A Mini Project Report on

Fitness Exercise App

T.E. - I.T Engineering

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Academic year : 2022-23

CERTIFICATE

This to certify that the Mini Project report on **Fitness Exercise app** has been submitted by 20104122, 20104121 and 20104075 who are a Bonafede students of **A. P. Shah Institute of Technology, Thane,** as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-23** in the satisfactory manner as per the curriculum laid down by **University of Mumbai**.

Sonal Balpande
Guide

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1.

2.

Place: A.P.Shah Institute of Technology, Thane

Date:

ACKNOWLEDGEMENT

This project would not have come to fruition without the invaluable help of our guide **Sonal Balpande**. Expressing gratitude towards our HoD, **Prof. Kiran Deshpande**, and the Department of Information Technology for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our teacher Ms. **Yaminee Patil** who gave us her valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

ABSTRACT

A fitness app is a tech solution – that assists users in improving their overall health & being. Therefore it addresses aspects related to food habits, activity, general well-being, and mental health. As users became more conscious over time, fitness apps have come to manage a greater number of features.

Fitness apps are promising digital tools to support self-tracking and physical activity. Specific app functions such as normalized step targets represent controlling conditions that can affect controlled vs. autonomous motivation and thus motivated physical activity. It was the aim of this study to examine the effects of self-tracking via a fitness app and the implementation of a normalized step target on aspects of motivation and physical activity by using Self-Determination Theory as a theoretical framework.

In our application, an algorithm to calculate BMI and BMR index is in place to help the users with a consistent tracking and improvement in their health cycle. Conclusively, self-tracking via fitness apps can support physical activity, and normalized step targets can undermine motivation. Lack of normalized targets can support autonomy need satisfaction and physical activity but can also foster amotivation. Thus, it is advised to support autonomous goal setting in fitness app users.

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Chapter 1

Introduction

The fitness industry has been continuing to grow year after year with more individuals becoming health conscious. Today's apps currently don't have a simple all in one application in helping users progress in the gym. As a result, a website has been developing in this project using Php, to help users their gym life and the user will be able to track workouts for a particular day with the ability to add exercises

- **Problem Identified :**

  Users need a website to track their workout and create a routine that can maximize their workout.

- **Solution Proposed :**

  The user will be able to track workouts for a particular day with the ability to add exercises. Each exercise can have a corresponding detail of sets and information about how to do the corresponding exercise

1.1Purpose

Nowadays in the society everyone want to keep themselves fit and go to gym . They have to keep proper record of their progress in every aspect be it weight training or cardio with this application the user can see the progress constantly about how he/she is improving himself/herself on daily occasion.

1.2 Problem Statement

Nowadays user don't have a specific application for calculating BMI index and keep track of their diet as well as exercise progress constantly so this web application will resolve these problems of user where they can calulate BMI index ,diet and exercise progress and can even have a look at articles regarding diet or workout.

1.3 Objective

- To empower people to create healthy training habits
- To make best use of gym equipment and resources through workout videos.
- To add new exercises in their workout plan
- To be up to date regarding workout or diet news through articles.
- To reduce paper work and cost
- To track their diet progress with the help of graph.
- To track their workout progress with the help of graph

1.4 Scope

- Can be used to track workouts.
- Can be used to add exercises to workouts and their corresponding sets.
- Can be used to understand exercise through multiple videos.
- Can be used to reduce paper work.
- Can be used to see improvement through graph.
- Can be used to have a news of various articles regarding workouts .
- Can be used to keep diet track.

Chapter 2

Literature Review

[1]With the global outbreak of the COVID-19 pandemic in 2020, almost every country is facing problems concerning the shortage of medical and healthcare resources, and people have become more aware of the importance of following a healthy lifestyle and incorporating physical exercise into their daily lives. As the most downloaded type of mobile health applications (mHealth apps), fitness apps can help people manage their nutritional intake, assist their participation in fitness and physical activities, and promote a healthy lifestyle. Therefore, these apps are gradually occupying the commercial mobile app market.

[2]Nowadays, fitness apps are rapidly developing in the commercial application market and are attracting the attention of academia. Numerous studies have implemented empirical protocols to verify the results of using fitness apps for improving the level of physical activity and/or diet in users . However, from the academic side, it is still a novel and young area of research.

[3]Nowadays, mobile apps pertain to a wide range of topics and areas of users' personal and social lives and fulfil various purposes. The use of advanced medical information systems and telematics applications is one of them, which has resulted in the increased availability of medical services at lower overall costs. Medical and sanitary institutions have begun to appreciate the potential of mHealth apps for communication with patients as well as for the utilization of mobile devices that are specifically designed to monitor specific biomedical data. mHealth is defined as the provision of medical care and health-related services through mobile communication devices that enable user-interaction capability. “Mobile Health (mHealth) has become an essential field for disease management, assessment of healthy behaviours, and for interventions on healthy behaviours”

[4]The WHO warns of the development of non-communicable diseases, the pathologies of which are associated with unhealthy lifestyles and diets, as these diseases currently constitute a serious cause of death worldwide. In particular, the WHO has established a set of minimum criteria for physical activity for different age groups as well as balanced dietary patterns to maintain optimal health conditions such that people can achieve a reduction in risk factors for non-communicable diseases, including cancer, cardiovascular ailments, and diabetes.

