HEALTH AND FITNESS MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

KARTHICK N	**(211419205088)**
GOWTHAM KUMAR S	**(211419205057)**
DINESH S	**(211419205044)**

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

IN

INFORMATION TECHNOLOGY

PANIMALAR ENGINEERING   COLLEGE, POONAMALLEE

ANNA UNIVERSITY : CHENNAI 600 025

APRIL 2023

i

ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **"HEALTH AND FITNESS MANAGEMENT SYSTEM"** is the bonafide work of **"KARTHICK N (211419205088), DINESH S (211419205044), GOWTHAM KUMAR S (211419205057)"** who carried out the project under my supervision.

SIGNATURE   **SIGNATURE**

Dr.M.HELDA MERCY M.E., Ph.D.,   **Mr.V.KANDASAMY M.E.,(Ph.D).,**

HEAD OF THE DEPARTMENT   **SUPERVISOR** (Assistant Professor)

Department of Information Technology   Department of Information Technology

Panimalar Engineering College   Panimalar Engineering College

Poonamallee, Chennai - 600 123   Poonamallee, Chennai - 600 123

Submitted for the project and viva-voce examination held on   11.04.2023

SIGNATURE   **SIGNATURE**

INTERNAL EXAMINER   **EXTERNAL EXAMINER**

DECLARATION

I hereby declare that the project report entitled "" which is being submitted in partial fulfilment of the requirement of the course leading to the award of the 'Bachelor Of Technology in Information Technology' in **Panimalar Engineering College, Autonomous institution Affiliated to Anna university-Chennai** is the result of the project carried out by me under the guidance of **Mr.V. KANDASAMY M.E.,(Ph.D)., Assistant Professor in the Department of Information Technology**. I further declared that I or any other person has not previously submitted this project report to any other institution/university for anyother degree/ diploma or any other person.

DINESH S
(211419205044)

GOWTHAM KUMAR S
(211419205057)

KARTHICK N
(211419205088)

Date**:** 11.04.2023

Place**:** Chennai

It is certified that this project has been prepared and submitted under my guidance.

Date: 11.04.2023

Place: Chennai

(Mr. V. KANDASAMY M.E.,(Ph.D).,

(Assistant Professor / IT)

ACKNOWLEDGEMENT

ABSTRACT

As individuals become more health conscious, there is a considerable growth in the number of members at various Fitness & Health Clubs. However, it is difficult for fitness club owners to manually handle admission entries, new and old member data, event scheduling, and so on. The suggested Android app project intends to automate the management system for Fitness & Training Health clubs. New members may simply join the fitness club by picking a membership programme and completing the payment process. Members can then use their login credentials to access the app. Users can choose a goal and set a target for themselves. The app will alert users of forthcoming events, which they may register for if they are interested.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OFABBREVATIONS

DFD	-	Data flow Diagram
UML	-	Unified Modelling Language
J2ME	-	Java 2 Micro Edition
J2SE	-	Java 2 Standard Edition
JAVA EE	-	Java Enterprise Edition
ISO	-	International Standard Organization
IEC	-	Information Education& Communication
JTCI	-	Junior Temperament And Character Inventory
SDK	-	Standard Development Kit
JRE	-	Java Runtime Environmental
GNU	-	GNU's Not Unix
GPL	-	General Public License
API	-	Application Programming Interface
JSP	-	Java Server Pages
JDBC	-	Java Database Connectivity
ODBC	-	Open Database Connectivity
HTML	-	Hyper Text Markup Language
SSI	-	Server Side Contains
JCAE	-	Java Card API Specfication
JWS	-	Java Web Server
NPH	-	Non Parsed Headers
ICT	-	In Circuit Testing
HTTP	-	Hypertext Transfer Protocol

CHAPTER-1

INTRODUCTION

1.1 NEED OF THE PROJECT:

  The healthcare industry has been continuously seeking innovative ways to improve the overall fitness and health of individuals. One such solution is the development of a mobile app that focuses on the prevention of conditions through improved fitness. This app utilizes cutting-edge technology and data analysis to provide personalized exercise and nutrition plans, helping individuals take control of their health and reduce the risk of developing conditions. With the increasing prevalence of chronic diseases, the implementation of such a solution is more important than ever, and the pledge to estimate its impact on healthcare is a crucial step in promoting the widespread adoption of this innovative approach. The increasing incidence of chronic diseases has become a major concern for healthcare professionals worldwide. These conditions, such as obesity, cardiovascular diseases, and diabetes, often result from unhealthy lifestyles and lack of physical activity. To address this issue, there is a growing need for innovative solutions that can help individuals take control of their health and improve their overall fitness. One such solution is the development of a mobile app that is designed to promote health and fitness by preventing the onset of conditions. This app uses cutting-edge technology to provide personalized exercise and nutrition plans based on an individual's unique health profile.

  It also features real-time monitoring and tracking of progress, as well as motivational tools to help users stick to their fitness goals. The pledge to estimate the impact of this app on healthcare is a crucial step in promoting its widespread adoption. By quantifying the positive effects of this innovative approach, healthcare professionals and organizations can make informed decisions about

incorporating the app into their existing programs and initiatives. Additionally, this pledge serves as a commitment to continuously improving and refining the app to provide the best possible outcomes for individuals seeking to improve their health and fitness. As people are becoming health conscious nowadays, a significant increase can be seen among the members at various Fitness & Health Clubs. However, it is difficult for the fitness club owners to manually manage the admission entries, keep data of new & old members, scheduling events, etc. The android app project proposed here aims at automating the management system for Fitness & Training Health clubs. New members can easily get registered with the fitness club by selecting the desired membership program & completing the payment procedure. The members can then access the app by using login credentials. The users can select a goal for themselves & set a target.

The app will notify the users of the upcoming events for which they can get themselves registered if interested. The usage of mobile phones can make it easier to maintain a healthy diet. Mobile devices offer a reasonable infrastructure that may be leveraged to give affordable, High-quality tools for behaviour change and monitoring. Mobile devices by their very nature allow for customization and personalization, quick access to nutritional data, and accurate tracking of consumption patterns. This Android software offers a comprehensive answer to all health-related problems and queries.

1.2 OVERVIEW OF THE PROJECT:

The fitness app project is aimed at creating a mobile application that helps users achieve their fitness goals. The app provides a platform where users can access personalized workout plans, track their progress, and connect with other fitness enthusiasts. The app's objective is to promote a healthy and active lifestyle and to help users make exercise a regular part of their routine. The fitness app project is designed to be user-friendly and accessible to a wide range of users, regardless of their fitness level.

The app features a variety of workout plans that are tailored to the user's individual goals and fitness level. Users can also track their progress, set goals, and receive personalized recommendations to help them stay on track. The app also includes features that enable users to connect with other fitness enthusiasts. This includes the ability to share workout routines, tips, and progr ess updates with friends and other users. Additionally, the app provides a forum where users can ask questions, get advice, and connect with other users who share similar fitness goals.The fitness app project is developed with the latest technologies, ensuring that users have a seamless experience. The app is optimized for mobile devices and can be easily downloaded and installed from popular app stores. The app is also regularly updated with new features, workouts, and other content to ensure that users stay motivated and engaged. Overall, the fitness app project is aimed at promoting a healthy and active lifestyle and helping users achieve their fitness goals. The app provides a convenient platform where users can access personalized workout plans, track their progress, and connect with other

The app consists of various diet plans from which the members can choose as per their body weight & type. This application will guide the members on various body exercises through videos. Also, the users can attend the fitness club's gym.Additionally, a motivational video section is also included in this app to boost themembers' morale & keep them motivated. The members can add or edit notes. The club management team can view the list of all the members & can filter them as per their membership program. The club owners can add new events for the members. Thus, this Android App will provide a user-friendly experience to boththe members & the fitness club owners. It can track your diet, provide nutritional facts about food, calculate your BMI, and provide details about certain common medications, among other things. The number of members at various Fitness &amp Health Clubs has significantly increased as people become more health concerned. Owners of fitness centres may find it challenging to manually handle

. Introduce the App and its Purpose The first objective of the fitness app's introduction page is to provide an overview of the app and its purpose. This includes explaining what the app does,how it works, and what users can expect from using it the key features and functionalities page is to detail the app's key features. This includes features like workout plans, nutrition tracking, progress tracking, and community support. The page should explain how each feature works and how it can benefit users.The introduction should also highlight the benefits of using the app and how it can help users achieve their fitness goals the introduction page is to provide an overview of the health and fitness app the introduction page is to outline the objectives of the health and fitness app. This includes explaining how the app is designed to help users improve their physical fitness, manage their nutrition, track their progress, and connect with other users. The page should also highlight the importance of these objectives in promoting a healthy and active lifestyle. This includes outlining the key features and functionalities that the app offers to its users.

The page should also provide a brief overview of how the app works, who it's designed for, and how it can benefit users. Highlight Key Features The second objective of the introduction page is to highlight the app's key features. This includes features like tracking workouts, setting fitness goals, accessing workout videos, and connecting with other users the introduction page is to explain the importance of health and fitness. This includes highlighting the various physical and mental health benefits of regular exercise and a healthy lifestyle the key features and functionalities page is to explain how the app helps users achieve their fitness goals. This includes highlighting how the app's features can be used to create personalized workout plans and nutrition goals, track progress, and receive motivation and support from the community. The page should also provide examples of how the app has helped users achieve their fitness goals.

The page should also emphasize the role that technology can play in helping people achieve their fitness goals. The page should explain how each feature works and how it can benefit users. Provide Instructions for Getting Started The third objective of the introduction page is to provide instructions for getting started with the app. This includes explaining how to create an account, how to navigate the app, and how to start using its features. The page should also provide information on how to contact customer support if users encounter any issues. Provide Workout Plans The first objective of the workouts and tracking page is to provide users with workout plans. These plans should be tailored to the user's fitness level and goals and should include a variety of exercises that target different muscle groups the key features and functionalities page is to highlight the app's user-friendly design. This includes explaining how the app's interface is intuitive and easy to navigate, and how it's accessible to users of all fitness levels. The page should also highlight how the app's design supports user engagement and motivation.

  The page should also provide information on how to modify the workouts to make them more challenging or easier, the benefits and impact page is to outline the benefits of using the app. This includes benefits like improved physical fitness, better nutrition management, increased motivation and accountability, and access to a supportive community. The page should also highlight how the app can help users achieve a better quality of life. depending on the user's needs. Track Progress This includes highlighting how the app can contribute to reducing the incidence of lifestyle-related diseases and promoting a more active and healthy population. The page should also provide examples of how the app

has already had a positive impact on public health. The page should also provide tips on how to stay motivated and keep pushing towards those goals. Offer Personalized Recommendations The third objective of the workouts and tracking page is to offer personalized recommendations. This includes recommending workouts based on the user's fitness level and goals, as well as providing tips on how to improve their form and avoid injury. The page should also offer suggestions for workouts that the user may not have tried yet, but that could be beneficial based on their goals and preferences. The page should also highlight how the app can be tailored to the needs of individual users. The functionalities and benefits page is to detail the app's functionalities. This includes providing a more in-depth look at the key features outlined in the overview page, as well as additional functionalities like progress tracking, community support, and integration with wearable devices. The page should explain how each functionality works and how it can benefit users.

The functionalities and benefitspage is to outline the benefits of using the app. This includes benefits like improved fitness and overall health, increased motivation, better accountability, and the ability to customize workout and meal

. By quantifying the positive effects of this innovative approach, healthcare professionals and organizations can make informed decisions about incorporating the app into their existing programs and initiatives. Additionally, this pledge serves as a commitment to continuously improving and refining the app to provide the best possible outcomes for individuals seeking to improve their health and fitness. As people are becoming health conscious nowadays, a significant increase can be seen among the members at various Fitness & Health Clubs. However, it is difficult for the fitness club owners to manually manage the admission entries, keep data of new & old members, scheduling events, etc. The android app project proposed here aims at automating the management system for Fitness & Training Health clubs.

submissions for admittance, information about current and past members, event planning, etc. The goal of the proposed Android app project is to automate the management of fitness and training facilities. By selecting a membership plan an d paying the required fees, new members may easily join the fitness club. Members can then access the app using their login information.

1.3 SCOPE OF THE PROJECT:

The aim of app is to make your lifestyle healthier by tracking your food intake, water intake and workout pattern. Some apps even keep a track of your heart rate and blood pressure, which is beneficial for individuals with high blood pressure. Some health and fitness apps even have a health coach, who help their clients to achieve their health goals effectively. Weight watchers or people who want to gain weight can mention the type and amount of foods consumed at each meal. From this health app calculate the calories, carbohydrates, proteins and fat content of your meal. In this way, you can avoid foods that may not be right for your health. You can track all your food intake easily and maintain a digital food diary at just one click. Studies have found that maintaining a food diary or a food log helps individuals to eat food more consciously. Now you can simply monitor all your workout and health progress at just one click. Fitness apps enable you to fill in all your health details and updates. For example- you can record your blood glucose levels and blood pressure levels each time you get them checked.

This helps you to track your health details at just one go. You can even compareyour current blood parameters with your previous ones, which will give you an idea if your health has improved or not. 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 planyour workout routine easily. Pedometer apps are now available on mobile phones, where you can keep a count of steps and track the distance you have walked. Such

apps help you meet your step count target by giving you all the information you need. Monitoring your steps can improve your daily step count and work more towards achieving your target. Smartphone technologies have now made life easier. You no longer need to hunt for trainers or health coach or a fitness class. Fitness apps provide excellent facilities to keep you fit and healthy. Some apps have personal health coaches at affordable prices. The coach helps you achieve your fitness goals and educates you about the fitness activities and your diet too. The best part is you don't need to travel for long hours to get this facility. All you need to do is download the app and start a fitness program. Fitness apps are like a one-stop station where you can monitor all your lifestyle parameters like step count, diet, water intake, blood parameters and workout routine.

You don't need to maintain different diaries or books to keep a record of all these things. Fitnessapps help improve your lifestyle habits, as they have a huge positive impact on your health. One of the most important benefits of using a fitness app is 'motivation'. Notification and reminders from fitness apps keep reminding you about your health goals, thus keeping you motivated. You may also come across your fitness app various times in a day while using your smartphone. Fitness appshave made our lives easier and enable you to track your activities on a daily basis. Thus, making you stay focused on your activities and overall fitness.

