A Sustainable Solution for Managing Fitness Among Gymgoers –A Smart Solution to Reduce Obesity in The Country

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ABSTRACT

Recently, it has been noticed that young people are not interested in the sports aspect and their rush towards gyms and sports clubs decreases after the pandemic. Since the effect of COVID-19, people were forced to be indoors which forced most youngsters to lose motivation in fitness. Ong. Et. Al claims that the onset of Covid 19 has significantly impacted the behavioral pattern of youngsters in terms of fitness. Parallelly it has also been noticed that 2/3 rd. of Oman's population is affected by obesity with a BMI score greater than 25. The proposed research focus on developing a sustainable solution by studying the different approaches to enable gymgoers' life easy and keep them motivated to continue their fitness journey. Intriguingly, a notable negative direct impact on maintaining physical activity was discovered to be linked to life stress. This study is among the initial few to examine the elements influencing the behavioral intentions of gym enthusiasts amid the COVID-19 pandemic. Moreover, the utilization of Physical Activity Maintenance Theory and Social Cognitive Theory in this research yielded precise predictions of behavioral intention. Consequently, this comprehensive model has the potential to act as a theoretical basis for evaluating and expanding the assessment of behavioral intentions among gym-goers globally during the COVID-19 pandemic. In the study, it was evident that gym goers drop out as there is no motivation, and they cannot see their progress or they are not being alerted frequently on their progress. The study also shows that gym goers are looking for one-stop shopping of all equipment, accessories, and energy supplies to reduce their time searching for equipment and supplies in their fitness journey. As a result, a sustainable solution in the form of an application to includes all necessary services such as automated diet plans. E-consultations with the fitness trainer and nutritionist in addition to diet planner. There is also a reminder, alert, and appreciation system to motivate gym-goers. The customers can also book, inquire, and purchase sports supplies that serve both genders, whether women or men, In addition to a feature within the application where members can calculate calories and muscle mass. Recently, most gyms have established their sites to facilitate the employees and subscribers in the club to communicate and serve both parties better via the Internet. The literature proves this. application is unique, easier, and faster than the available application so far, It doesn't need to log in every time with the possibility of developing the status of the notifications feature to alert subscribers to what is new in the gym. In addition, users can interact with the application, while the website is where only information is displayed. My project, which is an application for the Horizon gym, aims to facilitate the customers to subscribe, inquire and purchase sports equipment and know the times available through this application without going, this contributes to reducing congestion in the Gym. Through this application, the number of gymgoers can be increased and hence leading to sustainable healthcare solutions to reduce obesity.

Introduction

At the height of the spread of the Corona virus during the years 2020-2021, all gyms were closed, which led to financial losses for gym owners. In addition to the increase in obesity in the Sultanate of Oman during this period due to lack of movement and lack of exercise, the British press has mentioned in its coverage of the Corona virus about obesity and explained that obesity is a very dangerous factor for the Corona virus, as the obese are the most vulnerable to such diseases and death due to the virus. Article 'Lose Weight, Save NHS': Discussions of Obesity in Press Coverage of COVID-19 Gavin Brooks defines obesity as a diagnostic card presenting the descriptive status of an abnormally overweight person with a body mass index (BMI) of 30 or higher. (Brookes, 2022). This application was proposed to solve the problem of both parties (owners and visitors of gyms) in the event of an outbreak of such epidemics in the future. It will provide many sections and categories that will contribute to serving gym customers. This application was proposed to include all necessary services and to solve the problem of both parties (owners and visitors of gyms) in the event of an outbreak of such epidemics in the future. In addition, it can be used continuously, which will provide many sections and categories that will contribute to better and faster customer service. Where customers can subscribe, inquire and purchase their sports supplies through this application. It also provides electronic consultations with the gym staff. The application includes an integrated section for exercise that enables customers to practice their sport wherever they want, as there are systems to motivate and remind subscribers to urge them to continue. In addition to the feature of calculating body mass and calories to know the ideal weight for them, which will be displayed as a chart showing the result achieved by the subscriber over specific time periods .

