ProFit -The Supreme Fitness App

Breakthrough: DES, AES, RSA

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Abstract

The system "ProFit- The Supreme Fitness App" deals with the android application which will act as a fitness assistant for people in their day to day lives. This application is not for any fixed section of the society. Fitness is a very important part of our day to day lives. But due to our busy schedules that we have and slothful nature , we tend to ignore this very major part of our lives. Thus this application can benefit every person of the society. Health is the most important asset that we possess since out birth. There have been thousands of cases where people regret ignoring this asset in the later parts of their lives. Being fit and staying fit is a daily process. In today's world, mobile phones are one such thing which every individual is dependent on. Therefore, this android mobile application will benefit majority of people by acting as a remainder for them to practice their daily fitness activity to stay fit.

Introduction

The system "ProFit" deals with the android application for keeping a track on the daily fitness activities of an individual according to his/her age bracket and requirements. One of the biggest challenges that people face on their journey of fitness is the lack of availability and time. Everyone has busy schedules and sometimes it just gets hectic to hit a gym in order to stay fit. This android application can be downloaded on the mobile phones of the user and thus can be used anywhere and anytime to track one's physical activities and health. The application will consist of several modules according to the age bracket of the person using the application. It will also focus on the dietary component of a person and suggest the diet he / she should follow according to their needs or requirements. Another major objective of the application is to focus on the mental health of individuals which if often ignored by people considering it to be something which is not meant

to be treated. The application will try to create awareness about the importance of mental health and in turn suggest ways to improve it Technology has been growing rapidly

over the past few years and it benefits everyone with the vast variety of features it provides to the users. Technology has made our lives easier and our everyday chores a lot faster. This project aims at building an application where technology can be used in a way that it benefits the people in taking good care of themselves while staying busy in their day to day activities and hustle and bustle of life. Such a system will prove to be beneficial for not a certain specific section of the society but to every individual as everyone needs to stay fit . "Health is a state of complete physical, mental , and social well being and not merely the absence of disease or infirmity". The application follows this definition of health and therefore not only tries to focus on the physical health of the people but also their mental and social health. This application will try to reduce the effort people have to put in to stay healthy. If a person goes to the gym, he/she have to devote at least 1.5 to 2 hours of their day. People who stay busy sometimes are unable to spare this much amount of time. Therefore , this application will help to suggest exercises which people can follow while staying at their homes according to their own ages while sparing the time as less as 20 to 30 minutes

Types of Fitness

4 Types of Fitness

1.Cardiovascular or Aerobic Fitness

Cardiovascular fitness targets the muscles' ability to make the best use of oxygen so that they can produce energy for movement.If affects the heart and the lungs, and therefore their ability to provide muscle tissue with enough oxygen-rich blood to perform vigorous activity.Cardiovascular fitness is often considered to be the most important type of physical fitness due to the wealth of health benefits it offers. These are directly related to the condition of the lungs and heart and have been known to significantly increase both the length and quality of life.A strong heart and a healthy set of lungs is a requirement for clear blood vessels that supply muscles with oxygen. It helps to maintain a favourable body composition, as well as improved stamina.

2. Anaerobic Fitness

Anaerobic fitness is that which is directly related to short, powerful bursts of energy such as that required for sprinting, powerlifting, and short, fast movements. Exercises related to anaerobic fitness should be intense enough to cause the formation of lactate, eventually enhancing strength, speed, and power for non-endurance activities.

3Joint Flexibility

Fitness related to joint flexibility increases a person's range of movement in a series of joints. In addition to this, it accounts for the lengthening of muscles across joints to facilitate a bending motion. Joint flexibility will vary from person to person, but can still be cultivated with the right workout routine to increase their range of movement. This results in a number of benefits including fewer injuries when exercising, suppression of joint pain, enhanced posture, and improved balanced as well as better strength.

4. Muscular Strength and Endurance

Muscular strength is a type of fitness directly related to muscle density and endurance, allowing athletes to perform more repetitions while lifting heavier weights .It increases a person's ability to work against resistance by maximising the force that can be applied against a load. Endurance and strength training have a number of positive impacts on the body, including increased bone density to reduce the risk of osteoporosis. It helps athletes to manage their weight and muscle mass effectively and can increase metabolism.

Fitness for Different Industries Trends.

With online workouts still trending and more gym-goers returning to the gym, the world is trying to adapt to a new way of life. Let's look toward 2022 with optimism in the hopes that the pandemic releases its grip on the world. As technology continues to advance, there will be new opportunities for brands and consumers in fitness.