One of the primary scopes of the fitness management app is to help users track their fitness progress. The app will allow users to log their workouts, set goals, and track their progress over time. Users will be able to see how much they've improved and get a clear sense of how close they are to reaching their goals. The app will also provide personalized recommendations based on the user's fitness level and goals, ensuring that they're always moving forward. Another scope of the fitness management app is to provide users with personalized workout plans. Users will be able to choose from a variety of workout plans that are tailored to their fitness level, goals, and preferences.

The app will provide step-by-step instructions for each workout, as well as recommendations for modifying exercises to suit the user's needs. Users will also be able to create their own workout plans and save them for future use. The app will also include features for tracking nutrition, such as logging meals and tracking macronutrient intake. Users will be able to set daily calorie goals and track their progress towards meeting those goals. The app will also provide personalized recommendations for meals and snacks based on the user's dietary preferences and fitness goals. The fitness management app will also include features that encourage community building among users. Users will be able to connect with other users who share similar fitness goals and interests. The app will include a forum where users can ask questions, share advice, and discuss fitness-related topics. Users will also be able to share progress updates and workouts with their friends and followers. The overview page is to explain the app's key features. This includes features like tracking workouts, setting fitness goals, creating custom meal plans, and accessing a library of workout videos. The page should explain how each feature works and how it can benefit users.

  The overview page is to outline the app's target audience. This includes identifying the types of users who would benefit from using the app, such as fitness enthusiasts, gym-goers, and people looking to improve their overall health and wellness. The page should also highlight how the app can be tailored to the needs of individual users.The functionalities and benefits page is to detail the app's functionalities. This includes providing a more in-depth look at the key features outlined in the overview page, as well as additional functionalities like progress tracking, community support, and integration with wearable devices. The page should explain how each functionality works and how it can benefit users. The functionalities and benefits page is to outline the benefits of using the app. This includes benefits like improved fitness and overall health, increased motivation, better accountability, and the ability to customize workout and meal

plans. The page should also highlight how the app can help users achieve their fitness goals and maintain a healthy lifestyle. The functionalities and benefits page is to provide a roadmap for future app updates. This includes outlining upcoming features and functionalities that are planned for future updates, as well as any improvements or bug fixes that are currently in progress. The page should also provide a way for users to provide feedback and suggest new features that they would like to see in future updates.

1.4 OBJECTIVE OF THE PROJECT:

To provide a brief introduction and overview of the fitness app The first objective of the fitness app is to provide a clear and concise introduction to the app, its features, and its purpose. This should include an overview of the app's functionalities and benefits for users. To emphasize the importance of physical fitness.

The First objective is to highlight the importance of physical fitness and its impact on overall health and well-being. This section should provide statistics, research findings, and other relevant information to emphasize the importance of exercise and physical activity. The second objective is to emphasize the benefits of using the fitness app. This section should focus on how the app can help users achieve their fitness goals, improve their health and well-being, and make exercising more convenient and enjoyable. The third objective of the workouts and tracking page is to help userstrack their progress. The page should include a section where users can log their workouts, track their progress, and see how they are progressing towards their fitness goals the benefits and impact page is to explain the app's potential impact on public health. To encourage users to download the app The thirdobjective is to encourage users to download the app by providing compelling reasons to do so. This section should emphasize the unique features of the app and how it can help users achieve their fitness goals.

CHAPTER-2

LITERATURE   SURVEY

2.1 SURVEY 1:

 "A Literature Review on the Effectiveness of Health and Fitness Apps for
Physical Activity Promotion"

Methods

  The study sample In May 2013, the iTunes and Google Play stores contained
23,490 and 17,756 smartphone applications (apps) categorized as Health and
Fitness, respectively. The quality of these apps, in terms of applying established
health behavior change techniques, remains unclear was identified through
systematic searches in iTunes and Google Play. Search terms were based on
Boolean logic and included AND combinations for physical activity, healthy
lifestyle, exercise, fitness, coach, assistant, motivation, and support. Sixty-four
apps were downloaded, reviewed, and rated based on the taxonomy of behavior
change techniques used in the interventions. Mean and ranges were calculated for
the number of observed behavior change techniques. Using nonparametric tests,
we compared the number of techniques observed in free and paid apps and in
iTunes and Google Play.

Results

 On average, the reviewed apps included 5 behavior change techniques (range 2–
8). Techniques such as self-monitoring, providing feedback on performance, and
goal-setting were used most frequently, whereas some techniques such as
motivational interviewing, stress management, relapse prevention, self-talk, role
models, and prompted barrier identification were not.

Conclusions

The present study demonstrated that apps promoting physical activity applied an average of 5 out of 23 possible behavior change techniques. This number was not different for paid and free apps or between app stores. The most frequently used behavior change techniques in apps were similar to those most frequently used in other types of physical activity promotion interventions.

2.2 SURVEY 2:

"The Role of Health and Fitness Apps in Supporting Weight Loss and Healthy Eating Habits"

Healthy eating and fitness mobile apps are designed to promote healthier living. However, for young people, body dissatisfaction is commonplace, and these types of apps can become a source of maladaptive eating and exercise behaviours. Furthermore, such apps are designed to promote continuous engagement, potentially fostering compulsive behaviours.

Objective

The aim of this study was to identify potential risks around healthy eating and fitness app use and negative experience and behaviour formation among young people and to inform the understanding around how current commercial healthy eating and fitness apps on the market may, or may not, be exasperating such behaviours.

Methods

Our research was conducted in 2 phases. Through a survey (n=106) and 2 workshops (n=8), we gained an understanding of young people's perceptions of

healthy eating and fitness apps and any potential harm that their use might have; we then explored these further through interviews with experts (n=3) in eating disorder and body image. Using insights drawn from this initial phase, we then explored the degree to which leading apps are preventing, or indeed contributing to, the formation of maladaptive eating and exercise behaviours. We conducted a review of the top 100 healthy eating and fitness apps on the Google Play Store to find out whether or not apps on the market have the potential to elicit maladaptive eating and exercise behaviours.

Results

Participants were aged between 18 and 25 years and had current or past experience of using healthy eating and fitness apps. Almost half of our survey participants indicated that they had experienced some form of negative experiences and behaviors through their app use. Our findings indicate a wide range of concerns around the wider impact of healthy eating and fitness apps on individuals at risk of maladaptive eating and exercise behavior, including (1) guilt formation because of the nature of persuasive models, (2) social isolation as a result of personal regimens around diet and fitness goals, (3) fear of receiving negative responses when targets are not achieved, and (4) feelings of being controlled by the app. The app review identified logging functionalities available across the apps that are used to promote the sustained use of the app. However, a significant number of these functionalities were seen to have the potential to cause negative experiences and behaviours.

2.3 SURVEY 3:

"The Use of Wearable Technology and Health and Fitness Apps in Exercise Prescription"

As our world has become upended with the arrival of COVID-19, the way in which healthcare will be provided in the future is likely to change drastically. This pandemic is a big wake-up call for limiting in-person visits, especially during the flu season that put vulnerable patients at undo risk coming into the office for routine care. We have had the technology to perform telemedicine visits for years, but patients' hesitancy and poor insurance reimbursement have always been barriers for widespread acceptance. In the wake of the COVID -19 pandemic, most primary care and specialty offices transitioned to a telemedicine-focused approach within a matter of days to weeks. In response, the Centers for Medicare & Medicaid Services (CMS) relaxed many requirements for Medicare patients and the states followed suit for Medicaid patients.

Insurance companies also loosened restrictions giving healthcare providers increased flexibility to provide care for their patients from the comfort and safety of their own homes. 2020 willbe the ultimate testing ground for various telehealth services and remote monitoring applications, and it is the hope of the authors that recent changes in access and reimbursement will remain in place permanently. To meet the needs of this growing market, new technologies including wearable devices will play an important role in providing real-time data to objectively monitor patients at home. These devices will be especially important for improving the health and control of chronically ill patients and for those with conditions like asthma, COPD, diabetes, and cardiovascular disease. The focus of this paper revolves around wearable devices for asthma, but can be applied for any chronic condition. If these home devices can provide usable data in a reliable, cheap, and easy-to- use format, then the need for in-person visits in the future will be drastically reduced.

As more and more patients use wearable devices and smartphone apps to track their personal health data, how can this information be used in a meaningful way? Fitness technology companies like Fitbit and Apple Health are leveraging insights from over 10 years of activity, exercise, and sleep data to better inform future

applications and provide behavior change techniques and insights to their users. Apple recently announced that customers in the USA can enroll in three landmark health studies: the Apple Women's Health Study, the Apple Heart and Movement Study, and the Apple Hearing Study. Conducted in partnership with leading academic and research institutions like the World Health Organization, these multi-year longitudinal studies are leveraging the ubiquity of Apple products to provide a treasure trove of user data to inform potential medical discoveries that could improve healthcare for all.

2.4 SURVEY 4:

"Exploring the Role of Social Support and Gamification in Health and Fitness Apps"

The current research has dual motives. Firstly, this study aims to evaluate the effect of gamification on the behavioural intention (BI) of the young female consumers to use online websites for making purchases. Secondly, it examines the role of social interaction and perceived enjoyment (PE) – two antecedents that are considered to have an impact on the female buying behaviour in e-commerce.

Design/methodology/approach

A model is developed based on the technology acceptance model. The conceptual framework is augmented with additional constructs such as gamification, PE and social interaction. Data from a survey of 898 female respondents from India was collected to assess the proposed framework. The study uses partial least squares structural equation modelling technique to empirically validate the model.

Findings

Gamification exhibits a favourable influence on BI of young female consumers. Gamification also has a favourable and an indirect influence on BI through socialinteraction and PE. Although, gamification has a significant

influence on perceived usefulness, the latter has no impact on the BI. The BI of using an onlineshopping website is directly associated with the buying intention. The online retailers need to offer an enjoyable and interactive experience to the female consumers so that the influence of gamification is sustainable.

Originality/value

The current research enlarges the ambit of gamification in the e-commerce segment, an area where empirical research is sparse. It highlights the significance of social interaction and PE as mediators. To the best of the author's knowledge, gamification's influence on female online buying behaviour has never been analysed before and hence different segmentation and marketing strategies are required to cater to their unique needs.

2.5 SURVEY 5:

"The Use of Mindfulness and Meditation Techniques in Health and Fitness Apps"

Studies have acknowledged that mindfulness exercise guided by a smartphone app has a positive impact on mental health and physical health. However, mindfulness guided by a smartphone app on mental health is still in its infancy stage. Therefore, we conducted a meta-analysis evaluating the effect of mindfulness intervention guided by a smartphone app on negative emotions and stress in a non-clinical population with emotional symptoms.

Methods

They searched major databases, namely, Web of Science, PubMed, Scopus, China National Knowledge Infrastructure (CNKI), and Wanfang, to identify all of the relevant studies published in English or Chinese from their inception until November 9, 2021. The methodological quality of the included studies was

assessed with Cochrane risk-of-bias bias assessment tool. Two researchers independently conducted document retrieval, study selection, data extraction, and methodological quality evaluation.

Result

A total of eight studies were included in the study, with 574 subjects (experimental group: 348; control group: 226). A random effects model was selected to combine effect sizes. The results of the meta-analysis showed that mindfulness exercise guided by a smartphone app reduced negative emotions [standardized mean difference (SMD) = −0.232, 95% CI: −0.398 to −0.066, p = 0.006], depressive symptoms (SMD = −0.367, 95% CI: −0.596 to −0.137, p = 0.002), and anxiety symptoms (SMD = −0.490, 95% CI: −0.908 to −0.071, p = 0.022).

Conclusions

The findings indicate the potentially beneficial effect of mindfulness exercise guided by a smartphone app on symptoms of depression and anxiety among individuals in a non-clinical population with emotional symptoms. Considering the small number and overall methodological weakness of the included studies and lack of randomized controlled trials (RCTs), the results should be interpreted with caution, and future rigorously designed RCTs are warranted to provide more reliable evidence.

2.6 SURVEY 6:

"The Effectiveness of Health and Fitness Apps in Disease Management and Prevention"

Interventions aimed at modifying behavior for promoting health and disease management are traditionally resource intensive and difficult to scale. Mobile health apps are being used for these purposes; however, their effects on health outcomes have been mixed.

Objective

This study aims to summarize the evidence of rigorously evaluated health-related apps on health outcomes and explore the effects of features present in studies thatreported a statistically significant difference in health outcomes.

Methods

A literature search was conducted in 7 databases (MEDLINE, Scopus, PsycINFO, CINAHL, Global Index Medicus, Cochrane Central Register of Controlled Trials, and Cochrane Database of Systematic Reviews). A total of 5 reviewers independently screened and extracted the study characteristics. We used a random-effects model to calculate the pooled effect size estimates for meta-analysis. Sensitivity analysis was conducted based on follow-up time, stand-alone app interventions, level of personalization, and pilot studies. Logistic regression was used to examine the structure of app features.

Results

From the database searches, 8230 records were initially identified. Of these, 172 met the inclusion criteria. Studies were predominantly conducted in high-income countries (164/172, 94.3%). The majority had follow-up periods of 6 months or less (143/172, 83.1%). Over half of the interventions were delivered by a stand- alone app (106/172, 61.6%). Static/one-size-fits-all (97/172, 56.4%) was the mostcommon level of personalization. Intervention frequency was

daily or more frequent for the majority of the studies (123/172, 71.5%). A total of 156 studies involving 21,422 participants reported continuous health outcome data. The use of an app to modify behavior (either as a stand-alone or as part of a larger intervention) confers a slight/weak advantage over standard care in health interventions (standardized mean difference=0.38 [95% CI 0.31-0.45]; I2=80%),although heterogeneity was high.

Conclusions

The evidence in the literature demonstrates a steady increase in the rigorous evaluation of apps aimed at modifying behavior to promote health and manage disease. Although the literature is growing, the evidence that apps can improve health outcomes is weak. This finding may reflect the need for improved methodological and evaluative approaches to the development and assessment of health care improvement apps.

