SOEN 6841 (Software Project Management)

Concordia University

Department of Computer Science and Software Engineering

Health and Wellness Software(Phase II)

Students:

Alireza Amini
Navjot Kamboj
Ritik Gulati
Yatish Chutani

Supervisor:
Prof. Joumana Dargham

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Declaration

We, the members of the team, have read and understood the Fairness Protocol and the Communal Work Protocol, and agree to abide by the policies therein, without any exception, under any circumstances, whatsoever.

Introduction

In the field of software project management, our team has focused on health and fitness. Led by Alireza Amini, we have carefully created a comprehensive report that combines important elements for our project's success. This includes a feasibility study and solution proposal prepared by Alireza Amini, a detailed project plan written by Navjot Kamboj, a thorough risk assessment done by Ritik Gulati, and careful budgeting overseen by Yatish Chutani.

Each team member played a key role in shaping our project. Alireza Amini led the effort to combine these diverse contributions into a comprehensive final report. As we explore the details of our project, it's clear that our combined expertise has created a strong framework to address the challenges ahead. This report provides a complete picture of our project, covering its viability, solution, planning, risk management, and financial considerations. Let's explore the complexities of software project management in health and fitness.

Contents

Feasibility Study

1.1 Introduction

One crucial stage in project management is conducting a feasibility study. As the name implies, this task aims to assess the specified project from various aspects to determine its viability. The purpose of a feasibility study encompasses several key concepts. Firstly, it involves evaluating whether the proposed project aligns with the company's existing system. Additionally, it examines whether the project is compatible with contemporary science and technology. Lastly, it assesses whether the project can uphold integrity and enhance the current system. To accomplish these objectives, we need to initially define the project's various concepts. Subsequently, utilizing the available information, we will evaluate our project based on these concepts to generate a comprehensive feasibility report. As we said earlier, to be able to prepare a comprehensive and accurate report on the mastery of the feasibility of our project, it is necessary to check our project from various aspects so that we can avoid any unexpected events in the continuation of the project because any unforeseen event can cause many losses to the project and in the worst case the project will fail. For this purpose, we examined our project from different aspects so that we can have the best management. In the following, we will discuss each of the different sections that we examined separately and state the results of our research in this report.

1.2 Technical Feasibility

In Technical Feasibility, the purpose of our review was to check our project to see how technically feasible our project is compared to today's technology. Therefore, we checked to see what our project needs from different aspects of technology, such as hardware and software, and whether it can keep up with modern technology. We have looked at the health and fitness data from past studies. We saw a chance for us to help. Our solution? A handy software tool. We're setting up a simple link for users to access our system on user's mobiles. Our focus is on making it simple to use which was one of our main goals. Plus, our software can work well with other gears, like smartwatches. It's all thanks to the smart control features we built into it. So, no need for special equipment. Users can get to the system straight from their phones. Using up-to-date tech for software design can boost performance on newer smartphones. But let's not forget older phones. Why? We want to reach as many people as we can. Thanks to progress in software engineering, making our software is now doable. We must smartly use smartphone abilities for the best results from our program. With the goal of the smartphone program, we can fix technical issues and system needs efficiently. So, after studying current technology and comparing it with our solution we concluded that our project is **technically feasible**.

1.3 Operational Feasibility

The goal of this section is to check how optimal our system can be for use and how difficult it is to maintain and update. Here we have checked how long our project can stay in the life cycle and the company can use it and update it according to the needs of the users. One of the important points of managing software projects is software aging. This happens to software like any other product, and so to speak, the age of the software increases and gradually goes out of its life cycle. One of the management goals is to design and advance the project in such a way that the software will be used for a longer period. One of the things that can help us a lot in this regard is to consider the future versions of our project after the initial launch. We will discuss the decisions we made in this regard. As mentioned, our goal in this project is software design so that we can solve the needs of our users that we extracted in the last phase of the project. In extracting our requirements, we tried to use different methods to find precise and practical requirements in our project, but the important point is that after the initial unveiling of the project and its use by our users, we can more accurately define the requirements. For this purpose, after the investigations carried out, we decided to design our system in such a way as to keep operational costs low, our purpose is to design the system in such a way that we have a strong foundation for future changes in our system. This design gives us flexibility in our software outlines and helps our project to be **operationally feasible**.