[5] The use of applications on mobile devices has become a key factor in helping and advising people on the adoption of healthy lifestyles in the 21st century. Although some clinicians lack confidence in the protocols and recommendations of fitness apps, these fitness apps have a great potential to be effective due to their ability to educate a large portion of the population on healthy habits at a low operating cost.

Chapter 3

Proposed System

The Fitness Exercise application is designed to assist people with insufficient knowledge about physical fitness, diet, and working out.The system will feature exercise categories of what part of your body you want to enhance for those who want to shape their body. For the user the proposed system will benefit the users by giving workout exercise assistance, exercises for those who want to shape their body and diet plan.

3.1 Features and Functionality

- **Workout videos:**

  User can refer to various workout plans to help them understand the exercises.

- **Similar exercise:**

  User can see similar exercise to their current plan with the help of API

- **Equipment:**

  User can view the exercises related to the equipment they own and add to their plan.

- **Graph:**

  User can have a observe on his/her progress through the graph constantly.

- **Track Workout:**

  User can track their daily routine by inserting their daily exercise and repetition count.

- **Calorie intake recommendation:**

  User gets a information regarding his calorie intake using our BMI algorithm.

- **Diet**:

  User can add their daily diet which shows them the nutritional values of the food item in our application.

- **Article**:

  User can be up to date by visiting the newsfeed dashboard in our application

Chapter 4

Requirement Analysis

- **Performance Requirements**

  The load time for the user interface screen should take no longer than 5 seconds.

  Workout videos for reference should be there.

  Track of daily progress made by user should be seen through graph or daily tracking information.

- **Design Constraints**

  The application should be able to run on any Pc or Laptop.

- **Availability**

  The application should be available at all times whenever user wants to use.

Hardware requirements

- **RAM**

  The application requires a device with a minimum of 512MB RAM while running.

- **Processor speed**

  The application requires a device with a minimum processor speed of 1GHz while running.

Software requirements

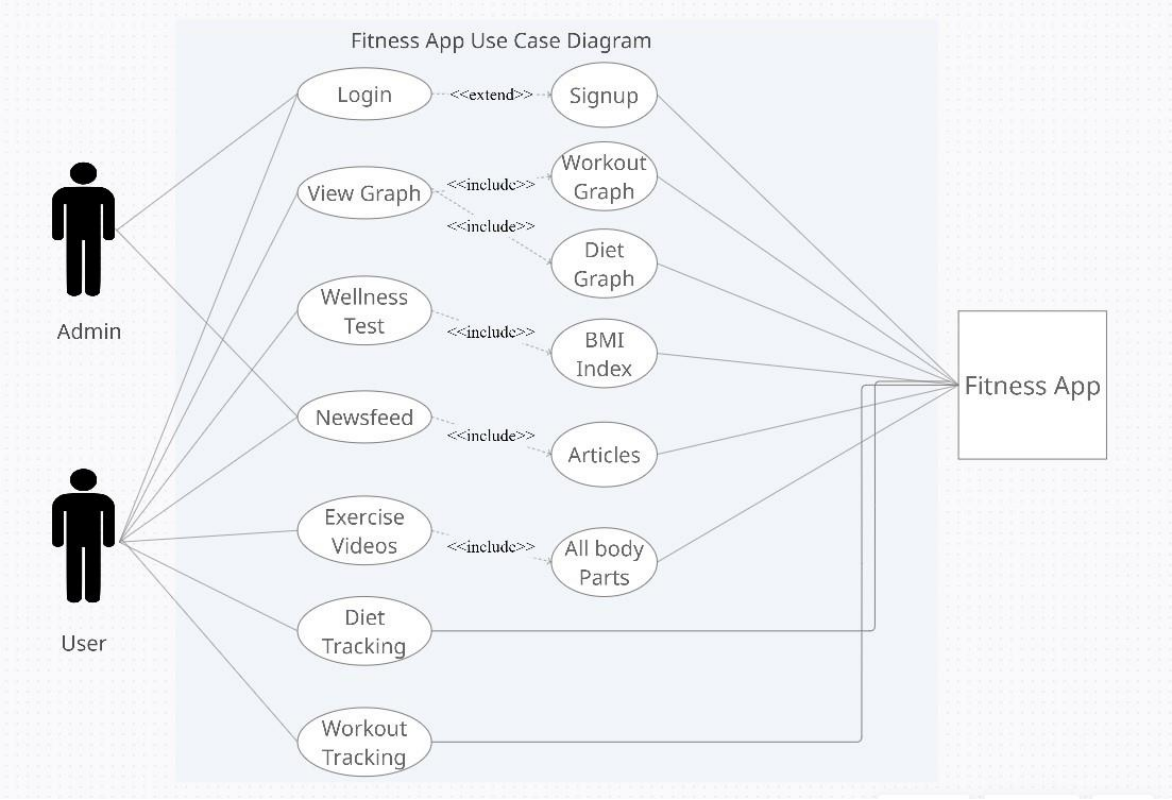
- **Operating system**

  The application must run on any Operation System.