2.7 SURVEY 7:

"The Impact of Health and Fitness Apps on Mental Health and Wellbeing"

With the profusion of mobile phones, their mobility, ease of access to a myriad of apps, and the possibility of direct communication, mHealth has never been more widespread, surging unparalleled during the COVID-19 pandemic (Tarricone et al. 2021). In that respect, many interactive and psychoeducational apps are readily available to download concerning a wide range of health issues (Rathbone and Prescott 2017; Palos-Sanchez et al. 2021). Smartphone wellbeing apps help people manage and monitor their exercise, diet, and stress levels. Other types of apps repackage medical information already found online and offer information about symptoms and treatments. Others provide the possibility to book consultations with doctors. There is a growing range of apps through which

users can talk directly to doctors and therapists. With potentially more far-reaching effects on the quality of care, there is an emerging breed of apps that monitor and diagnose patients with a variety of ailments, in some cases predicting and thus helping to avert health crises. Overall, research has shown that mHealth is increasingly being used for patient communication, monitoring, and education; to reduce the burden of diseases linked with poverty; to improve access to health services, clinical diagnosis, and treatment adherence; and for chronic disease management (Gurman et al. 2012; Nglazi et al. 2013; Devi et al. 2015; Agarwal et al. 2021).

Empirical data also provided solid evidence of the effectiveness of physical and mental health interventions using mobile apps (Watts et al. 2013), including during the COVID-19 pandemic, when both physical and mental health was further compromised (Oliveira et al. 2021). A growing body of scholarship on digital surveillance has been concerned with the impact of mobile apps, namely considering power relations, inequalities, and commodification by promoting voluntary records of individual quantitative data (van Dijck 2014; Lupton 2016a). In addition, critical research on digital surveillance technologies is concerned with datafication being a form of colonising the life-world (Gilbert 2018; Couldry and Mejias 2019) as it enables the transformation of individual and social behaviours into quantified data (Ruckenstein and Pantzar 2017). Mobile-based technologies mediate screen time (Lohmeier et al. 2020) and promote the digitisation of self-tracking (Lupton 2016b), which facilitates the quantifying of everyday life as they monitor, measure, and record behaviours, individual habits, or human body elements (Lupton 2016b). The self-quantified movement promotes self-experimentation to generate data on overcoming a mind-body duality through tracking (Ruckenstein and Pantzar 2017).

CHAPTER-3

SYSTEM ANALYSIS

The way that is followed while carrying on with the development application is As follows:

3.1 Defining a problem

Defining a problem is one of the important activities of the project. The objective is todefine precisely the business problem to be solved & thereby determined the scope ofthe new system. This phase consist of 2 main tasks. The 1st task within this activity isto review the organization needs that originally initiated the project. The 2nd task is toidentify, at an abstract or general level, the expected capabilities of the new system.Thus, it helps us to define the goal to be achieved & the boundary of the system. Aclear understanding of the problem will help us in building a better system & reducethe risk of project failure. It also specifies the resources that have to be made availableto the project. Three important factors project goal, project bounds & the resource limits are sometimes called the project's term of reference.

3.2 Feasibility study

The systems objectives outlined during the feasibility study serve as the basic fromwhich the work of system design is initiated. Much of the activities involved at thisstage is of technical nature requiring a certain degree of experience in designingsystems, sound knowledge of computer related

technology and through understandingof computers available in the market and the various facilities provided by thevendors. Nevertheless, a system cannot be designed in isolation without the activeinvolvement of the user. The user has a vital role to play at this stage too. As we knowthat data collected during feasibility study wills we utilized systematically during thesystem design. It should, however be kept in mind that detailed study of the existingsystem is not necessarily over with the completion of the feasibility study. Dependingon the plan of feasibility study, the level of detailed study will vary and the systemdesign stage will also vary in the amount of investigation that still needs to be done.

This investigation is generally an urgent activity during the system. Sometimes, butrarely, this investigation may form a separate stage between feasibility study andcomputer system design. Designing a new system is a creative process, which callsfor logical as well as lateral thinking. The logical approach involves systematic movestowards the end product keeping in mind the capabilities of the personnel and theequipment at each decision making step. Lateral thought implies encompassing ofideas beyond the usual functions and equipment. This is to ensure that no efforts arebeing made to fit previous solutions into new situations. The feasibility study proposes one or more conceptual solutions to theproblem set forthe project. The objective in assessing feasibility is to determine whether ad evelopment project has a reasonable chance it helps us to determine the input & output of the system. The following arethe criteria that are considered to confirm the project feasibility.

The following feasibility study was undertaken for the proposed system:

Technical feasibility:

At first it's necessary to check that the proposed system is technically feasible or not & to determine the technology and skill necessary to carry out the project. If they arenot available then find out the solution to obtain them. Hardware is already availablein the University.

Economic feasibility:

While considering economic feasibility, it is checked in points like performance, information and outputs from the system. The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project , which will give best , return at the earliest. One of the factors , which affect the development of a new system ,is the cost it would require.

Social feasibility:

Although generally there is always resistance, initially to any change in the system isaimed at reliving the work load of the users to extent the system is going to facilitateuser to performOperations like calculating salary amounts and deductions, generating reports with less possible errors. The primary purpose of this narrative review was to evaluate the current literature and to provide further insight into the role physical inactivity plays in the development of chronic disease and premature death. is irrefutable evidence of the effectiveness of regular physical activity in the primary and secondary prevention of several chronic diseases (e.g., cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death. We also reveal that the current Health Canada physical activity guidelines are sufficient to elicit health

CHAPTER-4

REQUIREMENT   AND   SPECIFICATION

4.1 Hardware Requirement

Laptop or PC

I3 processor system or higher

4 GB RAM or higher

100 GB ROM or higher

Android Phone (6.0 and above)

4.2 Software   Requirement

Windows 7or higher

Android Studio

1. There are many apps for tracking the running and daily activities of every individual.

2. However,   each   individual   has   a   different   need   of   either losing/maintaining/gaining the weight.

3. There are no apps which address all these issues. Further, there are different apps for diet control and schedule maker.

4. One has to install many apps to meet one unique goal.

5. In addition to suggesting the workouts, this GYM app also plans a schedule where every day's diet and videos related to the same are conveyed.

App has a GPS based tracker for running. It also gives a score for individual's daily performance. It is a more robust and a well-designed app, but doesn't have features of conveying related videos of exercises and the diet plan.

Seven-7 Minute Workout Challenge-

This app has universal and scientifically approved exercises for maintaining the muscle. But the app has only 15 activities for 7 minutes, and the scoring is just based on them. As mentioned earlier, this too doesn't have the suggestion of videos and diet planner. Further, this app doesn't have the tracking feature too.

4.3 APPLICATION PROGRAM INTERFACES

The application will be able to record exercises, repetitions and the diet foll owed.

Description: The app will have a calendar layout that the user will be able to clickon a specific day where they can find all the events and diet scheduled for the day. Further, the activities will be monitored and recorded for the same date.

Implementation: A UI is created for the User to enter the repetitions of the exercises performed, diet followed for the day. Based on the given schedule and the followed schedule, application gives a score to the user for that day. The score will be a function of the repetitions mentioned by the application and the repetitions performed by the user. Similarly for the diet, calories intake and the calories mentioned by the applications will effect the score.

Criticality: The feature is important because without this user will have no directions to proceed. This forms the heart of the app.

Risks : The user might enter the wrong data to top the chart and measures are to be taken to address the issue. Further, this may lead the app to suggest wrong and intense exercises which may affect the performance of the user and subsequently the app.

Dependency: This depends on the calendar app of the device. Without proper interface with the calendar app, this makes GYM app malfunction. Further, effectiveness of the accounting by the user also has impact on the performance.

The application will be able to suggest the videos, diet and schedule them on the calendar.

Description: The app will take the inputs from the user and suggest videos, diet and schedule for the user.

Implementation: A data base of the videos (can be from youtube), is created. Based on the user inputs like what part of the body the user is focussed, the videos will be mapped. For a low data device case instead of the videos, thumbnails from the video at regular intervals can be mapped. Further, diet is also planned similarly.

Criticality: This is also an important feature because this is the main feature which is been absent in many of the available apps.

Risks: The scheduling of videos and diet based on the inputs of the users needs an effective algorithm. A very effective algorithm after a literature survey will be taken to address the issue.

Dependency: This relies on the information from youtube. Instead a database collected from youtube and stored in an external server would address the issue. However since you tube is available free in near future it wouldn't be a problem.

The application will be able to track the running activity of the user and convert them into the calories burnt.

Description: Running speed, calories burnt, the track ran, etc will be monitored and recorded for the day in the calendar.

Implementation: The app will take the GPS location of the device and tracks the user's running activity. This will work only with users internet and location ON. This helps in calculating the calories burnt by the user. For calculation, time taken by the user and the distance travelled by the user will be considered.

Criticality: This is a less important feature, just to compete with the other apps. This acts like an add-on. Even without this feature the app would achieve its goal.

Risks: The tracking eats up the battery of the device a lot. This will be addressed by giving an option to user whether to track the route or not.

Dependency: The GPS interface and the gyrometer of the device have to be properly accessed for the proper functioning of the app.

The application will be able to score the user globally to motivate the user

Description: User will be ranked based on the score he/she has obtained and will be ranked globally in categories of daily and overall performance. Implementation: The app will record the user's score and upload it to a global server where ranking is done based on all the users' performance which can be displayed to every user in the app itself under a unique category named Ranking. This will be done with only prior permissions from the user so that the privacy of the user is not affected. However even if the user is not interested in disclosing his identity, ranking can be displayed with some random comic names.

Criticality: This is also an add-on kind of feature. It is a motivation for the user to be more discipline towards the workouts and diet.

Risks: The fake accounting might effect the chart. Inorder to avoid the fake accounting by the users only the data with feasible results is accounted while ranking the user.

Dependency: Seggragation of correct and incorrect data depends on the algorithm. The algorithm hence decides the function of the app.

The application will be able work offline/low data mode.

Description: Since network availability is not available in many scenaros, app will be working during offline and low data mode.

Implementation: For a low data mode, instead of videos, pictures from the videos at regular intervals will be provided. Thus the information is conveyed with a very less data consumption. Further, the app will be storin g the data during offline mode and upload the same to the server whenever the device goes online.

Criticality: This is an important feature. Most of the devices wont have access to the internet all the time. Hence this is an important feature for proper functioning of the app.

Risks: The stored data might eat up a lots of space. Hence only bare minimum required data and optimized data will be stored to manage the storage space.

Dependency: This depends on the available storage in the device and the RAM of the devics.

- User opens the application.

- User enrolls the name and personal details.

- User chooses if he/she wants to lose/maintain/gain muscle.

- User will be given a choice whether he/she is interested in shaping up specific body parts/or whole body activty.

- User will be asked for whether he/she is beginner/intermediate/Pro so that the application decide the videos based on the inputs.

- Based on the user information, the application maps the videos, diet and sorts themaccording to schedule.

- Application finally suggests a plan.

4.4 Daily Activities:

- User can look at the videos scheduled for the day and follow the mentioned workout.

- User has to follow the diet plan.

- At the end of the day, user will be accounting for all his daily activities.

- Some of them (say exercises) will be automated while doing the activity itself.

- The others like diet are accounted at the end of the day. User is trusted to during this process for a successful schedule.

- The application gives a score for the day and suggests/re-schedules the plan based on the daily activity.

- Further, a global score is provided for the user to motivate him.

4.5 Database   Mapping

- Server will have a collection of videos and each video will be labelled with many categories.

- When a user requests for videos with specified categories, videos which map to the categories mentioned by user will be sorted out.

- Similarly diet related to the categories is also data based and based on the users input they are also sorted out respectively.

- Now based on user's requirement schedule for a week/month will be planned and displayed on calendar.

- Further while mapping user input data during usage of app, will be seggragated based on their age and sex. This ensures proper functioning of a mapping algorithm.

- Reviews and feedback from the users also segregated based on age and sex.

CHAPTER – 5

SYSTEM DEVLOPEMENT

5.1 SYSTEM ARCHITECTURE:
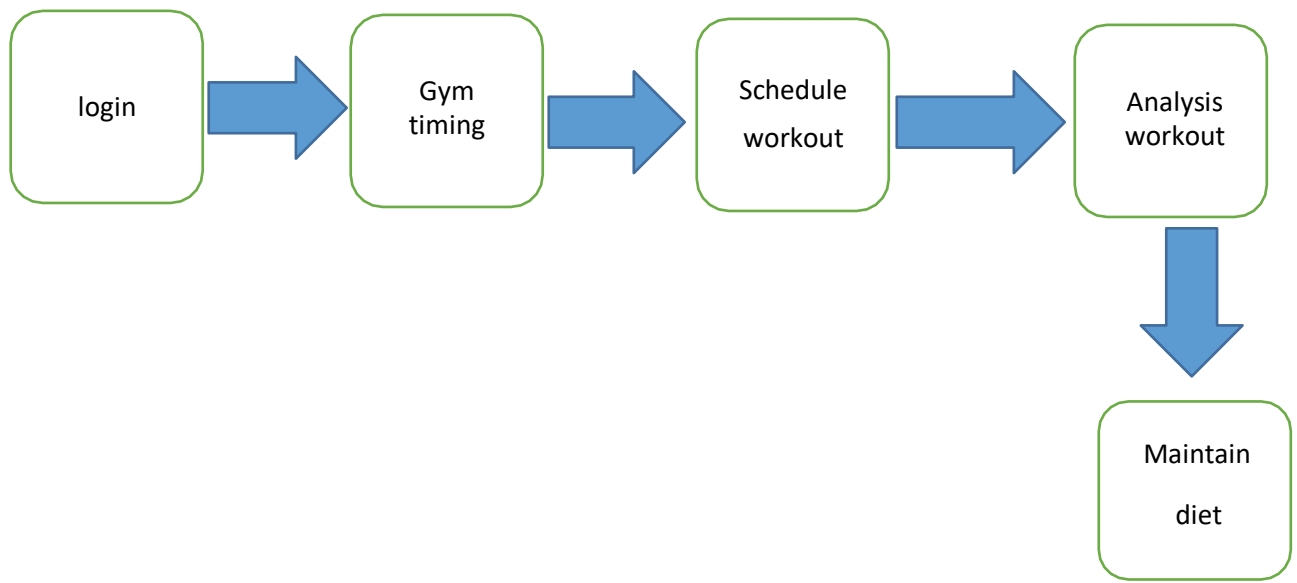
Fig – 5.1 System architecturte

Sign-up & Login:

Allow users to sign up using their Facebook, Google, Twitter, Instagram accounts or other social media accounts that suit your target audience, as well as their own personal email addresses.