1.Hybrid gym memberships

We're seeing an increase in gyms offering hybrid memberships. Many traditional gyms are noticing that members want to have the option to work out either online or in-person. Online fitness isn't necessarily a competitor to brick-and-mortar businesses, but an ally as long as you can adapt to the needs of your members. Members want the option to head to the gym a few days a week, but also get a workout in at home

2. Wellness-tracking wearable technology

Wearable tech and activity trackers continue to be a big trend for 2022, but they are going beyond fitness. This year, many smartwatches and fitness trackers are adding features that delve into metrics like body temperatures, stress levels, sleep, and heart rate. People are looking to track a variety of wellness metrics that go beyond just steps or miles run. A great example of this is the human performance company Whoop. In the last year, they have raised $200 million in funding. Whoop can track your sleep, health, strain, recovery so that you can have a bigger picture of your overall healthcare.

3. Exercising outdoors

People are spending more time outdoors and with the closure of gyms, many members went to their local outside space for their workouts. UK gym chain, Pure Gym, conducted a survey based on Google searches to spot the latest fitness trends or fads. They found that reverse running and stroller fitness are climbing the list of popular searches. Outdoor activities like hiking, running, cycling, and outdoor workouts in nature will continue to be popular ways to exercise. More people are not only looking to exercise more but benefit from being out in nature.

4. Low-impact exercise

As popular as high-impact exercise is, there's a space for low-impact exercise to grow. Workouts like rowing, yoga and Pilates are perfect for strengthening but are much less harsh on the body. As more people look to work on functional daily movements and just live a healthier life, low impact but effective workouts will continue to be a fitness trend. For instance, Pure Barre which is the largest barre studio franchise focuses on small movements that result in big changes.

5. Inclusive fitness

Cultivating a diverse and inclusive fitness industry will continue to be an underlying theme for gyms, fitness studios, and even fitness apps. From your instructors to workout styles, as a business owner, it's your responsibility to create a diverse environment. With online and home workouts, more people have access to fitness like never before. But there's still room for a higher level of inclusivity. You can see this through the development of fitness apps such as Joyn which focuses on body-neutral movement with no judgment and no diet talk.

6. Mini workouts

Mini workouts are for the people who don't have 45 minutes spare to dedicate to a workout. They are for the people who want to squeeze in an effective, but quick workout throughout the day. Mini workouts benefit both time-sensitive people as well as those who simply don't have the motivation to commit to a huge workout. Whether it's strength training with free weights or a ten-minute bodyweight training program, a mini workout is simple and quick. Mini workouts could be five or ten minutes long that you can spread out throughout your day.

7. High-intensity interval training (HIIT)

Every year, high-intensity interval training continues to be trending. Typically, HIIT workouts involve short bursts of activity with periods of rest. The benefit of HIIT training is that you can get in an intense workout in a relatively short period of time. The good thing about HIIT is that you don't need any special equipment as you can use bodyweight exercises. Most of the time, you can customize HIIT workouts so they are suitable for a range of abilities. A style of HIIT training known as ZUU is also increasing in popularity. ZUU is inspired by the animal kingdom and delivers a tough full-body workout.

8. Mind-body

Moving into 2022, there will likely continue to be a big focus on holistic fitness programs and mind-body practices. Following multiple lockdowns, financial pressures, and general stress from living through a pandemic, mental health

is a key focus in health. As more people look to find ways to ease stress, anxiety and support their mental health, practices like yoga, tai chi, and medication will continue to be popular. As physical activity becomes part of the greater health puzzle, consumers will look to movement as a way to meet their overall wellness goals.

9. Outdoor personal training

As the trend towards outdoor exercise and personalized training continues, outdoor personal training looks set to be popular this year. Personal trainers also have the opportunity to teach small groups in an outdoor setting. By training outdoors you can maintain social distancing more easily and have fresh air circulating. Outdoor personal training also supports clients who may be hesitant about exercising indoors or those more vulnerable to COVID-19 and seeking alternatives to the gym.

10. Smart home gym

Smart home gym equipment was already trending before the pandemic, but multiple lockdowns really accelerated consumer adoption and growth. No doubt smart home gym equipment can be pricey, but brands like Tempo and FightClub continue to raise millions in funding this year. For many people, the barrier to smart home gym equipment is price and size. We're already seeing brands tackle this with equipment like the Temple Studio which is an all-in-one home gym the size of a mini-fridge, costing just under $400. While Peloton is a huge player in the home gym equipment space, it will be interesting to see how new brands come to the field with different offerings.