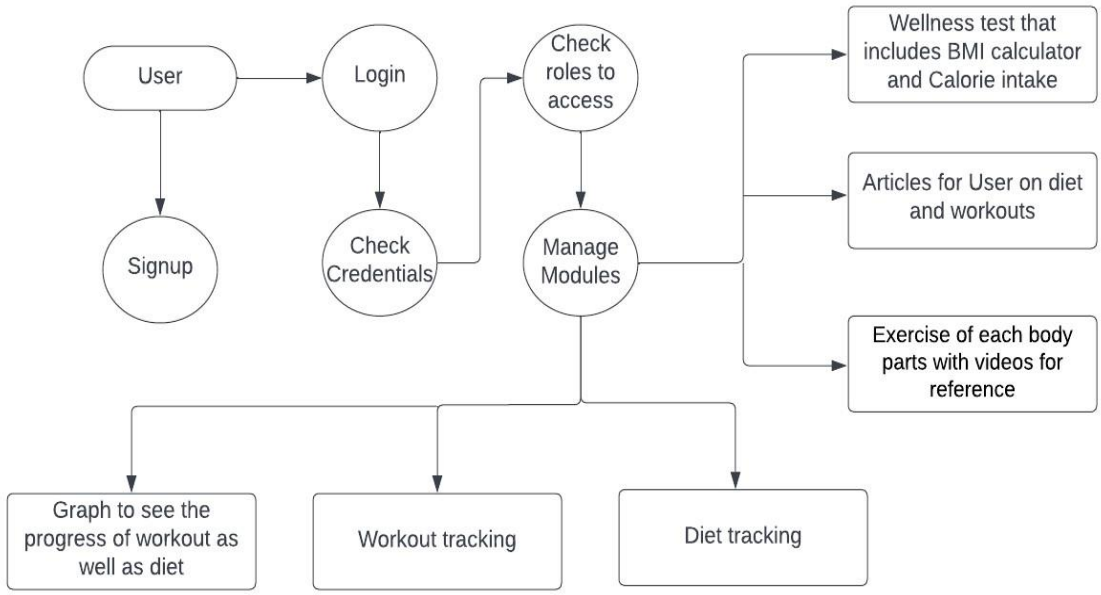
Chapter 5

Project Design

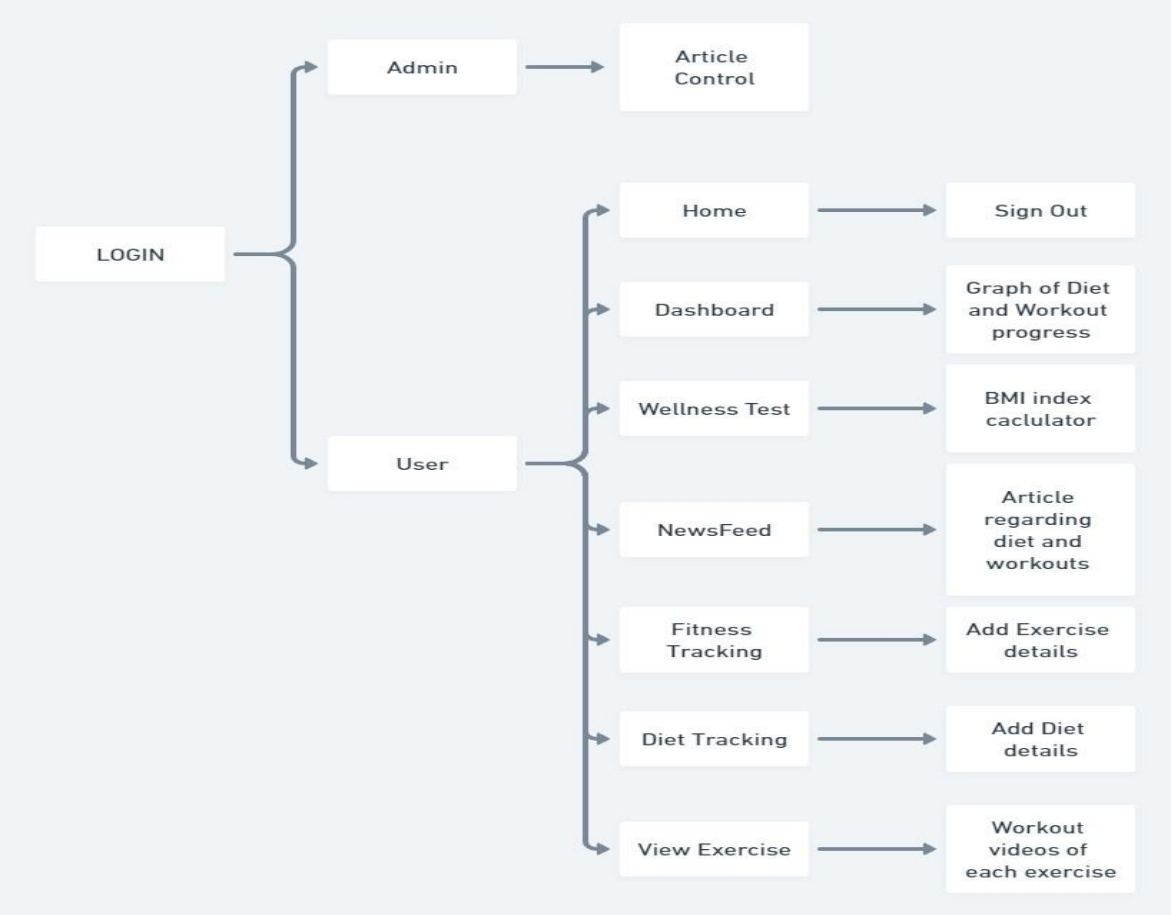
5.1 Use Case Diagram



5.2 DFD



5.3 System Architecture



Chapter 6

Technical Specification

Development: VS Code

VS Code also known as Visual Studio Code is a source code editor made by Microsoft for Windows, Linux, MacOS. It has various features such as Debugging, Syntax highlighting, extension, intelligent code completion.

Frontend: Html, CSS, JavaScript

As a web developer, the three main languages we use to build websites are HTML, CSS, and JavaScript. JavaScript