User profiles:

Users enter personal information such as their ***name, age, height, weight, gender, and fitness level*** when creating a profile. Both app developers and users will benefit from this information. It assists app developers in creating apps that match users with customized workout routines and track their sporting activity. A user's profile gives them easy access to subscription plans, as well as a history of completed exercises, progress, bonuses, and other information

Goals:

Setting goals is an important aspect of any fitness app. Allowing users to set objectives and goals is motivating because it translates into a goal tracker that will help them achieve their fitness goals without fail.

Workouts & exercises

Video illustrations can all be used to illustrate exercises and workouts. Allow users to make their own workouts, use a standard set of exercises, or combine the two. You'll need an organized and searchable content library for this.

Activity tracking:

Your app can obtain activity tracking data in one of two ways: from smartphone sensors or by integrating with any wearable tracker. Smartphones allow your appto show the number of steps taken, the number of stairs climbed, the distance traveled, the speed, and the direction traveled – a noteworthy app can be mentioned here is Samsung Health. To sync with fitness wearables and measure other parameters like heart rate, sleep quality, or body temperature, you'll need to add third-party APIs. You should also inquire about the parameters that users want to track. Exercises, workouts, running, yoga classes, meditation — audio/video podcasts with a trainer's voice, a soundtrack, or a video tutorial can guide you through a variety of fitness activities. Users should be able to leave feedback, bookmark/favorite/like tracks, and return to them later in your fitness app player.

Support & Customer Services:

Users will appreciate a chat feature in a workout app where trainers provide real-time advice or consultations. If your app doesn't have live chat options, consider combining a chatbot with pre-programmed responses. Nevertheless your app should include contact information that users can have access to at anytime, it not only increase your trust but also help at gathering much needed feedbacks.

5.2 UML DIAGRAMS:

UML is a standard language for specifying, visualizing, constructing, and documenting the artifacts of software systems. UML was created by Object Management Group (OMG) and

UML 1.0 specification draft was proposed to the Object Management Group in January 1997.

Object Management Group is continuously putting effort to make a truly industry standard.

- UML stands for <u>U</u>nified <u>M</u>odeling <u>L</u>anguage

- UML is different from the other common programming languages like C++, Java, COBOL, etc.

- UML is a pictorial language used to make software blue prints.

UML can be described as a general purpose visual modeling language to visualize, specify, constructs and document software system. Although UML is generally used to model software systems but it is not limited within this boundary. It is also used to model non software systems as well like process flow in a manufacturing unit etc.

UML is not a programming language but tools can be used to generate code in various languages using UML diagrams. UML has a direct relation with object oriented analysis and design. After some standardization UML is become an Object Management Group standard.

5.2.1 Usecase diagram
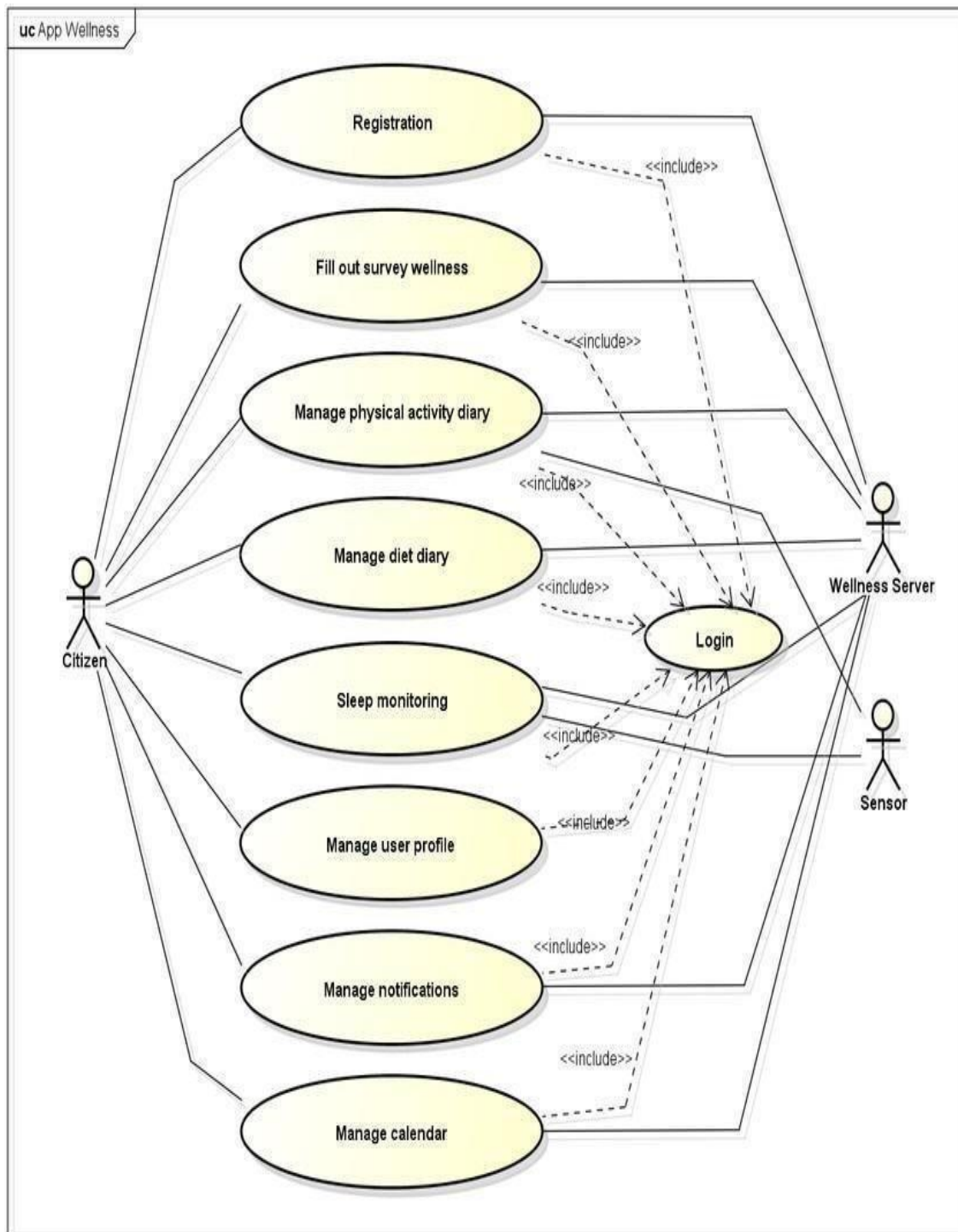
Fig – 5.2.1 Use case diagram

A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application

5.2.2 Class diagram:
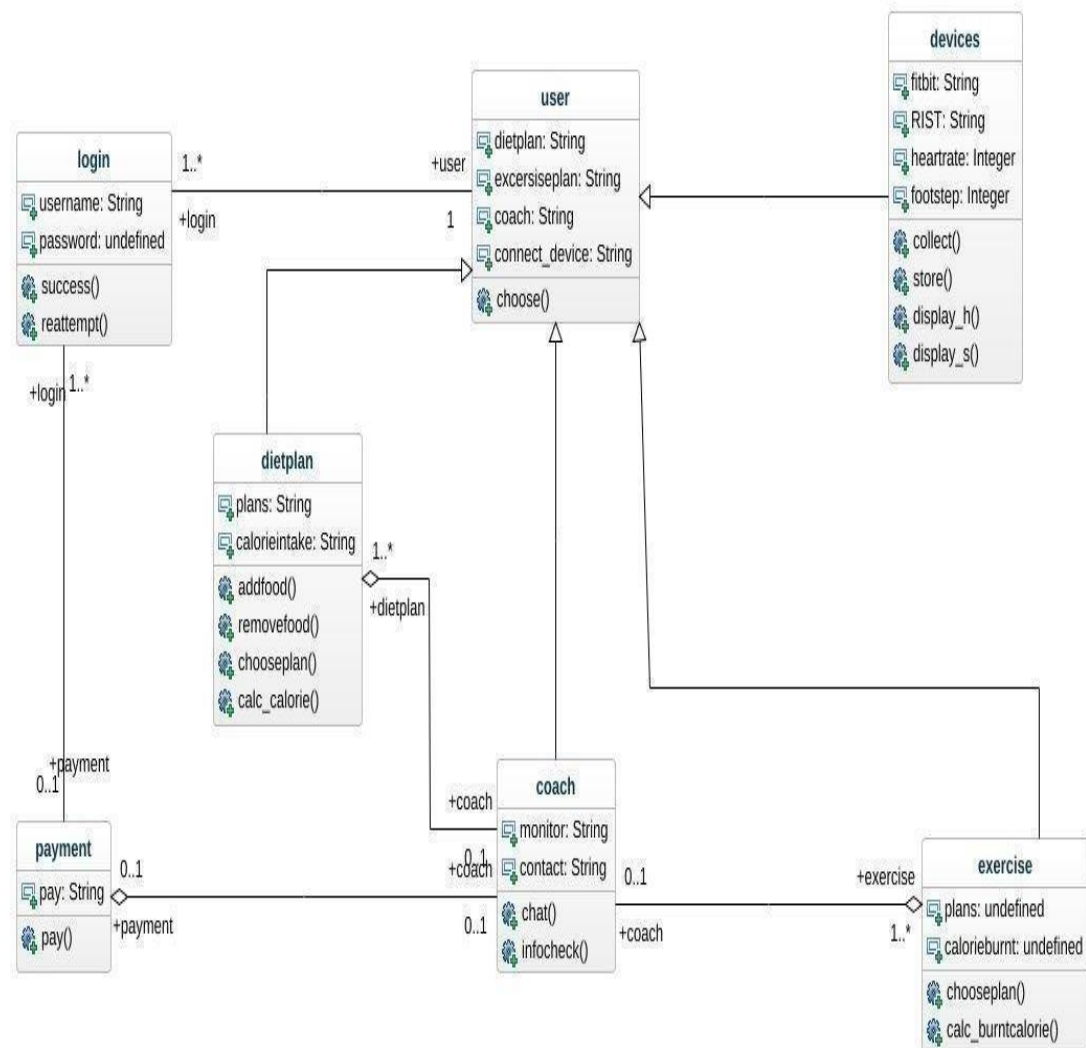
Fig – 5.2.2 Class diagram

A class diagram is an illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML).

5.2.3 E-R Diagram:
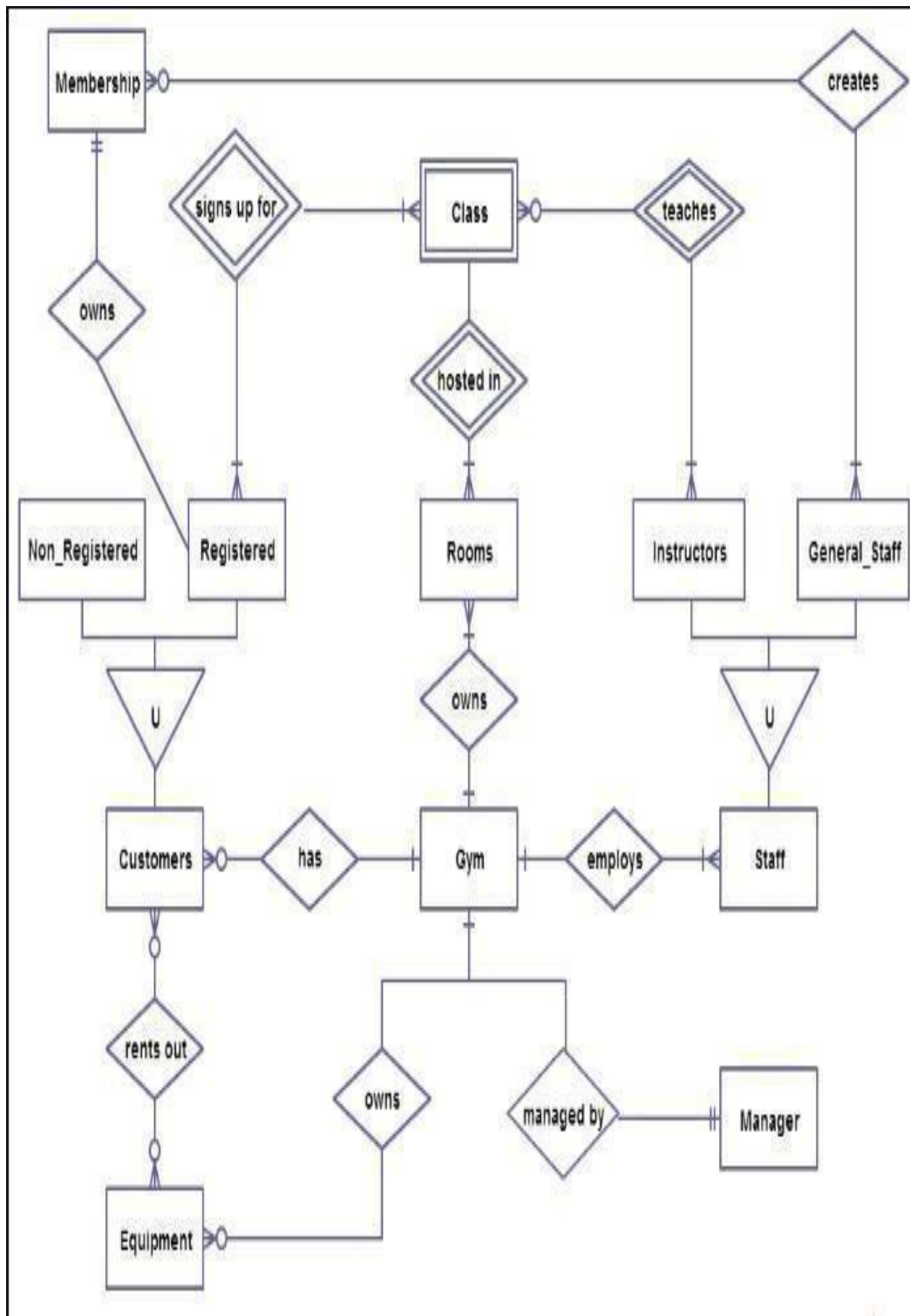
Fig – 5.2.3 Er diagram

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system.