11. Fun group fitness classes

There's something about working out in a group that makes you feel good. Entire brands are built on the premise that people like to work out together and that feeling of community elevates the business. While HIIT and yoga will always be popular group workouts, we're seeing classes like trapeze, roller skating, and trampoline grow in popularity. Thanks to TikTok, weighted hula hoop exercises appear to

Design and Implementation of ProFit

Once information is gathered from the initial user research and consolidated it is possible to create initial designs of the product. The design is guided on the interpretation of what users expect to achieve and the way they want to interact with the product. Consistency 10 is a vital aspect to craft a pleasurable user experience through the whole interaction. It allows to conjointly make sure that all the parts align with the client's goals as well(Allabarton, 2016). Today, users can interact with a product in a variety of devices. Still ,products that have stood out were those that were pleasant to use. Consistency acrossdifferent devices greatly builds the trust users have in a product (Nielsen Norman Group,2013).One tool used constantly in the design phase is wireframes, they consist of two dimensional illustrations of a page´s interface content with the intent of showing the arrangement of the information, functionalities and intended behaviors. Wireframes do not depict visual design and they

be back on the scene. While it's difficult to tell if something is a trend or fad, one thing remains the same, which is there's no denying the popularity of group training.

12. Movement as medicine

In the fitness landscape, one of the biggest shifts we're seeing is that fitness is going beyond achieving the perfect bikini body. It's about moving your body and living a healthier life. Fitness is just a part of your overall wellness, and the mindset of exercise is medicine is growing. There are benefits to daily exercise and movement for health and well-being. The AmericanHeart Association even suggests that doctors could prescribe exercise for some cases of high blood pressure and cholesterol.

Figure 1: Fitness trends

usually are monochromatic.The final phase of the UX design process refers to the implementation and it reflects all the changes made from the previous phases. Ideally a UX designer will exchange dialogues with the developer team of the company to ensure the implementation follows the design guidelines determined by the UX designer. UX designers conjointly verify systems within the main system and processes among a system. However, the role of a 12 UX designer varies greatly depending on the nature of the company in which he/she is working for (Allabarton, 2016).Users are motivated to perform an action because of extrinsic and intrinsic factors. Extrinsic means that the user will be driven to do something by external factors which include things that happen around them and determined by the environment such as the place, time of the day, tools, etc. And intrinsic means that the user is motivated by internal factors such as their beliefs, values, goals, etc.Mobile applications are recently being used as tools to alter people's behavior and persuade them to participate in more engaging everyday physical activities. The tendency at the moment is taking a fun oriented approach where users can train together and get motivated to have healthier habits.

Fitness and wellbeing mobile applications focus on creating relationships among users and providing the support of real personal trainers to make the workout safer and motivating in the long term.
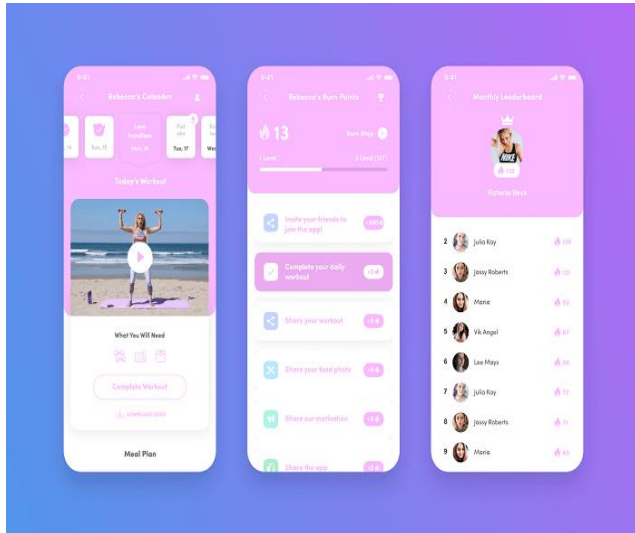

Figure 2. design and implementation.

Blessings of the Application

● **No investment**: clients doesn't need to pay anything for the usage of this device on internet software everything in this device is free of price. Even customer have flexibility to apply any interface there may be no restriction within the gadget.

●**user Accessibility**: It has the power of the use of their account on any tool.

●**pleasant individual Interface**: The software this is developed ought to facilitate its stop clients with interactive graphical interfaces that could be effects adaptable.

●**Maintainability**: upkeep of the software program is painless for its person. The application will want no model updates and hence require no protection until the client transforms the settings as a result.

●**Ease of reading and value**: maintaining in mind the target marketplace, the app can be designed for the generalized target market and hence could be clean to use. The software might be evolved preserve in thoughts the HCI thoughts.

●**Give Free Health and Fitness Tips:** Many health and fitness apps provide health and fitness tips and guidelines, which help individuals in meeting their health goals. You can also get free workout or exercise ideas that help you to plan your workout routine easily.