Study Design and Purpose

And it was based on referring to the literature that presents facts that prove the impact of Corona on the results of obesity and the rush of people, especially the younger generation, towards gyms to avoid such diseases and live a healthy life. In addition, a survey was conducted with several gym-goers to find out people's opinions about creating an application that would help them complete their sports career, as most of the opinions were positive and motivating to complete this project. The research paper has been created based on literature reviews and relevant research to support gym owners to better serve customers and find an alternative solution in cases of any future pandemic and it also serves the customer better as the customer can monitor their accounts. progress and motivate him to continue his sports career. The results of this study are presented as follows:

Literature Review

The gymnasium management project is a computer-based work that is used to deal with gym members to maintain their health and fitness on an ongoing basis, based on the gym. Where gym members, gym trainers, sports equipment, and gym members' fees can be supervised. It also stores members' data and is well-secured. To register members, a name and password must be entered. It also manages the activity and gym coaches' information, such as recording the needs of the gym. (Lakshitha&Sirisuriya,2021). explained that this gym management system reduces the amount of manual information, because it gives coaches support in the framework, reducing high capacity, and increasing productivity and efficiency. In another study, she explained that the spread of Covid-19 led to the influence of daily life all over the world, which led to many results, including social spacing between the inhabitants of the countries of the world and not mixing. These precautionary factors have led to the influence of human activities such as the sports side, so people interested in the sports side have turned to home exercises, as they are the only solution for them to practice sports and protect their health and not be obese because of the lifestyle in the epidemic period. The study aimed to reveal

the levels of physical activity and changes that occur during the quarantine, and the effects that occur on mental health while practicing sports activities. The data was collected through a questionnaire on a large number of the Italian population over the Internet (Maugeri et al., 2020). In another study, the writer explained the importance of sports to improve and enhance general physical and psychological health. The study proved the existence of a relationship between regular exercise and mental health, through the results of the research that was conducted on 26 gym-goers in the Richards area in Africa. (Edwards, 2006). The study achieved major results, including that regular exercise is strongly associated with improving mood, achieving well-being, and reducing stress and anxiety. The results also showed the importance of exercise and exercise in improving physical and psychological health. In the article, the authors explained that the Coronavirus is more dangerous and vulnerable to people with common diseases and health problems such as heart disease, diabetes, and obesity. It is certain that a person infected with obesity and then with the virus over time will greatly weaken his immune system. As obesity increases around the world, the rate of infection with the Coronavirus increases. In the review, the authors discuss how obesity contributes to an increased risk for COVID-19 patients. (Bhattacharya et al., 2020) Some factors have been put forward in the discussion that increased inflammation caused by the virus and increased fat contributes to increased disease, and their lung and cardiovascular effects are affected. A study conducted during the spread of the COVID-19 virus showed that people may be affected in terms of the psychological aspect, such as anxiety, tension, mood disorders, and other mental illnesses, especially for people who had mental illnesses before the pandemic. These symptoms may worsen and increase. It is also possible for healthy people to experience these symptoms, such as anxiety or disturbances, during an epidemic. The study showed that exercise is a mechanism for controlling many mental illnesses and protecting the mental health of people who are not affected by these diseases.(Morrey, 2020). Where there is a great correlation between physical and psychological health, but due to this pandemic and the imposed precautions, exercise in halls and gyms is disrupted. The study focuses on individual exercise programs in order to protect mental health during the spread of the virus.

Related Work

In fact, applications with integrated services for the customer service system have not been found such as this application, as this application is integrated and serves all aspects in this field. However, some similar sites were found, such as the site of the Flex Oman Club, which is one of the largest gyms in Muscat, where two branches were opened, the first branch was in 2012, and now there are 6 open branches, and this success is due to their efforts to satisfy their members through the available benefits, in addition to The gym's website, which makes it easier for members to identify its facilities and features, inquire about them, and communicate with them, which makes it easier. For customers to find out the details and prices through the website. There are functions on this site that are similar to some of the functions that will be presented in this application, such as features for communication and inquiries, in addition to an aspect on the site for browsing and learning about the facilities in the gym. Also, another website was found, which is Ras Al Hamra Recreation Center (RAHRC), which is a website that contains many features that make it easier for club members to communicate with club employees for reservations and inquiries. The site also contains club activities and also contains special tips for clubgoers. Some differences have been obtained that distinguish this website from the rest of the sites in that each member has a special membership number for members only, and when logging in to the site, it is required to enter the name, e-mail, phone number, and its own number (membership number). In addition, RAHRC provides members with a safe social website and environment for all ages, as well as a rolling calendar and event registration throughout the year.