1.4 Economic Feasibility

In this section, we are going to check our project from an economic point of view to see if it is feasible or not. The reason for this review is to see if the project we are designing is economically viable or not. So far, considering that our solution has not yet been introduced in detail, we cannot predict many costs. The purpose of this review in this part of the project is to have a general forecast of the costs that can be involved in our project. This general review will become more detailed as the solution and the rest of the reports become more detailed, and in the next sections, a more detailed report of the costs will be reported. We have different cost angles in this project. The first group that should be considered is the project management group, the amount of their work and their salaries are calculated more precisely in the following sections but considering that it is a part of all projects, it will not be an extraordinary cost as a burden in Creating a project. On the other hand, another cost that is the main part of the cost is the cost of the project design and implementation team. The other part is the cost of the systems required for the project, such as the systems required for programmers and designers, such as computers, etc. Another part that we have allocated the most important and biggest cost in the project is the cost of maintenance and updating, which we pay special attention to in our project, the reason for which has been explained. On the other hand, our project will have regular use some features may not be available but by purchasing our subscription users will have access to all features of our application. One of the existing problems discussed in the last report is current applications are too expensive for regular users so, we will manage that to have a return on investment and user satisfaction. In general, to be able to get a comprehensive and accurate report for the profitability of the project, we must proceed to the next steps, and we will explain and check it in full in the budgeting section. Our project will be **economically feasible** after our studies. Details about our budgeting are reported in the related section.

1.5 Schedule Feasibility

Every project proceeds based on a plan, but the issue that arises in projects with poor management is that the planning is unrealistic. In such cases, planning is done in a manner that cannot be achieved in practice, leading to numerous technical problems and ultimately, failure. Therefore, in this project, we decided to divide it into smaller parts after designing the solution so that the project itself has a detailed and accessible plan. This approach allows for more detailed planning in subsequent stages. Consequently, after dividing the project, we can achieve a feasible time plan.

1.6 Legal Feasibility

In this section, our goal was to examine the obstacles and legal points related to our project. Due to its nature and subject matter, the project is not subject to government security issues, etc. So, the meaning of legal points and obstacles in our report is raised in such a way that our project and software will have access to individual and personal facilities and equipment. Therefore, this permission should be taken from the user first so that legal problems are not done for the project in the future. On the other hand, to approve our software in the communities, permission must be obtained from the user for access, for example, access to the camera and gallery. On the other hand, considering that we are supposed to have the personal and confidential information of people in our database, we will obtain the necessary permissions and create security to be successful in keeping the trust and confidentiality of people's information. By using these licenses and creating security in general, we can keep our project **legally feasible**.

1.7 Cultural and Political Feasibility

The topic we chose for our project targets different communities from different directions. First, considering that our project includes nutrition and diet programs, it must receive the necessary medical qualifications and licenses from the government. Also, considering that it is in the field of fitness and personal trainer, and on the other hand, it is in the field of nutrition, we must be culturally accepted in these communities so that we can continue our activities and the audience will be attracted to our project. So, it should be noted that we get help from these communities in the marketing and even software design departments so that we can be accepted by these communities. So, by considering these acceptances during our management and release, our project will be **culturally and politically feasible.**

1.8 Market Feasibility

Today, due to the advancement of technology and the increase in the use of smartphones, many software programs with different ideas have been created, which has caused a lot of competition in the market. If we cannot create strong competitive advantages, our project will fail in the market. will be Therefore, we have thoroughly examined our competitors in the market analysis section so that we can appear in the competition with strength. So, if we can implement the competitive tips that we extracted in the previous sections, we can succeed in the market. In the first phase of the market research project, we carefully examined the strengths and weaknesses of our competitors so that we can show our distinguishing points in the competition with them to shine in the market. Also, we extract existing problems and user needs to design a full system for our users which will give us strong leverage among all other competitors in the market. So, our project will be **feasible**

in the market.

1.9 Resource Feasibility

The last part we checked was the availability of resources. The resources we use in this project include system resources such as technology and systems used such as computers and human resources. To have proper management for using our resources, it was decided that after the tasks and small parts of the project were determined, we could successfully use our resources by allocating resources to them. So, by great recourse assessment which we did our project will be **feasible in the realm of resources.** You can see a related report about recourse assessment in the next parts.

1.10 Conclusion

We tried to arrive at a comprehensive analysis of our project by carefully examining the various angles of our project so that we could support the project throughout the entire journey to avoid any unforeseen events. With the conducted investigations, we were able to extract the frameworks of our project to keep our project feasible in the entire design, construction stages and later the updating and maintenance of the project.

Solution Proposal

2.1 Introduction

After extracting the problems and opportunities in the given topic, we decided to design software for smartphones that can connect to various peripherals, such as smartwatches. Our system uses peripherals in two parts.

- One use is to collect the required information, for example, heart rate.
- use it to record mental status and emotions.

We decided to create our software based on two main parts which have more problems and opportunities among all related projects and, these two topics contain the most needs of our users. We've decided to create software with a dual focus on health and fitness, along with a supporting feature to monitor users' daily moods. This plan was based on our analysis of user needs outlined in the initial report. Within each area, we'll integrate various key features, as detailed below.