5.2.4 DFD Diagram:

Level 0:

Fig – 5.2.4 DFD diagram

Level 1:

Zero Level DFD - Fitness Center Management System
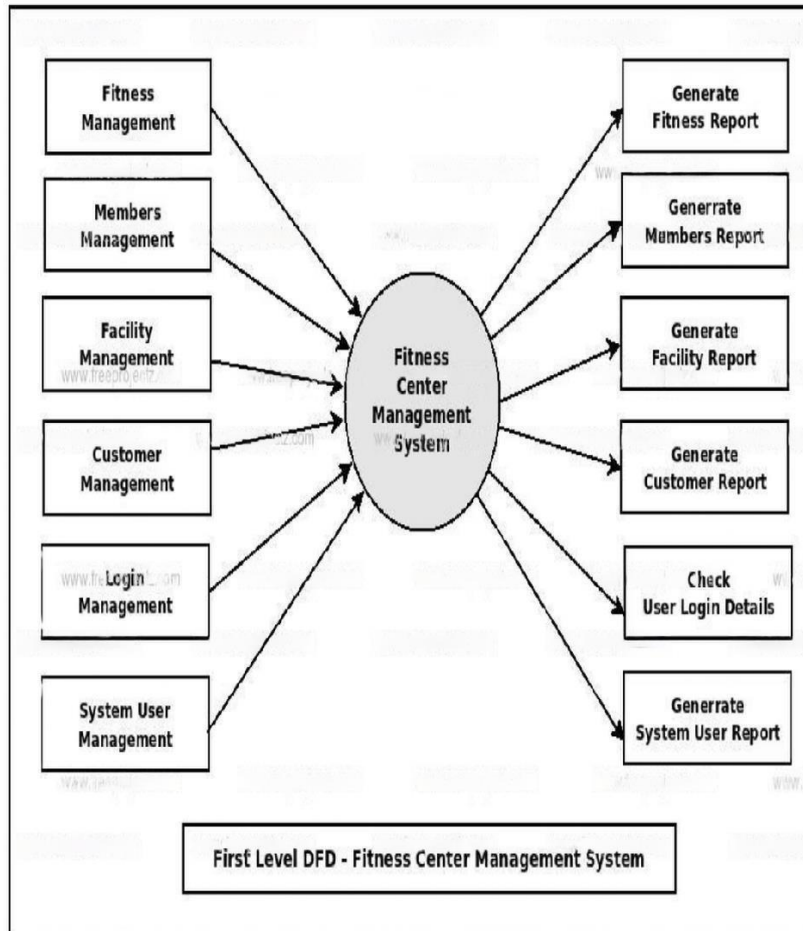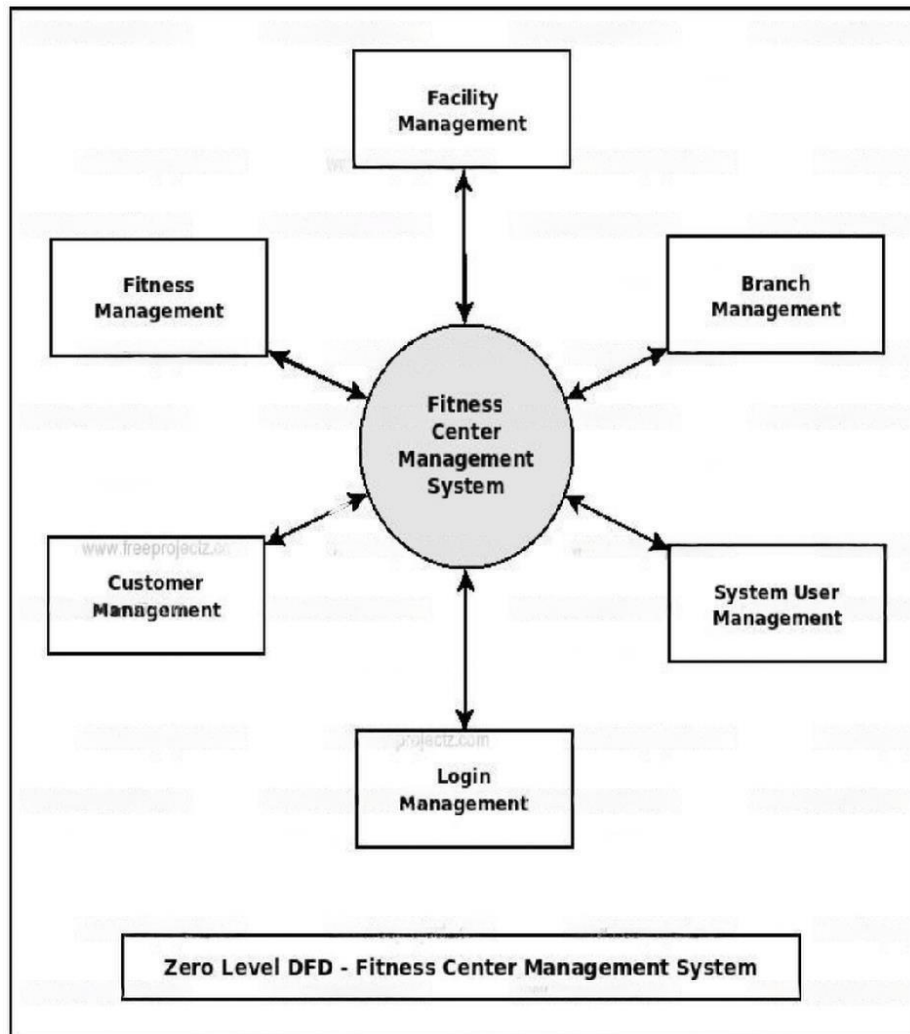
Fig – 5.2.4.1 DFD diagram

Level 2:
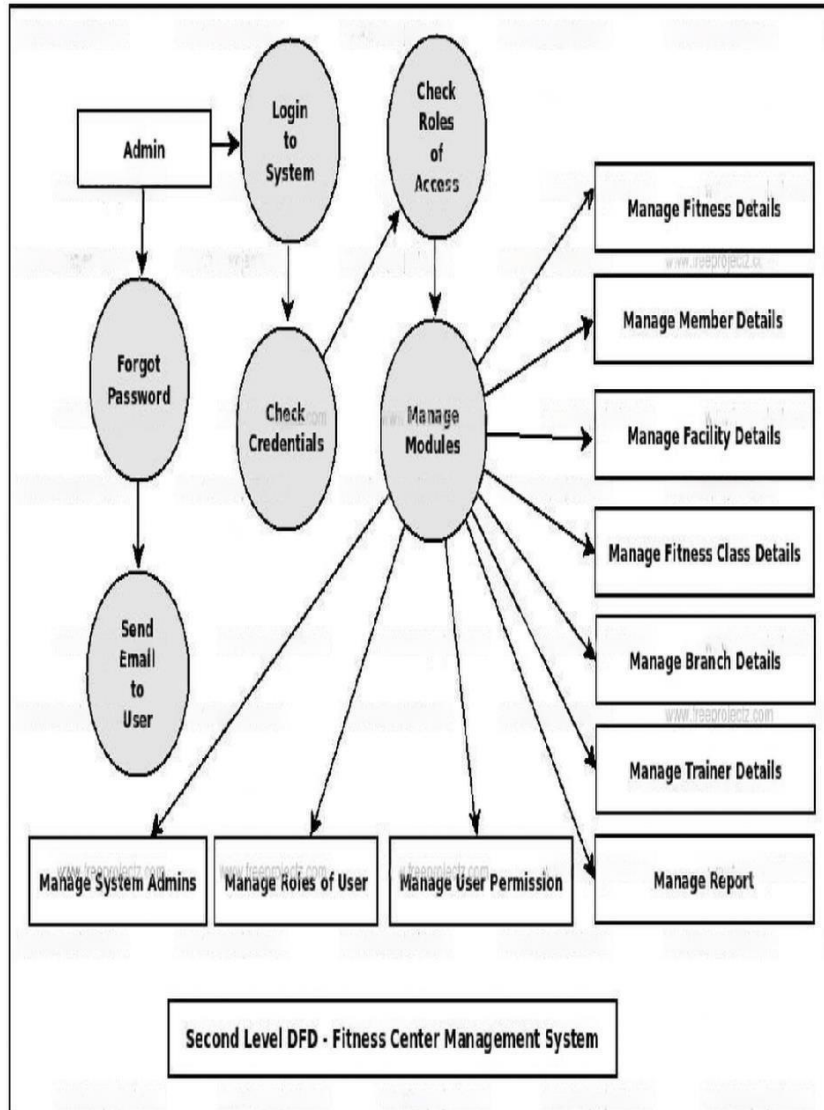
Fig – 5.2.4.2 DFD diagram

CHAPTER – 6

MODULES

The proposed solution contains the following six modules

6.1 USER MODULE

6.2 EXERCISE TRACKER

6.3 NUTRITION TRACKER

6.4 WORKOUT SCHEDULING

6.5 FOOD MANAGEMENT

6.6 WORKOUT BENEFITS

6.1 USER MODULE

.

A user module in a software system is typically responsible for managing user accounts, authentication, and authorization. A user can login into the app for their physical fitness and diet plan. This application will guide the user to improve their physical fitness.Overview: This section displays the user's basic information, such as their name, age, height, and weight. It also shows the user's current health and fitness status, such as their BMI and body fat percentage. After getting user information this application will schedule the workouts for the user goals: This section displays the user's health and fitness goals, such as weightloss or muscle gain. It shows the progress towards each goal, including the target weight or body fat percentage and the current status Activity: This section displays the user's recent activity, such as their workouts and meals. It shows the date, time, and duration of each activity, as wellas any notes or comments the user has added.

Physical fitness has not been universally accepted. Through research and scholarly inquiry, it is clear that the multidimensional characteristics of physical fitness can be divided into two areas: health related physical fitness and skill related physical fitness (see Unit Four). Clarke and Clarke (1989) found that physical fitness is not a static factor and it varies from individual to individual andin the same person from time to time depending on factors. Physical fitness is probably the most popular and frequently used term in physical education. The most important objective of physical educators is to develop physical fitness. According to Nixon and cozens (1964), it was the desire to establish a scientific approach to the development of physical fitness which formed the basis of the first meeting of physical educators in 1885 when the profession of physicaleducation originated. The United States president's Council on physical fitness and sports defined the terms —physical fitness as the ability to carry out daily task with vigor and alertness, without undue fatigue, with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies‖ (Clarke, 1971).

It is bodily movement produced by skeletal muscles that results in energy expenditure. The term, physical activity, does not require or imply any specific aspect or quality of movement. The term encompasses all types, intensities, and domains. Although the term —physical activity‖ has been used often as a short-hand description for moderate-to-vigorous-intensity forms of physical activity, given current interest and discussions about physical activity of intensities less than moderate-intensity, the term —physical activity‖ should be used when discussing the full range of intensities. More specific descriptors such as sedentary behavior,light, moderate, vigorous, or moderate-to-vigorous should be used when talking about a specific range of intensities. Based on predominant physiologic effect, physical activity can be categorized in to aerobic physical activity and anaerobicphysical activity. Aerobic physical activity includes forms of activity that are intense enough and performed long enough to maintain or

basketball, soccer, or dancing, commonly require the use of large muscle groups. The connection between aerobic activities such as these and cardiorespiratory fitness is sufficiently close that the term —aerobic capacity‖ is considered equivalent to cardiorespiratory fitness. Technically, aerobic physical activity includes any activity that could be maintained using only oxygen-supported metabolic energy pathways and could be continued for more than a few minutes. However, in both common and scientific usage, —aerobic‖ activity has come to mean physical activity that would be expected to maintain or improve cardiorespiratory fitness or

The user can see :

Total number of workouts completed

Total number of calories burned

Total amount of time spent exercising

Progress towards goals (e.g. weight loss or muscle gain)

Recent activity (e.g. workouts completed or meals logged)

6.2Exercise Tracker

The exercise tracker page allows the user to log and track their workouts. It should include: A calendar view to select the workout date A list of common exercises to choose from, with the ability to add custom exercises Input fields for the number of sets, reps, and weight lifted for each exercise A space to add notes or comments about the workout. This exercise tracker will track the user whether the user is doing the workout The Activity Tracker core module displays a site's most recently added or updated content. The Activity Tracker module also provides user-level tracking, which allows you to follow the contributions of specific authors.

The Recent content page contains a reverse-chronological list of new and recently updated content. The list displays the content type, the title, the author's username, how many comments that item has received, and when it was last updated. Updates include any changes to the text, either by the original author or someone else, as well as any new comments added to an item. A red "new" will display beside the name of each node the current user has not yet navigated to.

The *My recent content* tab on this page limits the list to the currently logged-in user. To use the Activity Tracker module to see a specific user's updated content,you can click on that user's profile, then their *Track* tab, or enter the URL http://example.com/user/34/track (in older versions of the module), or http://example.com/user/34/activity (in recent versions of the module), where the number is the unique Drupal user ID number. To see the activity of *all* users,enter the URL http://example.com/track (in older versions of the module), or http://example.com/activity (in recent versions of the module), Aside from enabling and disabling, you *cannot* administer this module (ie. thereare no configuration options). There is no Tracker view in the current D8 implementation. The information is created from the tracker_page() function in the tracker.pages.inc file.

