable of the paper is a fitness app called as PFit personalized fitness app which offers different modules for the users to use. Firstly, the users can check their BMI and daily calorie intake according to their height , weight and other parameters. Other than that the core features like water intake remainder , selection of food according to their requirements will help users to keep track on their daily calorie count. A chatbot which will help the users to find out their food restaurants and get their queries solved faster. In any case, solid way of life can't be polished impeccably by just exercise in light of the fact that the part of the diet is likewise very pivotal. The users will actually get a chance to monitor what they have eaten and afterward burn through proper eating routine according to their bodies. Fundamentally every one of these functions included aim to help the users to stay away from unnecessary health diseases so that they can enjoy their healthy lifestyle with their beloved ones.**

Keywords*— *Calorie Tracker, Chatbot, health-based, body types, Body Mass Index.

I. INTRODUCTION

Problem Statement & Motivation

A disappointing trait of maintaining the body fit is that the outcomes can't be seen quickly as they should go through months and years to accomplish a definitive outcomes. In this way , one of the disturbing issues in the general public these days is that they have a helpless following capacity where it is hard to follow along of their activity insights like calories, water intake, healthy diet. It is practically difficult to monitor every one of these insights helpfully due to reasons like absence of estimating instruments and self – determination. Other than that, individuals likewise should not disregard diet has a significant influence in accomplishing a solid way of life yet it is additionally an intense work with regards to monitor their eating regimes as far as what they devour and the amount they burn through consistently on a daily basis. Subsequently , every one of these issues referenced above lead to the development of the project.

The web application will store the users information and gives them the individual planning according to their own needs and specifications. Additionally, because of people's poor tracking ability in diet insights where it might prompts a few undesired outcomes, there is a critical need in helping individuals to improve a few dietary habits by providing insights. In addition , the consideration of giving badges as a appreciation for those who complete the goal for the day.

Project Scope

Subsequent to referencing the issues over, the deliverable of the project is a fitness web application considered PFit in which the users can utilize the application to monitor their activity food and water insights like calories , reminding of their water consumption etc.

Then huge loads of data can be accessible in the application so that users can be furnished with useful as well as helpful tips and tricks about health to make their life more grounded than previously . There are more details for modules involved in this project as shown below :

Select Food Module

This module permits the users to create meal with existing foods stored in the database and afterward log the suppers that they have burned – through as per the sort of supper like breakfast , lunch, and supper to monitor the consumption while the measure of calories will likewise be logged alongside the suppers so that they will get an exact idea regarding how much they ate in their daily meals.

Along with it users can also create custom food item and enter the information required in case if they can't find it in the database.

Water Intake Remainder Module

This component empowers the users to remind themselves from having water for certain period of time.

ChatBot Feature

This module gives the user information about the food

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restaurants near to a particular location . Also it will answer to the user queries which they raised.

BMI Feature

The user can check their body mass index according to their height and weight.

Calorie Tracker

This feature allows the user to check the required calories for a day by entering their weight and their activity level.

Health Tips

While the user opens the application they gets the tips for maintaining good health.

The remaining paper is split into various sections which briefly describe about the project. As the research is based on few prior papers. Extensive developments are not listed but considered will surely be acknowledged in the development of the paper later. Section II deals with the system design and overview , section III deals with methodology, section IV discusses the implementation and testing. Section V dealt with conclusion of the paper. Finally, section VI dealt with the result discussion.