System Architecture

The aim of this application is to be an integrated system to serve gym goers and motivate them to continue their sports journey. This application was designed using the Android Studio program in the Flutter language, which is specialized in designing and developing applications for Android phones. The application consists of many pages, at the beginning the login page is to secure the user's account and preserve his data Which will be saved in a secure database by Google Firebase. Then, after the login process, the sections in the application will appear to the user. There is a section for subscriptions, offers that are available in the Gym, and a section for purchases, where the customer can buy equipment or purposes for the gym, such as sportswear, protein drinks, and sports machines, There is a special section for some calculations that the customer can perform through this application as in figure2. The application shows the user a comprehensive view of his progress and an indicator of his muscle mass through a chart to motivate him to continue, such as calculating his body mass index and calories. The last section consists of some exercises that make it easier for gym-goers and motivate them with the possibility of exercising anywhere else. This application also provides the feature of activating alerts for the user, which urges him to continue his sports journey. With the possibility of inquiring or consulting and providing feedback on the extent of customer satisfaction with the application and the lounge services. The following figure1 shows an overview of the operations within the application by use case diagram:
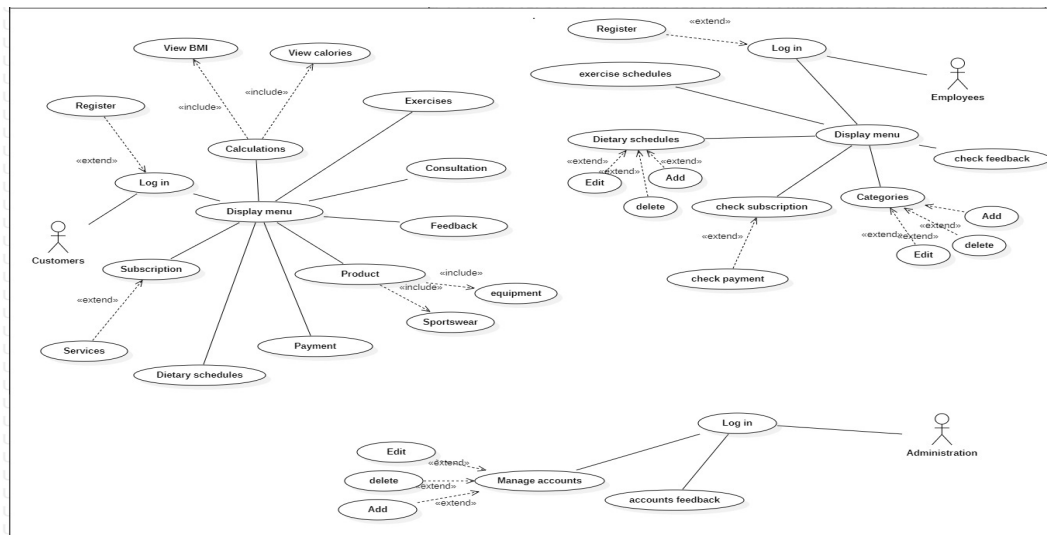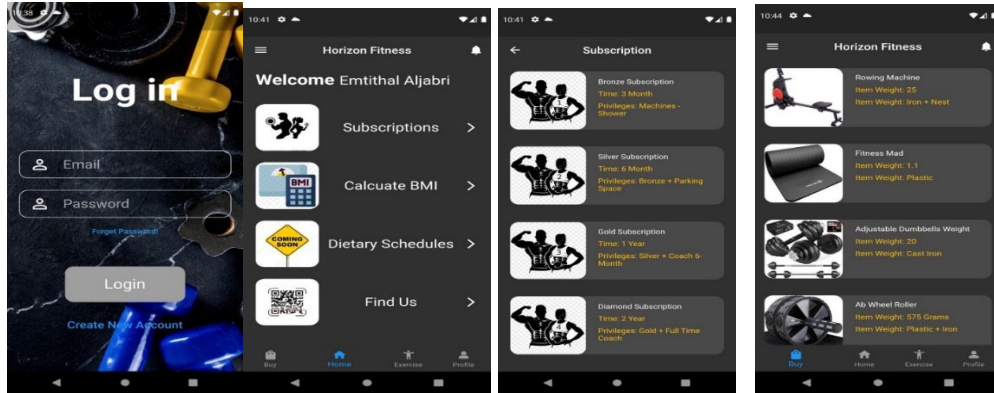