is the programming language, we use HTML to structure the site, and we use CSS to design and layout the web page. These days, CSS has become more than just a design language, though. You can actually implement animations and smooth transitions with just CSS.

OS : Windows

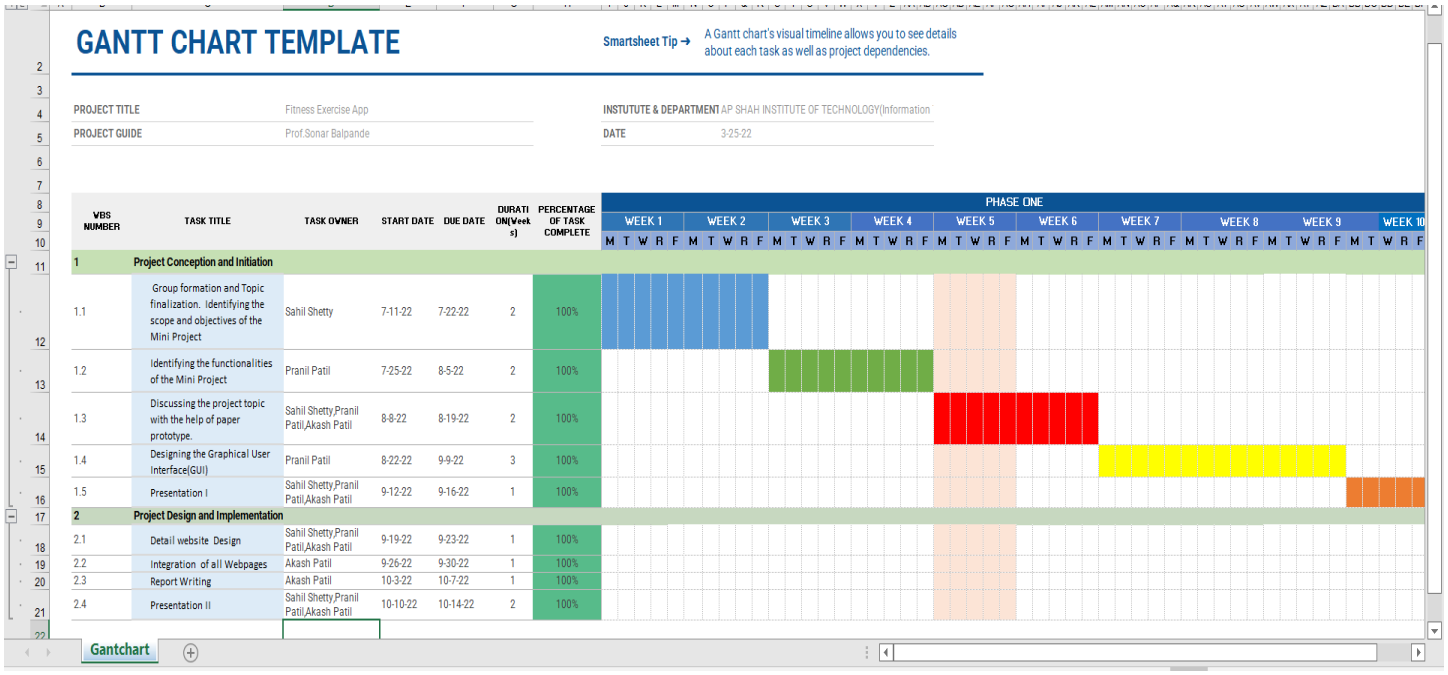
Windows is a graphical operating system developed by Microsoft. It allows users to view and store files, run the software, play games, watch videos, and provides a way to connect to the internet. It was released for both home computing and professional works.