II. SYSTEM DESIGN & OVERVIEW

Block Diagram

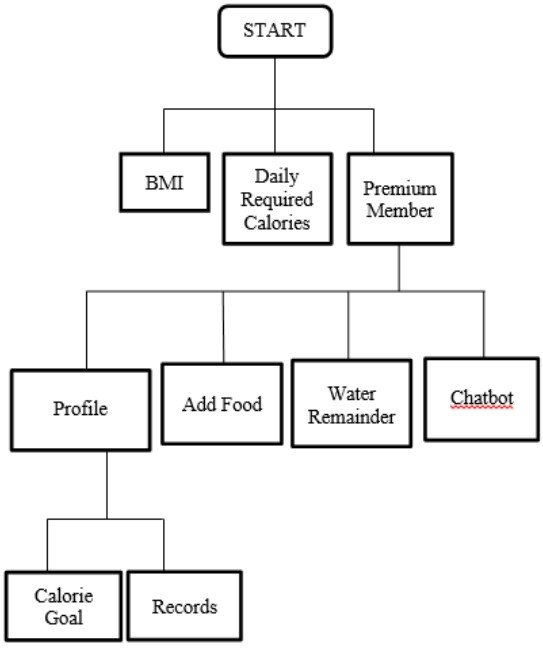

FIGURE 1 : Block Diagram of Application

At the point as shown in the Figure 1 when the user opens the application at first, they will be incited with the BMI , daily calories counter and premium member and asked them to login before they can continue to the main application by clicking on premium member. However, they can also register new accounts at the sign up option if they are not the current users. Subsequent to performing both of the activities, they will be diverted to the main menu with different modules such as profile, add food, water remainder and chatbot. The complete progression of the framework can be alluded to Figure 1 that is being appeared above.

Database Design

The project uses Django in which it is a sqlite3 database. Unlike conventional SQL database, it does not have any table or record. Data is stored in Django administrator so it will be easy to identify data.

Interface Design

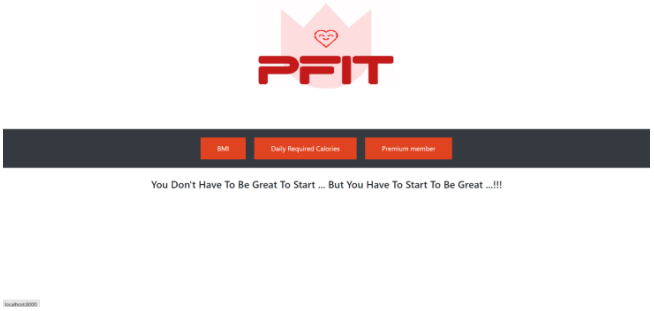

FIGURE 2 : Main Screen

Figure 2 shows the main screen of the application where the user can check their BMI , daily required calories as well as user can go the premium member option to login and use other features in their account.

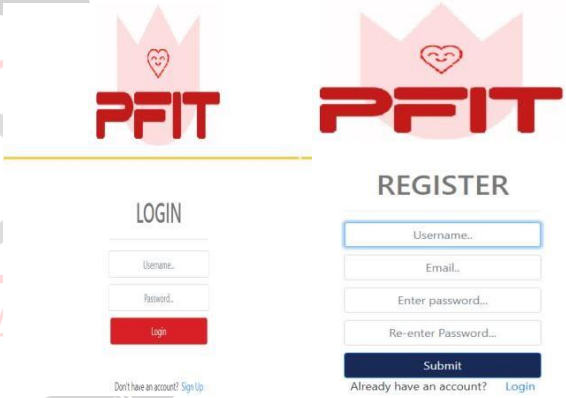

FIGURE 3 : Login & Register Section

Figure 3 shows the login and register screen of the application where the users will be able to register a new account if they are new users else they could login to their account by continuing to the login screen. Users are needed to enter their username , email as well as password if they want to create new account. In the mean time, existing users just need to enter email and password in order to login to their account.

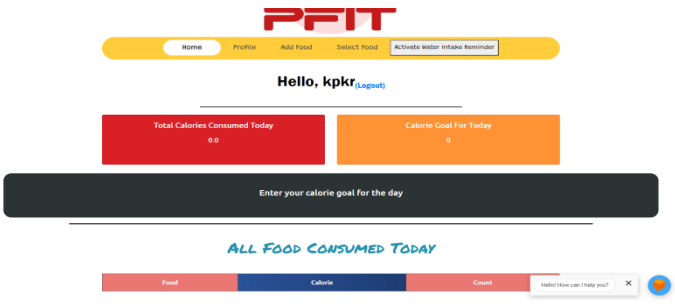

FIGURE 4 : Home Screen

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As mentioned in figure 3 after the user logged in to their account the home screen will be displayed as figure 4. Where user have different options like setting up the calorie goal for the day and checking calories consumed from previously set goal. Also user can navigate to different modules from there.

