STAYFIT MOBILE APPLICATION

A Project

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Ankita V Patil

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SIGNATURE PAGE

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AUTHOR: Ankita V Patil

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Department of Computer Science

Dr. Yu Sun
Project Committee Chair
Computer Science

Dr. Gilbert Young
Professor of Computer Science
ACKNOWLEDGEMENTS

This work is dedicated to my parents and my husband who mean the world to me and without their support I could not have achieved this milestone. I am grateful to Cal Poly Pomona for providing me the opportunity to learn and train under some of the most brilliant professors, without whom I would not have been able to achieve this milestone. I would like to thank Dr. Yu Sun and Dr. Gilbert Young for their support and guidance throughout the completion of this project.
ABSTRACT

It is well known that committing to a healthy lifestyle is not always easy. Today there are various innovations developed to help people get easy access to different healthy recipes, workout videos, diet assistance. There are various fitness trainers available to reach out to start ones’ healthy transformation. In the fitness industry, large organizations have their own web portals or mobile applications that keep their clients connected. But there are many fitness trainers who are not associated with fitness organizations and still guide numerous people located at different parts of the world. StayFit provides a platform for trainers and trainees to stay connected and provides an easy-to-use platform for people to track and continue their workouts, diets, transformation progress without having to enroll in fitness gyms and centers.
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CHAPTER 1 INTRODUCTION

1.1 Background

Fitness plays an important part in every individual's life. By maintaining a balanced diet and a fitness routine, one can lead a high-quality life. Physical activity can significantly reduce the risks of developing several kinds of diseases like obesity, diabetes, cardiovascular diseases, etc. The impacts of ignoring physical health are immediate and often long lasting. To promote the importance of a healthy lifestyle, resources are made easily available to the public so that it is easily accessible to everyone. Today in the market, there are millions of resources available and are available across a variety of forms, i.e., books, videos, apps, organizations dedicated to help people in their journey to fitness. People are now aware of the importance of physical health and fitness and promote the benefits by sharing their inspiring journeys so that more and more people would be attracted to switch to a healthier lifestyle. Large fitness organizations provide a great environment to people where they can come and exercise. These organizations are not only limited to providing a place for people to work out in, but they also provide guidance for people to manage a healthy diet routine. For a successful fitness transformation, a healthy balanced diet and a workout routine go hand in hand. While previously organizations provided this support in a face-to-face routine, today most of them have switched to a digital mode, making resources easily accessible to the users. Organizations do so by providing a mobile application or hosting the data on their websites, so that users can access these resources on their devices whenever they wish to.
1.2 Purpose

In the fitness world, having USP’s like mobile applications and websites has always proven beneficial in having a larger customer base. These digital resources make it easier for the public to access their records like workout routines, diet charts by simply logging on to their mobile devices. The trouble of looking for a trainer and adjusting schedules as per availability times is completely eliminated as everything can be managed and discussed through these applications. While established brands in the fitness world can easily provide such resources, there is a large community of talented trainers that work individually and provide fitness transformation trainings without the support of any big organization. For this community, having funds to develop such products often is a challenge. My motivation to develop this system came from a personal experience during my fitness transformation journey, where my trainer operated individually and had a client base of over 50 people situated across different parts of the world. Managing clients and their data was a hassle and there was no readily available system in the market that could provide an easy and an affordable solution. This motivated me to develop a software that will provide a single global platform for trainers and clients to book appointments, manage workouts and diets and easy connectivity through in app messaging.

1.3 Scope

The application provides features specific to general users (clients) and trainers. The application will require initial users to register and login to the system. The application will have two different dashboards based on their roles in the system.
For Client:

1. Register as user.
2. Create user profile (User’s phone number, email will be verified).
3. Create initial health profile (log user’s weight, age, health conditions, diet restrictions, food/medicine allergies).
4. Dashboard (Main screen for user containing links to all other features of app).
5. Connect with trainer over chat.
6. View workout schedule.
7. Log daily meals, water intake.
8. View progress report.