6.3 Nutrition   Tracker

The nutrition tracker page allows the user to log and track their meals and nutrition intake. It should include: Input fields to add each meal, including the type of food, serving size, and nutritional information (e.g. calories, protein, carbs, fat)A way to save frequently eaten meals for easy logging in the future A graph or chart to display daily or weekly nutrient intake, with recommended daily values A space to add notes or comments about each meal The page should also display a history of past meals, including the food eaten, serving size, and nutritional information. This nutrition tracker will guide the user by telling,

Internal Sensitivity:

The diet plans for the user

The food should be intake by the user

6.4 WORKOUT SCHEDULING

This module allows users to set specific fitness goals, such as running a 5K raceor losing 10 pounds, and track their progress towards those goals. The module may also include tools to create a personalized fitness plan to help users achievetheir goals.

When it comes to creating a workout schedule for a health and fitness management system, there are a few key factors to consider goals : What are the goals of the individual? Are they looking to lose weight, build muscle, improve cardiovascular health, or a combination of these. This helps to satisfy the user goals and their activities and the user should follow the instructions given by the fitness app. Time: Time does the individual have to devote to working out each day or week This will tell how much time the user should workout and physical activities. Fitness level: What is the individual's current fitness level? Are they a beginner, intermediate, or advanced athlete? This analyses the user fitness level whether the user is a beginner or intermediate or a advance user. This helps the user to perform the workout plan according to their basis. This is the work of a fitness level.

6.5 FOOD MANAGEMENT:

The present investigation entitled "Studies on Food Safety Management and Its Significance in Maximizing the Profit for Food Industry" was carried out at Amity Institute of Agri-business, Amity Business School, Amity University, Mango Orchard Campus, Lucknow, Uttar Pradesh during the academic session

2009- 2010. Food safety means assurance that food is acceptable for human consumption according to its intended use and Food Safety Management System means the adoption of Good Manufacturing Practices, Good Hygienic Practices, Hazard Analysis and Critical Control Point and such other practices as may be specified by regulation, for the food business (Food Safety and Standards Act 2006). Food safety is a global issue affecting billions of people who suffer from diseases caused by contaminated food. This is one of the most widespread health problems and an important cause of reduced economic productivity. Both developed and developing countries share concerns over food safety as international food trade and cross-border movements of people and live animals increase. Governments worldwide are intensifying their efforts to improve food safety by updating national food regulatory systems.

The food industry is putting in place modern food safety management systems (FSMS) to satisfy customers and consumers. The situation of food safety in developing countries in the Asia- Pacific region remains, however, far from satisfactory. Food safety can be described as the voluntary approach by some socially conscious and responsible companies that encourage the development, implementation and maintenance ofHACCP based programmes in all food related establishments and grading stations for which external monitoring and verification programmes are to be properly established. India is world's second largest producer of agricultural products after China. Yet, we don't offer as much choice to our consumers. The Indian food processing industry has tremendous potential because it has a huge domestic market whose demands keep on rising as well as in the foreign market, not just made up by the rapidly growing diasporas but also by international consumers. The aggregates of export of food products as increased by massive 66.4% in just two years from INR 21,805 crore in 2006-07 to INR 36,294 crore in 2008-09. Interestingly, rise had topped the export list in each of the last three years accounting for about total exports of food and food products. And if higherdemand at home last year

saw a fall in non basmati rice export, it was more than companies stated by a search in export of basmati rice. Export of basmati rice hadmore than doubled last year from INR capital 4,345 crore in 2007-08 to INR 9,477 crore in 2008-09. By the end of the year 2009, it is estimated that some 200 million will be added to the 300 million estimated consumers of processed food in India. With the growing per capita income, the ministry of food processing in its vision 2015 document on the prospects and opportunities of the sector estimated that its size would soon travel. This is backed by an Ernst and Young estimation of it growing by 30% - 40% in the next 10 years. We are expected to double our agricultural exports to USD 20.6 billion in coming 5 years. Accordingto the Agricultural and Processed Food Products Export Development Authority(APEDA),

our share of farm experts in global trade will grow from 2% - 5%. The experimental material is consists of Six treatments like, 21 Bread, Biscuits, Dairy, Hotel, Fruit and Vegetables and Snacks with Exploratory Research Design under Random Sampling. The observations are recorded on the basis of various parameters are, Types of customers in the companies covered, Food safety statusof the respondent firms, FSMS in business growth, FSMS in reducing product loss and FSMS in product shelf life. It is clear that FSMS is helping these companies to stand in much better position than those players who have no FSMS in their enterprise. It is a true fact that India is on the way of becoming a developed country and improving in its literacy level and per capita income not only in urban area but also in rural areas. This is the high time that every entrepreneur, who want to enter in food industry, or any existing player who is not serious about the role of food safety should be serious to the magic of FSMS in future food business.

6.6 WORKOUT BENEFITS:

The primary purpose of this narrative review was to evaluate the current literature and to provide further insight into the role physical inactivity plays in the development of chronic disease and premature death. We confirm that there

is irrefutable evidence of the effectiveness of regular physical activity in the primary and secondary prevention of several chronic diseases (e.g., cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death. We also reveal that the current Health Canada physical activity guidelines are sufficient to elicit health benefits, especially in previously sedentary people. There appears to be a linear relation between physical activity and health status, such that a further increase in physical activity and fitness will lead to additional improvements in health status.

Physical inactivity is a modifiable risk factor for cardiovascular disease and a widening variety of other chronic diseases, including diabetes mellitus, cancer (colon and breast), obesity, hypertension, bone and joint diseases (osteoporosis and osteoarthritis), and depression.[1-14] The prevalence of physical inactivity (among 51% of adult Canadians) is higher than that of all other modifiable risk factors.[15] In this article we review the current evidence relating to physical activity in the primary and secondary prevention of premature death from any cause, cardiovascular disease, diabetes, some cancers and osteoporosis. We also discuss the evidence relating to physical fitness and musculoskeletal fitness and briefly describe the independent effects of frequency and intensity of physical activity. (A glossary of terms related to the topic appears in Appendix 1). In a companion paper, to be published in the Mar. 28 issue, we will review how to evaluate the health-related physical fitness and activity levels of patients and will provide exercise recommendations for health. Several authors have attempted to summarize the evidence in systematic reviews and meta-analyses. These evaluations are often overlapping (reviewing the same evidence). Some of the most commonly cited cohorts have been described in different studies over time as more data accumulate (see Appendix 2, available online at www.cmaj.ca/cgi/content/full/174/6/801/DC1). In this review, we searched the literature using the key words "physical activity," "health," "health status,"

"fitness," "exercise," "chronic disease," "mortality" and disease-specific terms (e.g., "cardiovascular disease," "cancer," "diabetes" and "osteoporosis"). Using our best judgment, we selected individual studies that were frequently included in systematic reviews, consensus statements and meta-analyses and considered them as examples of the best evidence available. We also have included important new findings regarding the relation between physical activity and fitness and all-cause and cardiovascular-related mortality.

Go to: All-cause and cardiovascular-related death

Primary prevention

Since the seminal work of Morris and colleagues in the 1950s[16,17] and the early work of Paffenbarger and colleagues in the 1970s,[18,19] there have been numerouslong-term prospective follow-up studies (mainly involving men but more recently women also) that have assessed the relative risk of death from any cause and from specific diseases (e.g., carciovascular disease) associated with physical inactivity. Both men and women who reported increased levels of physical activity and fitness were found to have reductions in relative risk (by about 20%–35%[27,28]) ofdeath. For example, in a study involving healthy middle-aged men and women followed up for 8 years, the lowest quintiles of physical fitness, as measured on an exercise treadmill, were associated with an increased risk of death from any cause compared with the top quintile for fitness (relative risk among men 3.4, 95% confidence interval [CI] 2.0 to 5.8, and among women 4.7, 95% CI 2.2 to 9.8). Recent investigations have revealed even greater reductions in the risk of death from any cause and from cardiovascular disease. For instance, being fit or active was associated with a greater than 50% reduction in risk.[29] Furthermore, an increase in energy expenditure from physical activity of 1000 kcal (4200 kJ) per week or an increase in physical fitness of 1 MET (metabolic equivalent) wasassociated with a mortality benefit of about 20%.

Physically inactive middle-aged women (engaging in less than 1 hour of exercise per week) experienced a 52% increase in all-cause mortality, a doubling of cardiovascular-related mortality and a 29% increase in cancer-related mortality compared with physically active women. These relative risks are similar to those for hypertension, hypercholesterolemia and obesity, and they approach those associated withmoderate cigarette smoking. Moreover, it appears that people who are fit yet have other risk factors for cardiovascular disease may be at lower risk of premature death than people who are sedentary with no risk factors for cardiovascular disease.

An increase in physical fitness will reduce the risk of premature death, and a decrease in physical fitness will increase the risk. The effect appears to be graded, such that even small improvements in physical fitness are associated witha significant reduction in risk In one study, participants with the highest levels of physical fitness at baseline and who maintained or improved their physical fitness over a prolonged period had the lowest risk of premature death Modest enhancements in physical fitness in previously sedentary people have been associated with large improvements in health status. For instance, in another study, people who went from unfit to fit over a 5-year period had a reduction of 44% in the relative risk of death compared with people who remained unfit. A recent systematic review of the literature regarding primary prevention in women revealed that there was a graded inverse relation between physical activity and the risk of cardiovascular-related death, with the most active women having a relative risk of 0.67 (95% CI 0.52 to 0.85) compared with the least active group. These protective effects were seen with as little as 1 hour of walking per week.

CHAPTER - 7

TESTING AND TEST RESULT

TESTING:

7.1 Testing types

7.1.1 Performance testing

Performance testing in software engineering generally refers to testing done to ascertain how a system performs in terms of responsiveness and stability under a specific workload. Additionally, it can be used to look into, gauge, confirm, or evaluate other system quality characteristics like scalability, dependability, and resource utilisation.

A subset of performance engineering, which aims to include performance into a system's implementation, design, and architecture, is performance testing. Performance testing is a non-functional software testing technique that determines how the stability, speed, scalability, and responsiveness of an application holds up under a given workload. It's a key step in ensuring software quality, but unfortunately, is often seen as an afterthought, in isolation, and to begin once functional testing is completed, and in most cases, after the code is ready to release. The goals of performance testing include evaluating application output, processing speed, data transfer velocity, network bandwidth usage, maximum concurrent users, memory utilization, workload efficiency, and command response times.

Reasons for Performance Testing

Organizations run performance testing for at least one of the following reasons:

7.1.1.1   To determine whether the application satisfies performance requirements(for instance, the system should handle up to 1,000 concurrent users).

7.1.1.2   To locate computing bottlenecks within an application.

7.1.1.3   To establish whether the performance levels claimed by a software vendorare indeed true.

7.1.1.4   To compare two or more systems and identify the one that performs best.

7.1.1.5   To measure stability under peak traffic events.

7.1.2 Load testing

The most basic type of performance testing is load testing. A load test is typically performed to determine how the system will respond to a particular predicted load. This load might be the anticipated number of people using the program concurrently, each doing a set number of transactions in the allotted time. The results of this test will reveal the reaction times of all significant, time - sensitive business transactions. This straightforward test can by itself indicate application software bottlenecks if the database, application server, etc. are also monitored. By the time any software development project nears completion, it likely will have gone through numerous tests, particularly in an Agile testing environment where testing and development happen concurrently. But no matter how many tests you've run, once your application is nearly complete, there's really only one way to know whether or not your software can handle the actual demands your army of end users will soon be placing on it. It's called load testing, and you can use a tool like Load Testing Tool to get the job done. Load testing is the process of putting simulated demand on software, an application or website in a way that tests or demonstrates it's behavior under various conditions.

Stress testing

Stress testing is typically done to determine the system's maximum capacity. This type of test is used to assess the system's robustness under load and aids application administrators in determining if the system will function well if the current load is significantly higher than the anticipated maximum. Server-client Stress Testing: In this stress testing, testing is carried out across allclients from the server.

Product Stress Testing: Product stress testing concentrates on discovering defects related to data locking and blocking, network issues, and performance congestion in a software product.

Transaction Stress Testing: Transaction stress testing is performed on one or more transactions between two or more applications. It is carried out for fine-tuning and optimizing the system.

Systematic Stress Testing: Systematic stress testing is integrated testing that is used to perform tests across multiple systems running on the same server. It is used to discover defects where one application data blocks another application.

Analytical Stress Testing: Analytical stress testing is performed to test the system with abnormal parameters or conditions that are unlikely to happen in a real scenario. It is carried out to find defects in unusual scenarios like a large number of users logged at the same time or a database going offline when it is accessed from a website.

7.1.3 Soak testing

To ascertain whether the system can withstand the continuous predicted load, soak testing, also known as endurance testing, is frequently carried out. Memory use is tracked throughout soak tests to look for any potential leaks. Performance deterioration is very crucial yet sometimes disregarded. That is, to

make sure that the throughput and/or reaction times are just as excellent as or better than they were at the start of the test.

In essence, it is placing a heavy strain on a system for an extended period of time. The objective is to learn how the system operates under prolonged use. Soak testing involves testing a system with a typical production load, over a continuous availability period, to validate system behavior under production use.[1] It may be required to extrapolate the results, if not possible to conduct such an extended test. For example, if the system is required to process 10,000 transactions over 100 hours, it may be possible to complete processing the same 10,000 transactions in a shorter duration (say 50 hours) as representative (and conservative estimate) of the actual production use. A good soak test would also include the ability to simulate peak loads as opposed to just average loads. If manipulating the load over specific periods of time is not possible, alternatively (and conservatively) allow the system to run at peak production loads for the duration of the test.

For example, in software testing, a system may behave exactly as expected when tested for one hour. However, when it is tested for three hours, problems such as memory leaks cause the system to fail or behave unexpectedly.

Soak tests are used primarily to check the reaction of a subject under test under a possible simulated environment for a given duration and for a given threshold. Observations made during the soak test are used to improve the characteristics of the subject under further tests.

In electronics, soak testing may involve testing a system up to or above its maximum ratings for a long period of time. Some companies may soak test a product for a period of many months, while also applying external stresses such as elevated temperatures.