Backend: Php, MySQL

With PHP, you can connect to and manipulate databases. MySQL is the most popular database system used with PHP. PHP combined with MySQL are cross-platform (you can develop in Windows and serve on a Unix platform) .The data in a MySQL database are stored in tables. A table is a collection of related data, and it consists of columns and rows. Databases are useful for storing information categorically.

Chapter 7

Project Scheduling



GANTT CHART TEMPLATE

Smartsheet Tip → A Gantt chart's visual timeline allows you to see details about each task as well as project dependencies.

PROJECT TITLE	Fitness Exercise App
PROJECT GUIDE	Prof.Sonar Balpande
INSTUTUTE & DEPARTMENT	AP SHAH INSTITUTE OF TECHNOLOGY(Information
DATE	3-25-22

VBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION(Weeks)	PERCENTAGE OF TASK COMPLETE
1	**Project Conception and Initiation**					
1.1	Group formation and Topic finalization. Identifying the scope and objectives of the Mini Project	Sahil Shetty	7-11-22	7-22-22	2	100%
1.2	Identifying the functionalities of the Mini Project	Pranil Patil	7-25-22	8-5-22	2	100%
1.3	Discussing the project topic with the help of paper prototype.	Sahil Shetty,Pranil Patil,Akash Patil	8-8-22	8-19-22	2	100%
1.4	Designing the Graphical User Interface(GUI)	Pranil Patil	8-22-22	9-9-22	3	100%
1.5	Presentation I	Sahil Shetty,Pranil Patil,Akash Patil	9-12-22	9-16-22	1	100%
2	**Project Design and Implementation**					
2.1	Detail website Design	Sahil Shetty,Pranil Patil,Akash Patil	9-19-22	9-23-22	1	100%
2.2	Integration of all Webpages	Akash Patil	9-26-22	9-30-22	1	100%
2.3	Report Writing	Akash Patil	10-3-22	10-7-22	1	100%
2.4	Presentation II	Sahil Shetty,Pranil Patil,Akash Patil	10-10-22	10-14-22	2	100%

PHASE ONE

WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 | WEEK 7 | WEEK 8 | WEEK 9 | WEEK 10

M T W R F M T W R F M T W R F M T W R F M T W R F M T W R F M T W R F M T W R F M T W R F M T W R F

Gantchart

Chapter 8

Implementation

Config.php: This function contains the database required to connect the database of exercise to the API.

```
<?php
   define('DB_SERVER', 'localhost:3306');
   define('DB_USERNAME', 'root');
   define('DB_PASSWORD', '');
   define('DB_NAME', 'fitness_app');

   //Attempt to establish a connection to the database.
   try{
      $pdo = new PDO("mysql:host=" . DB_SERVER . ";dbname=" . DB_NAME, DB_USERNAME, DB_PASSWORD);

      $pdo->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);
   } catch(PDOException $e) {
      die("ERROR: Connection Failed. " . $e->getMessage());
   }
?>
```

Exercise-library.php: This function helps the user to search for the required exercise with the different body parts.

```
<div class="row justify-content-center">
      <form class="form-inline m-1" action="<?php echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>" method="post">
         <input class="form-control mr-sm-2" type="search" placeholder="Search" aria-label="Search" name='searchTerm'>
         <button class="btn btn-outline-success my-2 my-sm-0" type="submit">Search</button>
      </form>
      <form class="form-inline m-1" action="<?php echo htmlspecialchars($_SERVER["PHP_SELF"]); ?>" method="post">
         <button href="./exercise-library.php" class="btn btn-outline-warning my-2 m-1 my-sm-0">Reset</button>
      </form>
   </div>
   </div>

   <div class="container-fluid">
      <?php
         displayExerciseCards($pdo);
         searchExercises($pdo);
      ?>
```

```
   </div>
</body>
</html>
```