Figure 1. Use Case Diagram

Figure 2. Sections of the application

Firebase

Google Firebase used to be the place to save data for the application. Firebase is a service that provides a user database and makes application development easy. In addition, the level of security is high to prevent any penetration or leakage of the data stored in it. The real-time database is hosted on the cloud, keeping data in an organized and synchronized manner. All changes that occur in the application are stored directly in the database. Firebase provides a database language to manipulate, organize, or display data. (Chatterjee et al., 2018). Storage in Firebase allowed the researcher to save all services and products in the application, in addition to facilitating the coordination of all services and products with images and information in an organized manner. Firebase is a working environment and database used to build applications (Chatterjee et al., 2018). It also provides a unified platform for many applications in addition to Google features. Also, Firebase can handle the work in the application. In addition, it serves to maintain harmony between employees and customers and thus allows for quick termination of services. One of the security measures that you take while using Firebase is to create an account for the application and create a database and link it to the program. Where Firebase acts as a server to store and control data. It is one of the easiest and most popular databases, works with all kinds of smart devices, and is very secure. It requires creating a special Google account and securing it with a password. Furthermore, any change or addition made in Android Studio appears in Firebase, and thus any login to the application also appears, increasing data security and preservation. The ease of use and configuration of Android Studio always makes Firebase developers their first choice in Android app development. Firebase cloud databases rely on the cloud service provider to provide security for infrastructure, connectivity, virtualization, etc., as well as control policies to avoid unauthorized access. Although the service provider side is secure enough, misconfiguration of the access control policy may lead to data leakage. Firebase authentication is essential to increase security in Firebase, as users are specified to give them permission to access and control data. One of Firebase's largest security systems is Firebase Authentication, which enforces strict verification processes and prevents users from manipulating data or using another identity. Such as asking for an email and password or a phone number to send a verification code to verify the identity of the user.

Methodology

It is possible to use several methodologies that will support the development of this application system. But the SCRUM methodology was used, which is the most powerful and well-known method that provides

benefits to companies and institutions, which is included in Agile frameworks. This methodology supports building a better approach to application development and ease of dealing with it. It will also make the system within it less complex and of higher quality as compared to other traditional project management methodologies (Mahalakshmi & Sundararajan, 2013). This methodology is concerned with customer satisfaction, and this will help in improving the speed of response time for feedback and providing customer requirements in the application. The SCRUM methodology is characterized by the possibility of anticipating and accepting changes, in addition to controlling the schedule.

Conclusion

The idea of this application supports gyms and their visitors, and facilitates many operations for them, such as subscriptions, inquiries, and purchases of sports equipment, in addition to many features in the application, which encourage gym-goers to follow up, which keeps them constantly motivated to continue through the alerts feature in the application. This application is considered an integrated application, and this is what distinguishes it in that it includes many sections and services that aim to serve gym customers in all respects and reduce the effort on gym employees. The idea of this application came about because people rushed towards the sports side in the recent period and increased their awareness of the dangers of obesity and the importance of sports and health, especially after changing their lifestyle, unhealthy foods, and fast food. Also, the idea of this application came after the complete closure of all gyms that occurred during the Corona period, as this application will solve the problem of gym goers in the event of an epidemic spread in the future, and it will also solve the problem of current crowds in gyms. The application serves all aspects of gyms and contains many sections and features that do not exist in all sports applications. The application will be added and developed with everything that is possible to contribute to the service of employees and customers in the future and improve the services provided to them so that this application keeps pace with all developments and updates in this field.

Recommendations

This paper presents a customer service system for gyms through an application, which is an integrated application for all services that serve customers and employees in gyms and facilitate them and reduce time and effort. In addition, this application will contribute to solving the problem of gyms goers in the event of an outbreak of any diseases contagious in the future. Also, this application will contribute to reducing and protecting individuals from serious diseases such as obesity and other diseases, as all individuals can use it, not just gym goers, as it contains many different sports services that encourage individuals to be enthusiastic about using it and continuing their sports journey through activating features Alerts and BMI calculation. It includes many sections such as a section for buying sports clothes and equipment and a section for many exercises and other interesting sections that urge the user to continue. The system can be developed in the future by adding other sections and features and updates that make it easier for the customer to use it and even it can be used by gyms to serve their customers.

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