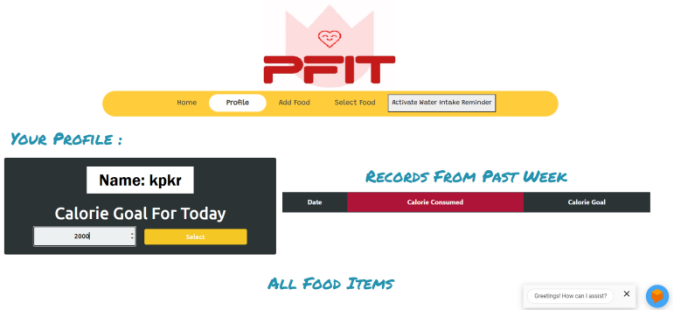

FIGURE 5 : Profile Section

When the user enters profile section as shown in figure 5 , user can add their calorie goal for the day. Also users can check their records of them from past weeks with dates mentioned. Also they get the list of food items they ate in that week.

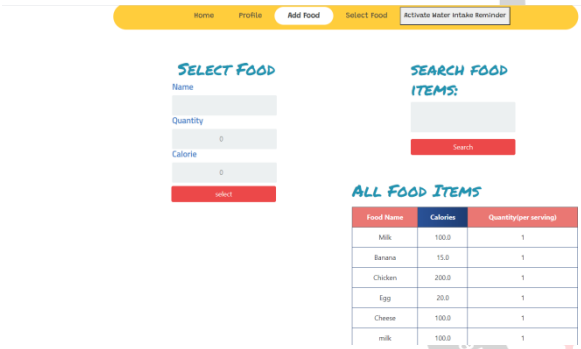

FIGURE 6 : Food Module

As shown in figure 6 user can search for food items from the list and can add food items if the item is not found. This food module helps the users keep in track of their calories. By this user doesn't need to worry about taking of excess or low calories. Also to motivate the users they will get a badge in front of their name if they completes the daily set task.

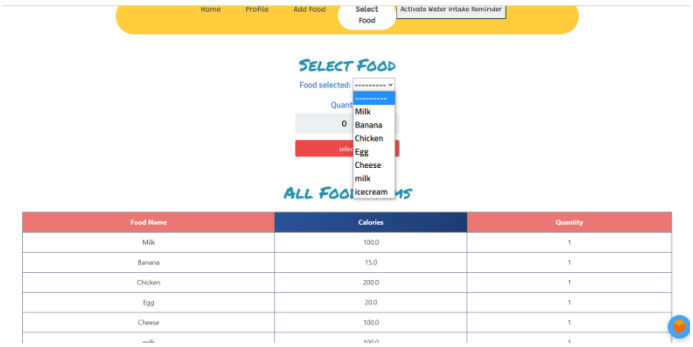

FIGURE 7 : Food Selector

In this module as shown in Figure 7, user can select the food items from the drop down menu directly and add them to their desired list which they are going to eat for the day.

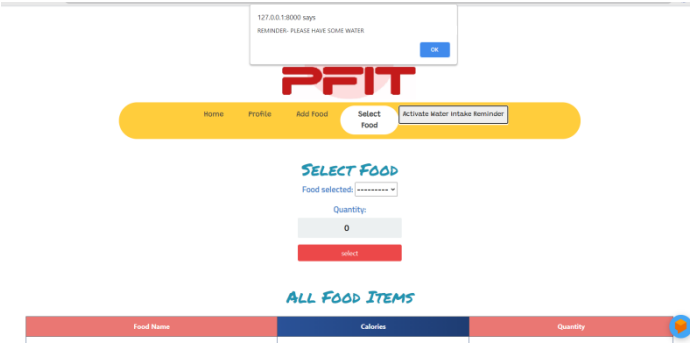

FIGURE 8 : Water Remainder

As water is crucial in everybody's life as shown in figure 8 we had provided a remainder for it. The main use of this is that many of them forget to have water frequently by indulging in their activities so this remainder helps them to remind to have water . User need to activate the remainder after activating it they gets a pop up to have some water.

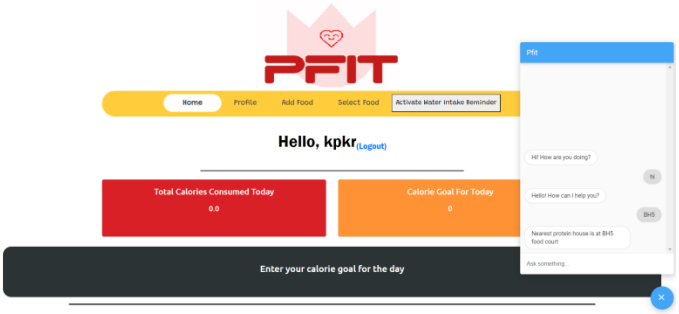

FIGURE 9 : Chatbot

A chatbot has been created as shown in figure 9, which helps the user solve their queries , find the food kiosks near to them. We had used dialogue flow to create it. Using dialogue flow made easy to implement chatbot in our application. This chatbot makes easy for the user to get solution for their queries as well as they can complaint or suggest any changes in the application.