addFood.php: This function adds food to the database of diet which is later displayed in dietChart.

```
<?php
        if (isset($_POST['foodSearch'])){

                $searchValue = $_POST['search'];

                $db = mysqli_connect('localhost', 'root', '', 'wellness');

                $searchQuery = "SELECT * FROM foodItem WHERE name LIKE '%$searchValue%'";
                $result = mysqli_query($db, $searchQuery);

                if (mysqli_num_rows($result) > 0 && $searchValue != ""){

                        //used to reload the last search
                        $_SESSION['persistentSearchValue'] = $searchValue;


                        //generate columns
                        echo '
                        <form method = "post">
                                <table border="1">
                                <tr>
                                        <th>&nbspName </th>
                                        <th>&nbspQuantity </th>
                                        <th>&nbspCalories </th>
                                        <th>&nbspGrams of Protein </th>
                                        <th>&nbspGrams of Fat </th>
                                        <th>&nbspGrams of Carbs </th>
                                        <th> </th>
                                <tr>';

                        //generate cells
                        while ($row = mysqli_fetch_assoc($result)){
                                echo '<tr>';
                                        echo '<td>' . $row['name'] . '</td>';
                                        echo '<td>' . $row['quantity'] . '</td>';
                                        echo '<td>' . $row['calories'] . '</td>';
                                        echo '<td>' . $row['gProtein'] . '</td>';
                                        echo '<td>' . $row['gFat'] . '</td>';
                                        echo '<td>' . $row['gCarbs'] . '</td>';
```

```
                                        echo '<td><button type="submit" name= "addFood"
value ="' . $row['name'] . '">Add</button></td>';
                                        echo '</tr>';
                                }
                                echo '</table></form>';
                        } else {
                                echo '<center> We don\'t have that food item';
                        }
                } else if (isset($_SESSION['persistentSearchValue'])){
                                $searchValue = $_SESSION['persistentSearchValue'];

                                $searchQuery = "SELECT * FROM foodItem WHERE name LIKE
'%$searchValue%'";
                                $result = mysqli_query($db, $searchQuery);

                                //generate columns
                                echo '
                                <form method = "post">
                                        <table border="1">
                                        <tr>
                                                <th>&nbspName </th>
                                                <th>&nbspQuantity </th>
                                                <th>&nbspCalories </th>
                                                <th>&nbspGrams of Protein </th>
                                                <th>&nbspGrams of Fat </th>
                                                <th>&nbspGrams of Carbs </th>
                                                <th> </th>
                                        <tr>';

                                //generate cells
                                while ($row = mysqli_fetch_assoc($result)){
                                        echo '<tr>';
                                                echo '<td>' . $row['name'] . '</td>';
                                                echo '<td>' . $row['quantity'] . '</td>';
                                                echo '<td>' . $row['calories'] . '</td>';
                                                echo '<td>' . $row['gProtein'] . '</td>';
                                                echo '<td>' . $row['gFat'] . '</td>';
                                                echo '<td>' . $row['gCarbs'] . '</td>';
                                                echo '<td><button type="submit" name= "addFood"
value ="' . $row['name'] . '">Add</button></td>';
                                        echo '</tr>';
                                }
                                echo '</table></form>';
                }
 ?>
```