For Trainer:

1. Register as trainer, Create trainer profile.
2. Dashboard – summary of all registered trainees and their progress card
3. Chat Box for each trainee
4. Create workout chart, meal plan for trainee.
5. Track trainee progress report

1.4 Technology

For development of the project, following technology stack has been used:

1. Mobile Application
   
   The application will be developed using Flutter SDK. Currently, the application will be focused on Android devices and will be hosted on Google Play Store in the deployment stage. The application will also use the Firebase cloud messaging...
service for push notifications for the application. These push notifications will be sent to the application when there is a new message sent to the user or there is an upcoming appointment.

2. Middleware

   The system will use RestAPI developed using Java and Spring boot for connectivity between the database and mobile application. These services will be hosted on Amazon AWS.

3. Database

   The system will use MySQL database for storing all data of the app. I am planning to use Free Tier Amazon RDS for hosting the database. This will provide with a seamless hosting of database on cloud and provide easy and quick access for the database.
CHAPTER 2 REQUIREMENTS

2.1 Functional Requirements

Table 1 Functional Requirements

<table>
<thead>
<tr>
<th>Functional Requirement No.</th>
<th>Functional Requirement Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR1</td>
<td>New users need to be registered in the system</td>
</tr>
<tr>
<td>FR2</td>
<td>Users need to authenticate their accounts to access the features of the application.</td>
</tr>
<tr>
<td>FR3</td>
<td>If user forgets password, send password to registered email address</td>
</tr>
<tr>
<td>FR4</td>
<td>Create/Edit User profile if not created already</td>
</tr>
<tr>
<td>FR5</td>
<td>Create/Edit User’s health profile</td>
</tr>
<tr>
<td>FR6</td>
<td>Log daily water consumption</td>
</tr>
<tr>
<td>FR7</td>
<td>Log daily meals consumed</td>
</tr>
<tr>
<td>FR8</td>
<td>View workout routine</td>
</tr>
<tr>
<td>FR9</td>
<td>View diet chart</td>
</tr>
<tr>
<td>FR10</td>
<td>View healthy recipes</td>
</tr>
<tr>
<td>FR11</td>
<td>View progress report</td>
</tr>
<tr>
<td>FR12</td>
<td>Send trainer a message</td>
</tr>
<tr>
<td>FR13</td>
<td>View list of clients</td>
</tr>
<tr>
<td>FR14</td>
<td>Create/Edit workout routine for client</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>FR15</td>
<td>Create/Edit diet chart for client</td>
</tr>
<tr>
<td>FR16</td>
<td>View progress card for client</td>
</tr>
<tr>
<td>FR17</td>
<td>Send client a message</td>
</tr>
</tbody>
</table>

2.2 Technical Requirements

1. Accessibility

   The application will be published over Google Play Store. This application will be available to all users free of cost.

2. Availability

   The system should be available to all users at all times.

3. Usability

   All users using a mobile device with Android OS (Version 10 and above) should be able to use download and use the mobile application.

4. Maintainability

   All maintenance activities must be performed on weekends from 10:30 pm PST to 12:30 am PST.
CHAPTER 3 APPLICATION IMPLEMENTATION

3.1 Mobile Application

The application will be developed using Flutter SDK. Currently, the application will be focused on Android devices and will be hosted on Google Play Store in the deployment stage. The application will also use the Firebase cloud messaging service for push notifications for the application. These push notifications will be sent to the application when there is a new message sent to the user or there is an upcoming appointment.

3.2 Middleware

The system will use RestAPI developed using Java and Spring boot for connectivity between the database and mobile application. These services will be hosted on Google Cloud Platform.

3.3 Database

The system will use MySQL database for storing all data of the app. I am planning to use Free Tier Amazon RDS for hosting the database. This will provide with a seamless hosting of database on cloud and provide easy and quick access for the database.

3.4 Source Code Management

All code of the project will be uploaded on Git as the central repository for source code management.
3.5 Testing

1. Mobile application:

Unit testing and performance testing will be performed on the application to test UI on different screen sizes and also the response time of the application on devices with low and high storage space.

2. Middleware

To test the RestAPI, I plan to use Postman app. It is a free tool that enables me to send and receive data to the API and verify the information sent by the API.