Spike testing

Spike testing involves abruptly boosting the number of users or the load they produce while monitoring the system's response. Finding out whether performance will degrade, the system will malfunction, or it will be able to manage significant changes in load is the aim. Spike Testing is a type of software testing in which a software application is tested with extreme increments and decrements in traffic load. The main purpose of spike testing is to evaluate the behaviour of the software application under sudden increment or decrement in user load and determine recovery time after a spike of user load.Spike Testing is performed to estimate the weaknesses of software applications.

Spike Testing Process:

Test Environment Setup:

Firstly testing environment is set up to perform a successful test. It is set up to get a good quality testing process.

Determine Extreme Load:

After setting up the environment, the extreme load is found what a system can resist. Extreme load is the maximum number of users that can use the system or software application at a same time.

Increase Load to Peak:

Now the load on the system or software application is increased to the peak point. This process is performed abruptly i.e. suddenly the load is increased not gradually.

Analysis on Peak Point:

The behavior of system is observed under the load on the peak point. It is observed that whether the system crashes or survive under this sudden increased load.

Decrease Load to Zero:

From the extreme point suddenly the load is decreased to zero or minimum load possible. This process is also performed abruptly i.e. suddenly the load is decreased from peak value to minimum possible value.

Analysis on Minimum Load:

The behavior of system is observed under the minimum possible load. It is observed that whether the system crashes or survive under this sudden decreased load.

Performance Graph Analysis:

The performance graph of the system formed by abruptly increasing and decreasing the applying load, is analyzed. It is observed that what kind of spike is formed is formed.

7.1.4 Configuration testing

Tests are developed to ascertain the impact of configuration changes to the system's components on the system's performance and behaviour rather than testing for performance from the perspective of load. A frequent illustration would be testing with various load-balancing techniques. Configuration testing is the process of testing a system with each of the supported software and hardware configurations. Configuration Testing is the type of Software Testing which verifies the performance of the system under development against various

combinations of software and hardware to find out the best configuration under which the system can work without any flaws or issues while matching its functional requirements. Configuration Testing is the process of testing the system under each configuration of the supported software and hardware. Here, the different configurations of hardware and software means the multiple operating system versions, various browsers, various supported drivers, distinct memory sizes, different hard drive types, various types of CPU etc.

The Execution area supports configuration testing by allowing reuse of the assigned tests. You can create configuration suites with a set of assigned tests, and all execution plans that you add to the configuration suite will also have the set of tests assigned. You can also create configuration suites from existing execution plans and copy and paste or cut and paste execution plans in the Execution tree into a configuration suite. Silk Central enables you to add or remove parameters, keywords, and manual testers to or from the configurations. When you create a configuration suite out of an existing execution plan, all the results of the execution plan are preserved in the configuration suite. If you copy and paste an execution plan into an existing configuration suite, these results are not preserved.

Each execution plan in the configuration suite is displayed in an editable grid. You can view the execution plans or configurations that contain a specific test in the Properties tab of the test. You can also view the execution plans or configurations that are associated with a specific requirement in the Assigned Tests tab of the requirement. To define configurations for automated tests, use the Configurations Suite Configurations page. To define configurations for manual tests use the Configurations page.

7.1.5 Isolation   Testing

Isolation testing, which entails repeating a test execution that led to a system issue, is not exclusive to performance testing. used frequently to identify and validate the fault domain.

7.1.6 Integration   testing

The stage of software testing where separate software modules are merged and tested as a unit is known as integration testing (sometimes known as integration and testing, abbreviated I&T). It takes place between unit testing and validation testing. The goal of integration testing is to produce an integrated system that is ready for system testing by taking as input modules that have undergone unit testing, grouping them into bigger aggregates, applying the tests outlined in an integration test plan to those aggregates. Integration testing is the second level of the software testing process comes after unit testing.

In this testing, units or individual components of the software are tested in a group. The focus of the integration testing level is to expose defects at the time of interaction between integrated components or units. Unit testing uses modules for testing purpose, and these modules are combined and tested in integration testing. To define configurations for automated tests, use the Configurations Suite Configurations page.

To define configurations for manual tests use the Configurations page. Here, the different configurations of hardware and software means the multiple operating system versions, various browsers, various supported drivers, distinct memory sizes, different hard drive types, various types of CPU etc.

The goal of integration testing is to check the correctness of communication among all the modules. Once all the components or modules are working independently, then we need to check the data flow between the dependent modules is knownas **integration testing**.

Types of tests to include in system testing

The following examples are different types of testing that should be considered during System testing:

- Graphical user interface testing
- Usability testing
- Software performance testing
- Compatibility testing
- Exception handling
- Load testing
- Volume testing
- Stress testing
- Security testing
- Scalability testing
- Sanity testing
- Smoke testing
- Exploratory testing
- Ad hoc testing
- Regression testing
- Installation testing
- Maintenance testing Recovery testing and failover testing.

Accessibility testing, including compliance with:

- Americans with Disabilities Act of 1990

- Section 508 Amendment to the Rehabilitation Act of 1973

- Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C)

This list provides as a broad framework or basis to start with, even though various testing organisations may recommend various tests as part of System testing.

Structure testing:

This process involves going through specific execution routes and testing a program's internal logic.Output testing is the process of comparing the outputs of test cases with the predictions made during test case design. Structural testing is a type of software testing which uses the internal design of the software for testing or in other words the software testing which is performed by the team which knows the development phase of the software, is known as structural testing.

Structural testing is basically related to the internal design and implementation of the software i.e. it involves the development team members in the testing team. It basically tests different aspects of the software according to its types. Structural testing is just the opposite of behavioral testing.

• By asking the user what format they prefer, the system under examination evaluates the output it produces or displays.

• In this case, there are two possible output formats: one is a printed form at, and the other is an on-screen format.

• The output displayed on the screen is found to be accurate because the format was created during the system design phase taking user demands into account.

• The output is produced as the user's hard copy and meets the requirements.

7.1.7 User Acceptance Testing:

• The last stage, before delivery to the customer, is often completed by the customer and involves running the test cases using real data.

• The system under consideration is tested for user acceptance, and changes are made as needed while staying in close contact with the potential system user throughout development.

• To show that the established software system satisfies the requirements provided in the requirement specification, it entails the planning and execution of various types of tests.

User acceptance testing (UAT), also called *application testing* or *end-user testing*, is a phase of software development in which the software is tested in the real world by its intended audience. UAT is often the last phase of the software testing process and is performed before the tested software is released to its intended market. The goal of UAT is to ensure software can handle real-world tasks and perform up to development specifications.

In UAT, users are given the opportunity to interact with the software before its official release to see if any features have been overlooked or if it contains any bugs. UAT can be done in-house with volunteers, by paid test subjects using the software or by making the test version available for download as a free trial. The results from the early testers are forwarded to the developers, who make final changes before releasing the software commercially.UAT is effective for ensuring quality in terms of time and software cost, while also increasing transparency with users. UAT also enables developers to work with real cases and data, and if successful, the process can validate business requirements.

CHAPTER – 8

CODING AND OUTPUT

8.1 CODING:

```xml
<?xml version="1.0"?>

-<component name="ProjectCodeStyleConfiguration">

-<code_scheme name="Project" version="173">

-<codeStyleSettings language="XML">

-<indentOptions>

<option name="CONTINUATION_INDENT_SIZE" value="4"/>

</indentOptions>

-<arrangement>

-<rules>

-<section>

-<rule>

-<match>

-<AND>

<NAME>xmlns:android</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>^$</XML_NAMESPACE>

</AND>

</match>
```

```xml
</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>xmlns:.*</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>^$</XML_NAMESPACE>

</AND>

</match>

<order>BY_NAME</order>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>.*:id</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>http://schemas.android.com/apk/res/android</XML_N
AMESPACE>
```

```
</AND>

</match>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>.*:name</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>http://schemas.android.com/apk/res/android</XML_N

AMESPACE>

</AND>

</match>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>name</NAME>

<XML_ATTRIBUTE/>
```

```
<XML_NAMESPACE>^$</XML_NAMESPACE>

</AND>

</match>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>style</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>^$</XML_NAMESPACE>

</AND>

</match>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>.*</NAME>

<XML_ATTRIBUTE/>
```

```xml
<XML_NAMESPACE>^$</XML_NAMESPACE>

</AND>

</match>

<order>BY_NAME</order>

</rule>

</section>

-<section>

-<rule>

-<match>

-<AND>

<NAME>.*</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>http://schemas.android.com/apk/res/android</XML_N
AMESPACE>

</AND>

</match>

<order>ANDROID_ATTRIBUTE_ORDER</order>

</rule>

</section>

-<section>

-<rule>

-<match>
```

-<AND>

<NAME>.*</NAME>

<XML_ATTRIBUTE/>

<XML_NAMESPACE>.*

</XML_NAMESPACE>

</AND>

</match>

<order>BY_NAME</order>

</section>

</rules>

</arrangement>

</codeStyleSettings>

</code_scheme>

</component>

<?xml version="1.0"?>

-<component name="InspectionProjectProfileManager">

-<profile version="1.0">

<option name="myName" value="Project Default"/>

<inspection_tool enabled_by_default="true" level="WARNING"
enabled="true" class="MarkdownUnresolvedFileReference"/>

</profile>

</component>

```xml
<?xml version="1.0"?>

-<component name="libraryTable">

-<library  name="Gradle:   androidx.activity:activity:1.1.0@aar">

-<CLASSES>

<root url="jar://$USER_HOME$/.gradle/caches/transforms-2/files-
2.1/3c88f19f14aa8f15dd275dbaec09f63d/jetified-activity-
1.1.0/jars/classes.jar!/"/>

<root    url="file://$USER_HOME$/.gradle/caches/transforms-2/files-
2.1/3c88f19f14aa8f15dd275dbaec09f63d/jetified-activity-
1.1.0/AndroidManifest.xml"/>

</CLASSES>

<JAVADOC/>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-
2.1/androidx.activity/activity/1.1.0/4ee68d89e86e4d40bd44c0e2efe7e63716320
932/activity-1.1.0-sources.jar!/"/>

</SOURCES>

</library>

</component>


<?xml version="1.0"?>

-<component name="libraryTable">

-<library  name="Gradle:   androidx.annotation:annotation:1.1.0">
```

-<CLASSES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-2.1/androidx.annotation/annotation/1.1.0/e3a6fb2f40e3a3842e6b7472628 ba4ce 416ea4c8/annotation-1.1.0.jar!/"/>

</CLASSES>

-<JAVADOC>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-2.1/androidx.annotation/annotation/1.1.0/408af38ec57369afe3fd6466e1c4bfdd5 f15fc92/annotation-1.1.0-javadoc.jar!/"/>

</JAVADOC>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-2.1/androidx.annotation/annotation/1.1.0/8b7bdc00eb4d998bfbc76767b098620 990f2a805/annotation-1.1.0-sources.jar!/"/>

</SOURCES>

</library>

</component>

<?xml version="1.0"?>

-<component name="libraryTable">

-<library name="Gradle: androidx.annotation:annotation-experimental:1.0.0@aar">

-<CLASSES>

```xml
<root url="jar://$USER_HOME$/.gradle/caches/transforms-2/files-
2.1/3fd5b4b866d23b43b0e15439a0ee99e7/jetified-annotation-experimental-
1.0.0/jars/classes.jar!/"/>

<root url="file://$USER_HOME$/.gradle/caches/transforms-2/files-
2.1/3fd5b4b866d23b43b0e15439a0ee99e7/jetified-annotation-experimental-
1.0.0/AndroidManifest.xml"/>

</CLASSES>

<JAVADOC/>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-
2.1/androidx.annotation/annotation

experimental/1.0.0/2408f6cb8f31ffabdd88e1365f82914c251e44dc/annotation-
experimental-1.0.0-sources.jar!/"/>

</SOURCES>

</library>

</component>


<?xml version="1.0"?>

-<component name="libraryTable">

-<library  name="Gradle:      androidx.appcompat:appcompat:1.2.0@aar">

-<ANNOTATIONS>

<root url="jar://$USER_HOME$/.gradle/caches/transforms-2/files-
2.1/44b21666f861b2b454523071d69d07d7/appcompat-
1.2.0/annotations.zip!/"/>
```

</ANNOTATIONS>

-<CLASSES>

<root url="jar://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/44b21666f861b2b454523071d69d07d7/appcompat-1.2.0/jars/classes.jar!/"/>

<root url="file://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/44b21666f861b2b454523071d69d07d7/appcompat-1.2.0/res"/>

<root url="file://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/44b21666f861b2b454523071d69d07d7/appcompat-1.2.0/AndroidManifest.xml"/>

</CLASSES>

<JAVADOC/>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-2.1/androidx.appcompat/appcompat/1.2.0/13e8ff89631c2e101eb6bddd12c2fb4b bd74b15d/appcompat-1.2.0-sources.jar!/"/>

</SOURCES>

</library>

</component>

<?xml version="1.0"?>

<component name="libraryTable">

-<library name="Gradle: androidx.appcompat:appcompat-resources:1.2.0@aar">

-<CLASSES>

<root url="jar://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/78be485c09b159ccd6437b5ce26410a0/jetified-appcompat-resources-1.2.0/jars/classes.jar!/"/>

<root url="file://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/78be485c09b159ccd6437b5ce26410a0/jetified-appcompat-resources-1.2.0/res"/>

<root url="file://$USER_HOME$/.gradle/caches/transforms-2/files-2.1/78be485c09b159ccd6437b5ce26410a0/jetified-appcompat-resources-1.2.0/AndroidManifest.xml"/>

</CLASSES>

<JAVADOC/>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-2.1/androidx.appcompat/appcompat-resources/1.2.0/9c8b428f65a329eeff4f6abe14a44931b12ef3f2/appcompat-resources-1.2.0-sources.jar!/"/>