Chapter 9

Result and Discussion

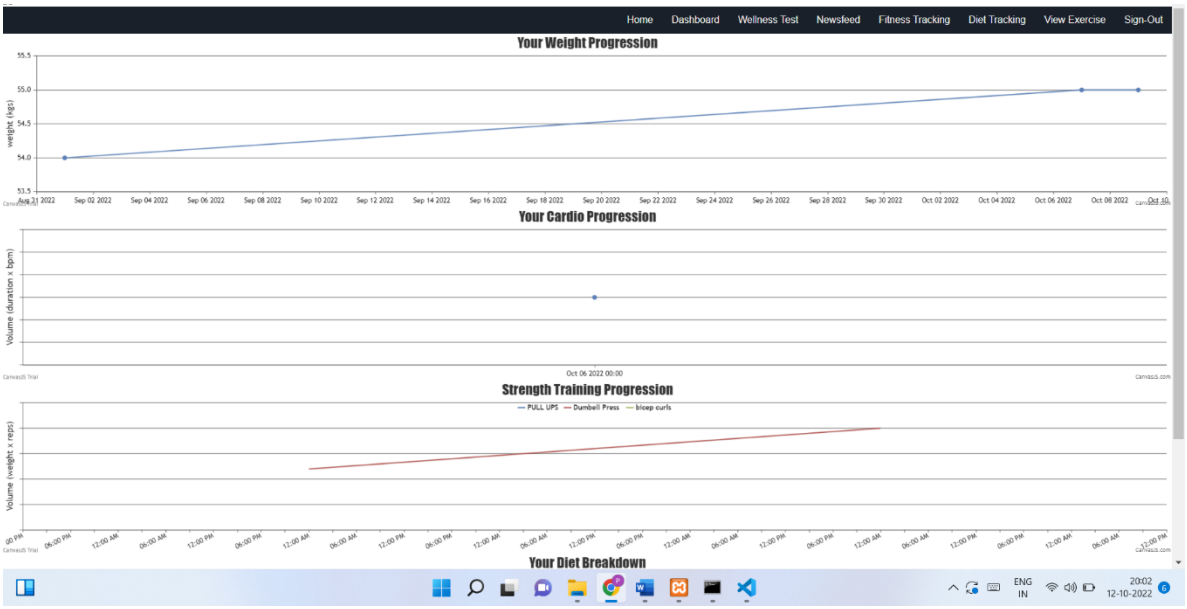


Fig1: User can view their progress through 4 different charts

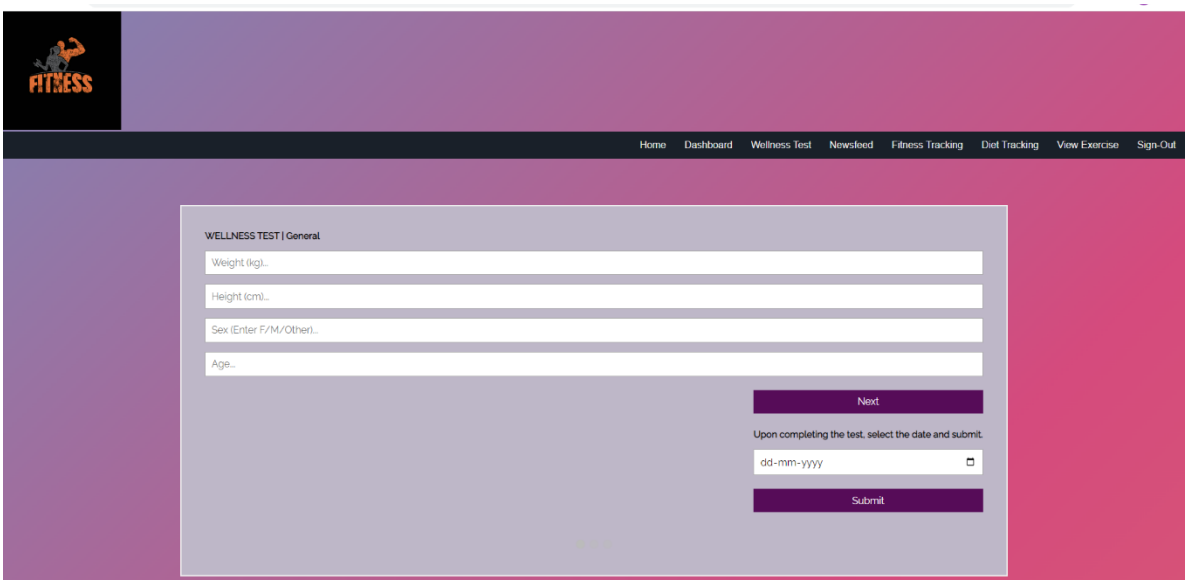


Fig2:User can track the calories required w.r.t their weight and pulse rate

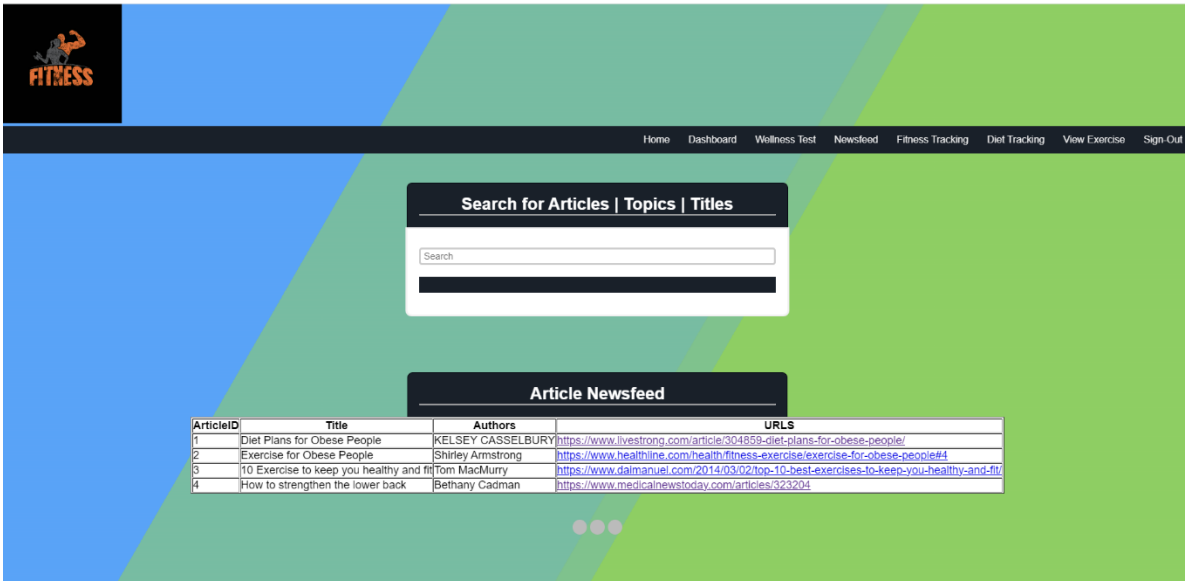


Fig3:User can check out news article posted by admin in newsfeed

Fig4:Users can track their daily exercise routine on fitness tracker.