The reason we used smartphone software to design our system is that today it is a device that everyone has the power to have and on the other hand, with the advancement of technology, it has become a part of people's daily lives. In other words, the users of our system should not need to purchase and prepare equipment other than the software itself to be able to use our system, which means users will have a simple way to access our system.

Next, we will discuss the overall design of our system. According to the investigations we have done, we have concluded that our software will be formed from two main parts and a supporting part, in the following we will discuss our solution for the design of each of these three parts in general.

2.2 Sign-up and Login

As mentioned, our project is related to fitness and health, and we want to present our solution in such a way that we have as much customization as possible in our software. This is because each person's physical body and interests are different from each other. So, if we can design our system in such a way that we can adjust the type of reaction and response according to the personality and physical conditions of each person, we can give better help to our users and fulfil their needs. For this purpose, the first step we must take is to receive the required information completely from the person. For this purpose, we concluded that the first step to using our system is to create a user account at the step of logging into our software. When the user wants to create his account, users must record their information, such as physical information (height and weight, etc.) and medical information such as allergies and important medical points. After this step, we can use this information in other parts of our software to provide personalized offers that suit the person, which we explain in other parts of the software exactly what kind of use we use.

2.3 Fitness

Concerning fitness, our software consists of two main parts: personal trainer and sports programs and calculations. One of the challenges of private sports trainers is coordination and the need for joint face-to-face training. One of the advantages that we have considered for this section is that the user who connects to the system as a coach will have the ability to change and adjust the trainee's sports programs. On the other hand, it can use the information provided by peripherals in the software, such as heart rate, to monitor the trainee's exercise process so that they can change the exercise program optimally. Another part we have to our fitness is that we have the problem of repetitive exercise programs, and many times people don't know the right type of exercise and the number of weights they should use. We will have the ability in our software people can share their diverse and creative exercises with others so that other users can use the variety of exercises to improve their sports. Another point is related to the correct way of performing sports movements, they can calculate the appropriate weights for their physical conditions to increase their workout performance. Finally, we will have a section that will be used as a place to advertise sports events and online sports competitions, such as breaking sports records, so that we can increase people's motivation by increasing competition.

2.4 Nutrition

Another main part that we have in our software is the nutrition part. Nowadays, it has been proven that to have a healthy body, apart from proper exercise, healthy and proper nutrition also plays an important role. After the investigations we did, we realized that many people need a lot of guidance in this field. In our software, we created two sections for nutrition as well as the fitness section. The first part is a one-to-one system for communicating with nutritionists if needed, which is done online, and if needed, you will be provided with medical information and the user's sports program to provide recommendations and a suitable diet for the user. On the other hand, in our software, we give our users the possibility to use existing recipes that contain complete information about calories and ingredients in foods, and if people have interesting recipes, they can share them with others. to share the unique thing that we have in our software is that we only offer recipes that are suitable for the person, considering that we have the medical information of our user. For example, for a person who is allergic to nuts, we do not recommend recipes that contain peanuts. Another point that we have considered in our software is a system for calculating the calories of foods, which people can easily get the calories of their food by entering the food and its image in our software. In the end, we created this feature in our software that offers users who are looking for restaurants and cafes that have food suitable for their diet, so that they can visit them and enjoy a meal in a beautiful restaurant with their friends. Enjoy without worrying about your food routine.

2.5 Wellness

The two previous sections that were explained were the main sections of our software. But our system has another part as a support part. We all had this experience in our lives that emotions have a great impact on our performance. After the interviews we conducted with different people, we realized that many times the sports and food programs they received put them under pressure bothered them and were not suitable for people. To prevent this from happening and adapt the programs as soon as possible, we created a feature to help our users. In our software, we ask and record the mental and emotional conditions of our users continuously and regularly, for example, every two hours. For example, after a workout program, the user is asked, either through the

phone software or through the smartwatch, how the user is doing. Is the user happy? Does the user feel good? and other questions. With these questions, we can identify the general state of mind of our user and suggest suitable sports events to improve the user's mood or increase the user's motivational energy with notifications. On the other hand, this information can help specialists to adjust and improve their user program.

2.6 Conclusion

In general, to conclude from this section, we tried to design our software so that we can make them proud by accurately identifying the problems in the competing software and by using the interviews we conducted with different people, we put them in the main positions. On the other hand, we creatively tried to design differentiating points in our system to show our users a different and better experience. The points that were mentioned in this section are the general requirements of our software, and in the main parts of software design and production, we must use the experiences of human-computer interaction to design and produce software that easily provides all these capabilities and is suitable for users. In conclusion you can see our key features designed in our solution proposal below.