III. METHODOLOGY

Waterfall Methodology

Waterfall methodology is popular among the traditional software methods while it consists of several sequential phases as shown in the figure 10 below :

Django

The backend of the deliverable totally works on Django with python. It's basically a python based web framework which helps in fast development and a clean design. The main purpose to use it is it provides flexibility, reliability, scalability and simplicity. It is the collection of python libs which allows us to create a web application quickly and efficiently. The main agenda to use Django is it can ease the creation of complex database driven websites. As we

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are developing health based application it helps in handling the huge amount of database and gives the accurate results.

HTML, CSS, Bootstraps

These three helped in developing the frontend part of the project. Basically Bootstrap is a free front-end framework which helps in faster and easier web development. Bootstrap includes HTML and CSS based templates which are used for forms, buttons, tables, navigation, image carousels. Firstly creates a HTML page and loads the bootstrap and put it all together. Then designs the landing page by adding navigation bar to it by using CSS. Bootstrap helps in creating a responsive web design which basically adjusts themselves to look good on all devices from a mobile phone to large desktops.

SQLite

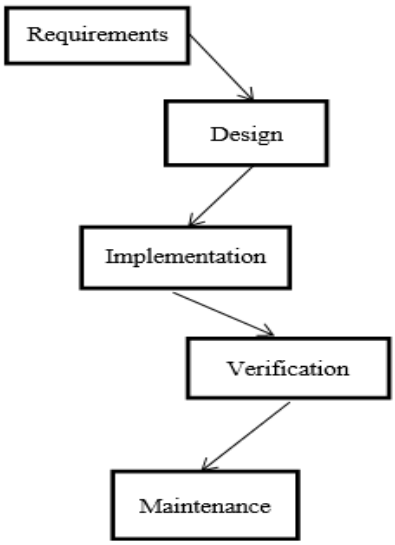

FIGURE 10 : Waterfall Method

Each stage should be finished prior to proceeding onward to the next stage to guarantee the entirety of the objectives can be accomplished. In any case, the process cannot be reverted because all works are done in linear flow with specific sequence. In terms of benefits , waterfall method is easy to understand and functional for most of the projects due to the fact that it is inflexible in nature. Unlike some of the methodologies which consume a lot of time, waterfall method saves plenty amount of time because there is only a one way process. Nonetheless, this method doesn't take into consideration altering in testing stage and makes the works to become more hard for the designers. It is additionally difficult to decide the result of the project as prototypes or models are not required during the course of the project development.

Development Tools

The project scope referenced above has expressed that the deliverable of this project will be a fitness application that empowers the users to practice a healthy lifestyle. Thus this section will discuss about the system requirements that are essential for the deliverable. The tools that are going to be used in this project will be discussed below.

SQLite helped in managing the whole database. It is a relational database management system contained in a C library which carries out a small, quick, independent, high-reliability SQL database engine. It doesn't need a server to work. SQLite database is coordinated with the application that accesses the database. The applications connect with the SQLite database to read and write from the database files stored on disk. It translates the high level disk I/O requests constructed by using SQL language which generated by an application into low level I/O operations that can be carried out by the operating system.

VS Code

Visual Studio code is used as a code editor for building and debugging the application which includes the various programming languages to work with. It keeps all the directories of the project in one frame at the side which makes easy to work and make any changes in any directory in fast and simple way.

Requirement Specifications

Functional Requirements

1. The application must be able to track the users movement in order to provide better user experience.

2. The application must be able to give some useful information for the users.

3. The application must be able to log and store the information constantly in the database for future usage.

4. The application must be able to provide accurate calculation when it comes to statistic calculation such as calories and body mass index.

5. The application must be able to remind the users to complete their goals set by themselves.

Non – Functional Requirements

1. The application should have high reliability and persistency in terms of data storage.

2. The application will have quick reaction time when there is an input from the users.

3. The application will have high convenience regarding useful functions and features.

4. The application will have high sturdiness when the app is up and running where it will not crash randomly.

A. System Performance Verification Plan

1. The application is tested altogether by taking a lot of dummy information as records to guarantee that the application is adequately stable enough to fulfill

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the objectives.