Proposed System Architechture

The proposed of Fitness applications has two major functionalities; providing the user with a remote monitoring facility for a live event (a medical operation in our case), and allowing different users from different physical locations to conduct a live fitness class for free; discussing and exchanging information regarding the ongoing live event.the evolution of blockchain technology has got huge attention from the research community due to its versatile applications and unique security features. The IoT has shown wide adoption in various applications including smart cities, healthcare, trade, business, etc. Among these applications, fitness applications have been widely considered for smart fitness systems. The users of the fitness system are increasing at a high rate thus the gym providers are constantly extending the fitness facilities. Thus, scheduling such a huge number of requests for fitness exercise is a big challenge. Secondly, the user fitness data is critical thus securing the user fitness data from unauthorized access is also challenging. To overcome these issues, this work proposed a blockchain-based load-balanced task scheduling approach. A thorough analysis has been performed to investigate the applications of IoT in the fitness industry and various scheduling approaches. The proposed scheduling approach aims to schedule the requests of the fitness users in a load-balanced way that maximize the acceptance rate of the users' requests and improve resource utilization. The performance of the proposed task scheduling approach is compared with the state-of-the-art approaches concerning the average resource utilization and task rejection ratio. The obtained results confirm the efficiency of the proposed scheduling approach. For investigating the performance of the blockchain, various experiments are performed using the Hyperledger Caliper concerning latency, throughput, resource utilization. The Solo approach has shown an improvement of 32% and 26% in throughput as compared to Raft and Solo-Raft approaches respectively. The obtained results assert that the proposed architecture is applicable for resource-constrained IoT applications and is extensible for different IoT applications. Fitness function is a type of objective function that is used to summarize how close a given software architecture solution is to achieving the set aims.When defining an evolutionary architecture, the software architect seeks a 'better' algorithm; the fitness function defines what 'better' means in this context. Software architects can communicate, validate and preservearchitectural characteristics in an automated, continual manner, which is the key to building evolutionary architectures.The fitness function is constructed on the basis of the software under test. With fitness-function-driven development, you can write tests that measure a system's alignment with architectural goals.When starting using fitness functions is to begin by gathering input from all stakeholders to get an understanding of what they consider to be the most important architectural attributes. These should then be grouped into common themes like resilience, stability, etc.All collected fitness functions should describe their intent using an objective metric meaningful to teams and stakeholders. This will help the teams in measuring technical debt but also to avoid architectural drift. All functions should be drafted in a

testing framework and included in appropriate delivery pipelines. One example of a fitness function is code quality where modifiability, manageability and adaptability can be measured in order to prevent code with too low quality from being deployed to production. Also, Implementing automated performance tests as fitness functions and added to the build pipelines means tests are run early with results immediately accessible.
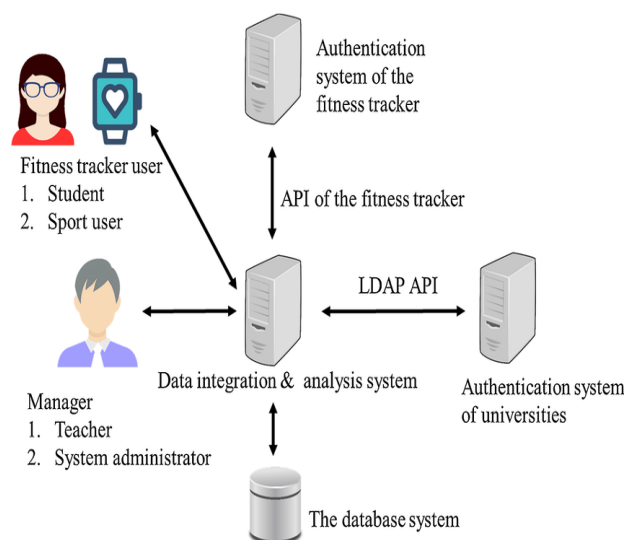

Figure. 3 The video conferencing system architecture.

Conclusion and future work

In this paper, we have presented the design details of a Fitness system, includes the study of the problem areas of the current scenario and the need for developing this application. It also discusses the various benefits of the application in various areas and tells how it can benefit society as a whole. This application gives a number of benefits like monetary benefits, healthcare benefits, efficiency benefits etc. Taking into account all of the benefits was an important and crucial task so that the user gets to know the benefits they can get by using the application.

As a futurework, First, we are looking toward integrated music player The application will have an integrated music player with it so that the user doesn't have to look for other applications for playing the songs during workout.

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