3. Database:

To test queries of the database, I will run the queries on dummy data to test the output of each query. The database will be cleared prior to deployment of system.

3.6 Deployment

1. Mobile Application

The application will be available to all users globally on Google Play Store.

2. Middleware

The RestAPI are hosted on Google Cloud Platform.

3. Database

The MySQL database will be hosted using Amazon RDS.
CHAPTER 4 USER INTERFACES

4.1 Login Screen

Figure 1 Login Screen
4.2 Sign Up

![Sign Up Screen](image)

*Figure 2 Sign Up Screen*
4.3 Member Dashboard

Figure 3 Member Dashboard Screen
4.4 Trainer Dashboard

![Figure 4 Trainer Dashboard Screen](image)

Figure 4 Trainer Dashboard Screen
4.5 User Profile

![Ankita's Profile](Image)

**Figure 5 User Profile Screen**
4.6 Log Meals

![Log Meals Screen](image)

*Figure 6 Log Meals Screen*
### 4.7 View Diet Chart

<table>
<thead>
<tr>
<th>Meal Plan</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Evening Snacks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Egg whites</td>
<td>Chicken Fajita Salad</td>
<td>Veggies with hummus</td>
</tr>
<tr>
<td></td>
<td>2 egg whites</td>
<td>1 bowl</td>
<td>1 small bowl of hummus</td>
</tr>
<tr>
<td></td>
<td>Fruit</td>
<td>Rice cake with Avocado</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 fruit</td>
<td>1 bowl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any fruit of your choice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 7 Diet Chart Screen*
4.8 View Workout Routine

![Workout Routine Screen](image)

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Monday Counts</th>
<th>Tuesday Rounds</th>
<th>Wednesday Rounds</th>
<th>Thursday Rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crunches</td>
<td>50</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jumping Jacks123</td>
<td>10</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Low Plank - 30 seconds</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Push ups</td>
<td>5</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Standing Calf Raises</td>
<td>20</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russian Twists</td>
<td>70</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Forward Lunges</td>
<td>20</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Squats</td>
<td>15</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tricep Dips</td>
<td>20</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 8 Workout Routine Screen*
4.9 Transformation Logs

Figure 9 Transformation Logs Screen
4.10 Connect with Trainer.

![Text Message](Image)

Figure 10 Connect with Trainer Screen
4.11 Healthy Recipes

Figure 11 Healthy Recipes Screen
About StayFit

StayFit is an android based application that provides a platform for trainers and trainees to stay connected and provides an easy-to-use platform for people to track and continue their workouts, diets, transformation progress without having to enroll in fitness gyms and centers.

Created by: Ankita Patil (avpatil@cpp.edu)
Bronco ID - 014287065

Figure 12 About StayFit Screen
4.13  View Clients

![Figure 13 View Clients Screen](image)

Figure 13 View Clients Screen
4.14 Client Progress Card

![Client Progress Card Screen](image)

*Figure 14 Client Progress Card Screen*
4.15 Set/Edit/Delete Diet Chart

*Figure 15 Edit/Delete Diet Chart Screen*
4.16 Set/Edit/Delete Workout Routine

Figure 16 Edit/Delete Workout Routine Screen
CHAPTER 5  FUTURE WORK

There are several features that would be challenging to add to the project. Some future enhancements that can be added to the project are:

1. Integrate an exercise database that contains a wide range of workout routines and exercises with guidelines on postures for each item.
2. Improve the chat functionality by sending instant messages and notifications to users.
3. Add membership plans to the system.
4. Add payment feature in the application so that trainers can charge for their services.
5. Make StayFit application available for iOS platform.
CHAPTER 6 CONCLUSION

StayFit is an android based application that provides a platform for users to stay connected to their trainers and have a successful fitness transformation journey. This application provides a wide range of features like logging meals and water consumptions and see their transformation journey through logged weights. The app also helps clients and trainers stay connected easily by messaging within the application. While multiple features can be added in the system, the initial set of features will allow users to successfully fulfill the purpose. I have learnt a lot from this project about managing features and planning the development and deployment of the project.
REFERENCES