2. Ensure that the application's interface design is adaptable by exploring from module to the others without going through complex navigation and each of the UI segment in the application should has clear label and function.

B. Implementation Issues & Challenges

There were a few implementation issues and difficulties experienced in the project which hindered the advancement and the current technical skills were inadequate in defeating the issues. As a matter of first importance, because of the way that the application requires huge database it was difficult to handle the database without knowing about it. Eventually understood the whole process but more valuable time was invested in it.

On the other hand, there are some modules in the application which involve complex python coding when it comes to the core functions. Moreover, the animations contain in the application make the task much harder as the animation effects were hard to accomplish with the limited knowledge and experience yet those effects could makes the application alluring to the users also. However, after some trial and errors were done, the difficulties have been settled eventually.

IV. IMPLEMENTATION AND TESTING

Verification Testing Plan

The table 1 below shows the features and functions of Pfit whereas the expected output will also be shown in the table. The actual output will be shown in the implementation testing and debugging section.

Feature	Expected Output	Actual Output
Calorie Tracker	The user will be able to get the calories needed in a day	
BMI	The user will be able to check his body mass index	
Health tips	The user when opens the application will be able to get some tips for maintaining good health	
Chatbot	The user will be able to get queries solved and get some food restaurants nearby	
Water remainder	The user will be able to set a remainder to remind him to have water	
Food module	The user can add the food which he wants to take for the day and keep track on his calorie count for the day.	

TABLE 1 : Verification Plan

Implementation Testing & Debugging

The application will gone through the verification testing plan characterized above to recognize bugs with just as to guarantee that the application is very much evolved while meeting the project goals.

Feature	Expected Output	Actual Output
Calorie Tracker	The user will be able to get the calories needed in a day	When the user enters the weight and their activity level it shows the calories required for a day
BMI	The user will be able to check his body mass index	When the user enters the height and weight it calculates their BMI and tells whether they are under weight or over weight
Health tips	The user when opens the application will be	When the users opens the application user

V. RESULT DISCUSSION

A. Objective Achieved

This web application allows the users to monitor the insights through their food, calories and water module. Aside from that , this application can also encourage the users to practice a healthy lifestyle reliably by checking out their previous statistics. Additionally, the issue regarding lack of information can also be addressed through the health tips provided in the application from which they can gain knowledge about maintaining good health.

B. Future Improvements

The project can be improved through these ideas in the future :

Expanding the chatbot which allows the users to chat with their friends.

Integration of different social network sites to improve the connectivity between users from different platforms.

Addition of personalized exercise scheduler by virtual trainer according to the users specifications.

	able to get some tips for maintaining good health	can have some health tips ready for their good health
Chatbot	The user will be able to get queries solved and get some food restaurants nearby	When the user started the conversation it tells the nearby healthy food restaurants and answers any other queries if asked.
Water remainder	The user will be able to set a remainder to remind him to have water	Whenever the user wants them to remind for taking water user will activate it and it automatically reminds the user for a certain period of time set by the user
Food module	The user can add the food which he wants to take for	User will be able to add some food items or

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	the day and keep track on his calorie count for the day.	can delete from the list and can keep track of their daily calories intake.

TABLE 2 : Testing Plan

In the above table 2 we had cross checked and tested all the features whether they are giving the same output as we expected. After testing we finalized the overall features that they are working more than the expected output.

VI. CONCLUSION

A web application for every individual who concentrates or want to keep track on their health daily is discussed in this paper by researching many articles about the health conditions in the internet, which made us easy to implement and collect various data from different platforms. The main idea is to give an application for every individual to keep track on their activity related to their health. With sufficient data about them every individual can use this application and also whenever more users started using application it becomes more easy to bring accurate results to users as well. Comparison of our application is done with other apps to strengthen our case of using Django. Though many variations observed in the procedure, the results are similar, precise and notable. Bringing of awareness regarding maintaining good health in the last decade has been noted by many scholars and many improvements had taken place. The most promising sector for these type of applications would be medical as it tells all about maintaining healthy lifestyle. Also, to increase the accuracy of the application would involve only making more observation in different scenarios and other verifying systems.

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