</SOURCES>

</library>

</component>

<?xml version="1.0"?>

-<component name="libraryTable">

-<library name="Gradle: androidx.arch.core:core-common:2.1.0">

-<CLASSES>

```
<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-
2.1/androidx.arch.core/core-
common/2.1.0/b3152fc64428c9354344bd89848ecddc09b6f07e/core-common-
2.1.0.jar!/"/>

</CLASSES>

<JAVADOC/>

-<SOURCES>

<root url="jar://$USER_HOME$/.gradle/caches/modules-2/files-
2.1/androidx.arch.core/core-
common/2.1.0/80ac2d7c8e6400ce2fbc663cd1a7e1cbef38c4b8/core-common-
2.1.0-sources.jar!/"/>

</SOURCES>

</library>

</component>
```

8.2 OUTPUT:

Advanced Calisthenics

Introduction

Handstand Push up (HSPU)

90° Handstand Push up

One Arm Handstand

Impossible Dip

Shoulder Flag

Human Flag

Back Lever

Myth 1

Myth 2

Myth 3

Myth 4

Myth 5

Myth 6

Myth 7

Myth 8
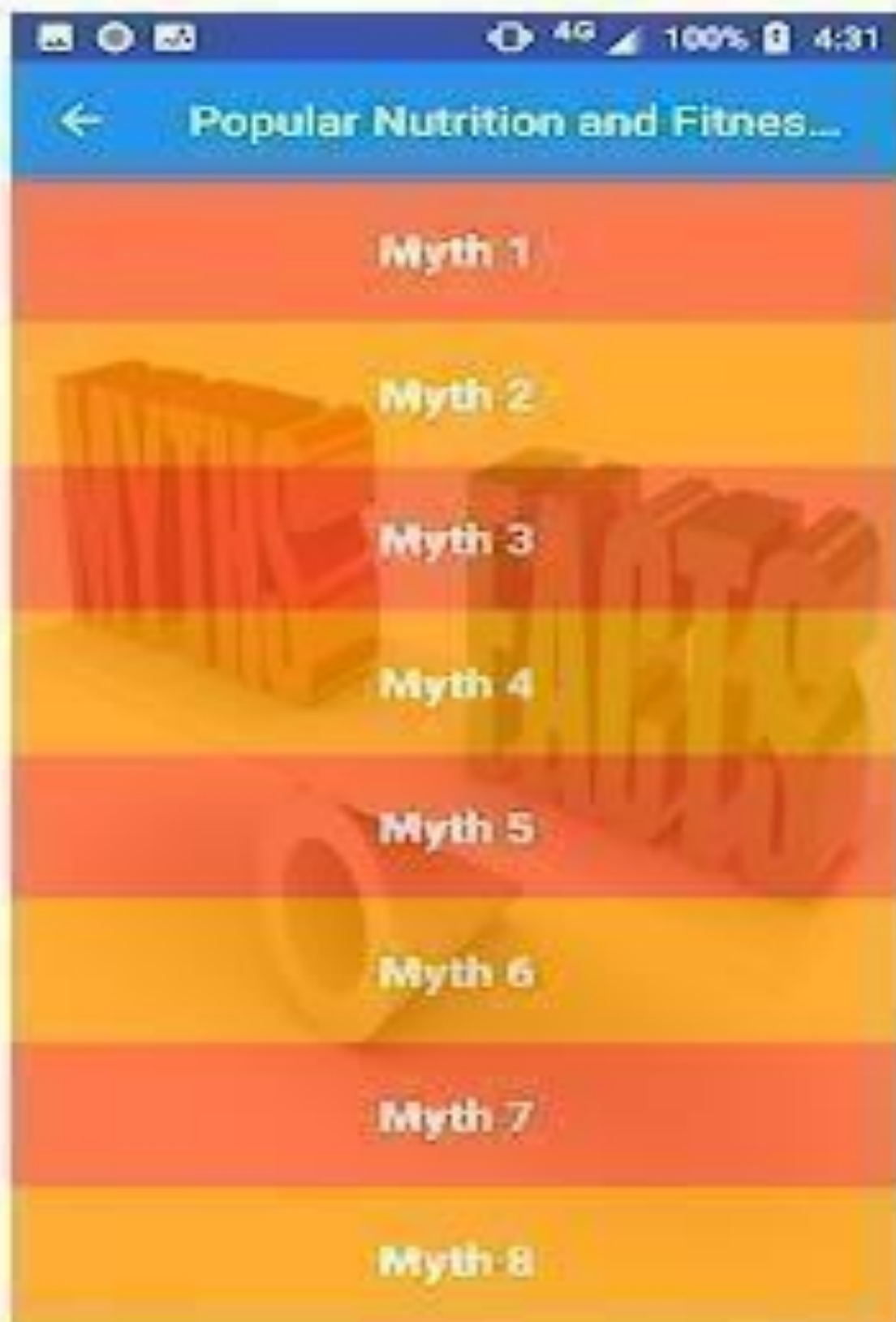
CHAPTER - 9

CONCLUSION AND FUTURE WORK

9.1CONCLUSION:

In conclusion, Healthcare Fitness prevention of condition Using a Mobile App to Improve Fitness and Health has the potential to make a significant impact on the health and well-being of individuals. By providing personalized recommendations and tracking data on fitness and health, the app can help users to adopt healthier habits and reduce their risk of developing certain conditions. However, it is important to keep in mind that the specific benefits and limitations of the app will depend on the goals and features of the app, as well as the technology and data available. Additionally, the app's success will largely depend on the willingness of individuals to adopt and stick to the healthy habits recommended by the app.

Overall, Pledge Estimation of Healthcare Fitness prevention of condition Usinga Mobile App to Improve Fitness and Health offers a promising solution for promoting healthy behaviour and improving health outcomes. With the right development and implementation, it has the potential to make a real difference in the lives of individuals and communities. App usage and effectiveness appears to have a connection to usefulness (attitude) and to perceived difficulties of exercising using apps (perceived behavioral control). Exercise and exercise using apps are not influenced by peer influence (subjective norm). Intention to exercise using these particular apps decreased (behavioral intention). Those who utilized the apps were more likely to have a positive attitude about the apps. Usefulness and perceived difficulties in particular should be considered with future app development. App usefulness and ease of use may be facilitated by using health behavior theories to guide development.

9.2 FUTURE WORK:

Integration with wearable technology: The integration of wearable devices, such as fitness trackers, could provide a more comprehensive view of an individual's health and allow for more accurate tracking and analysis.

Artificial intelligence and machine learning: The use of AI and machine learning could be enhanced to provide even more personalized recommendations and to continuously improve the app's accuracy and effectiveness over time.

Virtual reality and augmented reality: The use of virtual reality and augmented reality could provide a more engaging and immersive experience for users, making it easier to stick to their fitness and health goals.

Total revenue in the Health & Fitness segment is projected to reach US$43.89m in 2022. Total revenue is expected to show an annual growth rate (CAGR 2022-2027) of 5.07%, resulting in a projected market volume of US$57.59m by 2027.

Integration with healthcare systems: Integrating the app with healthcare systems could provide a more comprehensive view of an individual's health and allow for easier tracking of progress and risk for certain conditions.

Gamification: Incorporating game-like elements into the app could make it more fun and engaging for users, encouraging continued use and helping to foster positive habits.

Mobile apps are another way technology is influencing the personal fitness industry. With over 800 million users worldwide, fitness apps raked in around $16.6 billion in revenue in 2022. And that's forecast to grow to over $30.2 billion by 2026. More people search for "fitness app" each year.

Chapter - 10

REFERENCES

[1] Bender, Chelsea G., Jason C. Hoffstot, Brian T. Combs, Sara Hooshangi, and Justin Cappos. "Measuring the fitness of fitness trackers." In *2017 IEEE Sensors Applications Symposium (SAS)*, pp. 1-6. IEEE, 2017.

[2] Wu, Qinge, Kelli Sum, and Dan Nathan-Roberts. "How fitness trackers facilitate health behavior change." In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, vol. 60, no. 1, pp. 1068-1072. Sage CA: Los Angeles, CA: SAGE Publications, 2016.

[3] Henriksen, André, Martin Haugen Mikalsen, Ashenafi Zebene Woldaregay, Miroslav Muzny, Gunnar Hartvigsen, Laila Arnesdatter Hopstock, and Sameline Grimsgaard. "Using fitness trackers and smartwatches to measure physical activity in research: analysis of consumer wrist-worn wearables." *Journal of medical Internet research* 20, no. 3 (2018): e110.

[4] Lynch, Chris, Stephen Bird, Noel Lythgo, and Isaac Selva-Raj. "Changing the physical activity behavior of adults with fitness trackers: a systematic review and meta-analysis." *American Journal of Health Promotion* 34, no. 4 (2020): 418-430.

[5] Fereidooni, Hossein, Tommaso Frassetto, Markus Miettinen, Ahmad-Reza Sadeghi, and Mauro Conti. "Fitness trackers: fit for health but unfit for security and privacy." In *2017 IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE)*, pp. 19-24. IEEE, 2017.

[6] Becker, Moritz, Andreas Kolbeck, Christian Matt, and Thomas Hess. "Understanding the continuous use of fitness trackers: A thematic analysis." (2017).

[7] Coorevits, Lynn, and Tanguy Coenen. "The rise and fall of wearable fitness trackers." In *Academy of Management*. 2016.

[8] Knight, C. H. "Sensor techniques in ruminants: more than fitness trackers." *Animal* 14, no. S1 (2020): s187-s195.

[9] Yang, Rayoung, Eunice Shin, Mark W. Newman, and Mark S. Ackerman. "When fitness trackers don't'fit' end-user difficulties in the assessment of personal tracking device accuracy." In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing*, pp. 623-634. 2015.

[10] Nuss, Kayla, Kristen Moore, Tracy Nelson, and Kaigang Li. "Effects of motivational interviewing and wearable fitness trackers on motivation and physical activity: A systematic review." *American Journal of Health Promotion* 35, no. 2 (2021): 226-235.

[11] Spiel, Katta, Fares Kayali, Louise Horvath, Michael Penkler, Sabine Harrer, Miguel Sicart, and Jessica Hammer. "Fitter, happier, more productive? The normative ontology of fitness trackers." In *Extended abstracts of the 2018 CHI conference on human factors in computing systems*, pp. 1-10. 2018.

[12] Das, Aveek K., Parth H. Pathak, Chen-Nee Chuah, and Prasant Mohapatra. "Uncovering privacy leakage in BLE network traffic of wearable fitness trackers." In *Proceedings of the 17th international workshop on mobile computing systems and applications*, pp. 99-104. 2016.

[13] Miller, Andrew. "Fitness trackers." *XRDS: Crossroads, The ACM Magazine for Students* 20, no. 2 (2013): 24-26.

[14] Zhu, Yaguang, Stephanie L. Dailey, Daniel Kreitzberg, and Jay Bernhardt. ""Social networkout": Connecting social features of wearable fitness trackers with physical exercise." *Journal of health communication* 22, no. 12 (2017): 974-980.

[15] Cadmus-Bertram, Lisa. "Using fitness trackers in clinical research: what nurse practitioners need to know." *The journal for nurse practitioners* 13, no. 1 (2017): 34-40.

[16] Adria Muntaner-Mas, Antonio Martinez-Nicolas, Carl J. Lavie, Steven N. Blair, Robert Ross, Ross Arena, and Francisco B. Ortega (2019). A Systematic Review of Fitness Apps and Their Potential Clinical and Sports Utility for Objective and Remote Assessment of Cardiorespiratory Fitness. Sports Medicine 2019, 49(4), 587-600. doi:10.1007/s40279-019-01084-y

[17] Brad Millington (2014). Smartphone Apps and the Mobile Privatization of Health and Fitness. Critical Studies in Media Communication, 31(5), 479-493. doi:10.1080/15295036.2014.973429

[18] H. Erin Lee and Jaehee Cho (2017). What Motivates Users to Continue Using Diet and Fitness Apps? Application of the Uses and Gratifications Approach.

[19] Juliana Chen, Janet E. Cade, and Margaret Allman-Farinelli (2015). The Most Popular Smartphone Apps for Weight Loss: A Quality Assessment. JMIR mHealth uHealth 2015, 3(4):e104. doi:10.2196/mhealth.4334

[20] Joshua H. West, P. Cougar Hall, Carl L. Hanson, Michael D. Barnes, Christophe Giraud-Carrier, James Barrett (2012). There's an App for That: Content Analysis of Paid Health and Fitness Apps. J Med Internet Res 2012, 14(3):e72.doi:10.2196/jmir.1977

[21] Lynn Katherine Herrmann and Jinsook Kim (2017). The Fitness of apps: a theory-based examination of mobile fitness app usage over 5 months. Mhealth 2017, 3(2). doi:10.21037/mhealth.2017.01.03

[22] Maria D. Molina, and S. Shyam Sundar (2020). Can Mobile Apps Motivate Fitness Tracking? A Study of Technological Affordances and Workout Behaviors.

[23] Paulina Bondaronek, Ghadah Alkhaldi, April Slee, Fiona L. Hamilton, and Elizabeth Murray (2018). Quality of Publicly Available Physical Activity Apps: Review and Content Analysis. JMIR Mhealth Uhealth 2018, 6(3):e53. doi:10.2196/mhealth.9069

[24] Steven S. Coughlin, Mary Whitehead, Joyce Q. Sheats, Jeff Mastromonico, and Selina Smith (2016). A Review of Smartphone Applications for Promoting Physical Activity. Jacobs J Community Med. 2016, 2(1).

[25] NIST [EB]. http://csrc. nist. gov/ groups/ SNS / cloud-comput ing/index. html

[26] WU Ruo xi, WANG Qing jun, Fitness APP: development status, problems and countermeasures, Journal of Shandong Sport University. 31(2015)18-22.

[27] XIA Bang-gui. A Mobile learning system based on Android [J]. Journal of Xihua University (Natural Science), 2011, 30 (5): 81-84.

[28] Chen Jianming, Yin Xuesong, Zhang Yixiang. Design of Interactive Video-On-Demand Client for Mobile Learning[J].Journal of Guangxi open niversity,2014,25(2):78-91.

[29] Geng Wenguang, Wang Li, Qian Wuning. Management and Service - Application of APP Technology in the National Fitness Service System [J].Sports Science and Technology, 2015, (5): 77-78.doi: 10.3969/j.issn.1003-1359.2015.05.035.