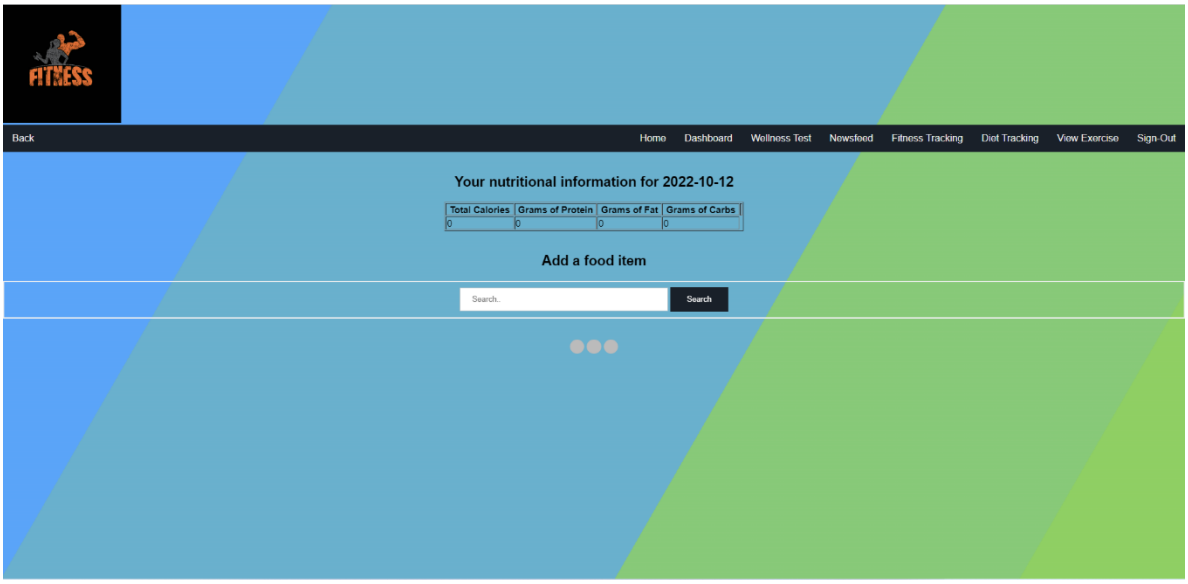


Fig 5:Users can track their calorie intake on diet tracker.

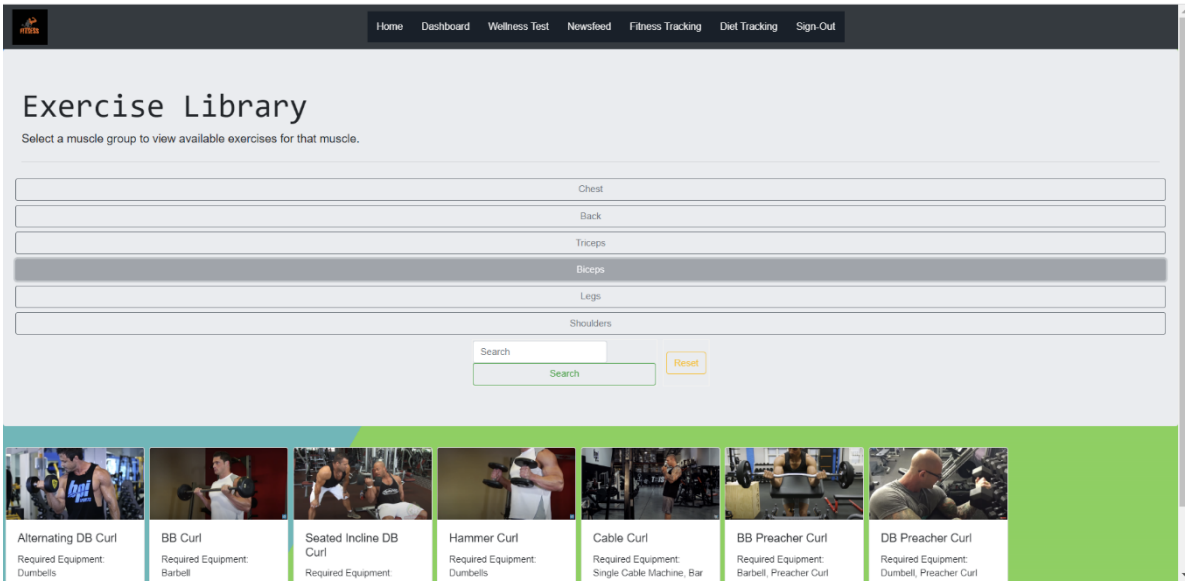


Fig6:Users can view exercises on different body parts from exercise-library

Fig 7:Admin has the power to add/remove articles.

Chapter 10

Conclusion

Thus, the **Fitness Exercise App** will provide a user friendly and easy interface to operate. User can Manage their fitness goals by tracking there daily diet charts and analyse via graph .User can also get an idea what Exercises we want to do in sessions by measuring all reps and progress. The App provide seamless and manageable experience to get better results in their daily routine .Therefore, our aim is to provide user a very easy access to the app managing the fitness goals.

Chapter 11

References

[1] https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-015-0314-1

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7407266/

[3] https://apps.dtic.mil/sti/citations/AD1041181