- **Smartphone Connectivity:**
    1. The software connects with various peripherals like smartwatches to collect health data such as heart rate and mental status.
    2. Users can easily access the system without needing additional equipment apart from the software itself, enhancing accessibility.
- **Dual Focus on Health and Fitness:**
    1. The software emphasizes health and fitness, integrating features for personalized training programs and mood tracking.
    2. Tailored solutions cater to individual needs, improving user experience and effectiveness.
- **Sign-up and Login Customization:**
    1. During account creation, users input personal and medical information, enabling personalized recommendations and tailored experiences.
    2. Customization enhances user engagement and ensures relevant content delivery.
- **Fitness Features:**
    1. Personal trainer functionality allows for customized training programs and real-time monitoring of exercise progress.
    2. Users can share diverse exercises, receive guidance on proper form, and participate in online sports events to boost motivation.
- **Nutrition Support:**
    1. One-to-one communication with nutritionists provides personalized diet recommendations and guidance based on medical and activity data.
    2. Users can access recipes tailored to their dietary needs, calculate food calories, and find restaurants offering suitable meals.
- **Wellness Tracking:**

1. Continuous monitoring of mental and emotional states enables timely adjustments to fitness and nutrition programs.
2. The feedback loop between users and specialists improves program effectiveness and user satisfaction.
3. Users' daily moods are recorded and analyzed to offer suitable sports events and recommendations for mood improvement.
4. Specialists can adjust and improve user programs based on mental and emotional feedback.

Project Plan

3.1 Introduction

After extracting the solutions, key features and functionalities of our proposed health and wellness application – 'HolisticSync', it is the time to create a detailed project plan to be able to implement those solutions and features.

The purpose of this project plan is to provide you with detailed project timelines indicating the key phases and milestones, deliverables produced at the end of each phase and allocation of technical and human resources at each phase.

- For the implementation of HolisticSync, we are following a **top-down approach** for creating the project plan. What this means is that we will have a fixed timeline decided for each of the minor releases and major release of the project. This approach is useful to deliver the project quickly and stay competitive in the market. However, this does not mean we are compromising with the quality of the project. We plan on integrating quality assurance at each stage of the project.
- To integrate quality into the project and to be able to refine it based on stakeholder's feedback, best approach would be to adapt **iterative and incremental model** for the development of 'HolisticSync'.
- Hence instead of a traditional Work Breakdown structure, an **Agile-inspired breakdown structure** is given below emphasising on using backlog of user stories and tasks.

3.2 Project Timeline

3.2.1 Work Breakdown Structure

Given below is a work breakdown structure illustrating key phases and timeline for each of the phase. It is assumed that all the iterations are of 2 weeks duration. Some of the tasks also run parallel to each other.

1. **Project Initiation (2 weeks)**
   (a) Define overall goals and objectives of HolisticSync – health and wellness application (1 week)
   (b) Conduct stakeholder analysis and prepare a project charter highlighting the scope, objectives, and business value. (1 week)
2. **Project Plan and Backlog Refinement (2 weeks)**
   (a) Define use cases. (2 days)
   (b) Identify and prioritize the user-stories (3 days)

(c) Breakdown all user stories into tasks and assign story points (2 days)

(d) Develop a project plan. (2 days)

(e) Initial Design. (5 days)

3. **Sprint 1: Initial Setup and Design (2 weeks)**

   (a) Setup Codebase (2 days)

   (b) Design Fitness functionality. (1 week)

   (c) Setting up configuration management facility (4 days)

   (d) Implement Sign-up and Login Functionality (4 days)

   (e) Test Sign-up and Login (3 days)

   (f) Review and Demo (1 day)

4. **Sprint 2: Fitness functionality development (2 weeks)**

   (a) Design Nutrition functionality. (1 week)

   (b) Develop Fitness functionalities and features (9 days)

   (c) Test Fitness section. (4 days)

   (d) Review and Demo (1 day)

5. **Sprint 3: Nutrition functionality development (2 weeks)**

   (a) Design Wellness functionality. (1 week)

   (b) Develop Nutrition functionalities and features (9 days)

   (c) Test Nutrition section. (4 days)

   (d) Review and Demo (1 day)

6. **Sprint 4: Wellness functionality development (2 weeks)**

   (a) Develop Wellness functionalities and features (9 days)

   (b) Test Wellness section. (4 days)

   (c) Review and Demo (1 day)

7. **Sprint 5: Testing and Refinement(2 weeks)**

   (a) Conduct integration testing (6 days)

   (b) Refine features based on stakeholders' feedback. (1 week)

   (c) Review and demo (1 day)

8. **Sprint 6: Beta Release (2 weeks)**

   (a) Plan and execute deployment of HolisticSync. (1 week)

   (b) Conduct User Acceptance Testing (6 days)

   (c) Review and Demo (1 day)

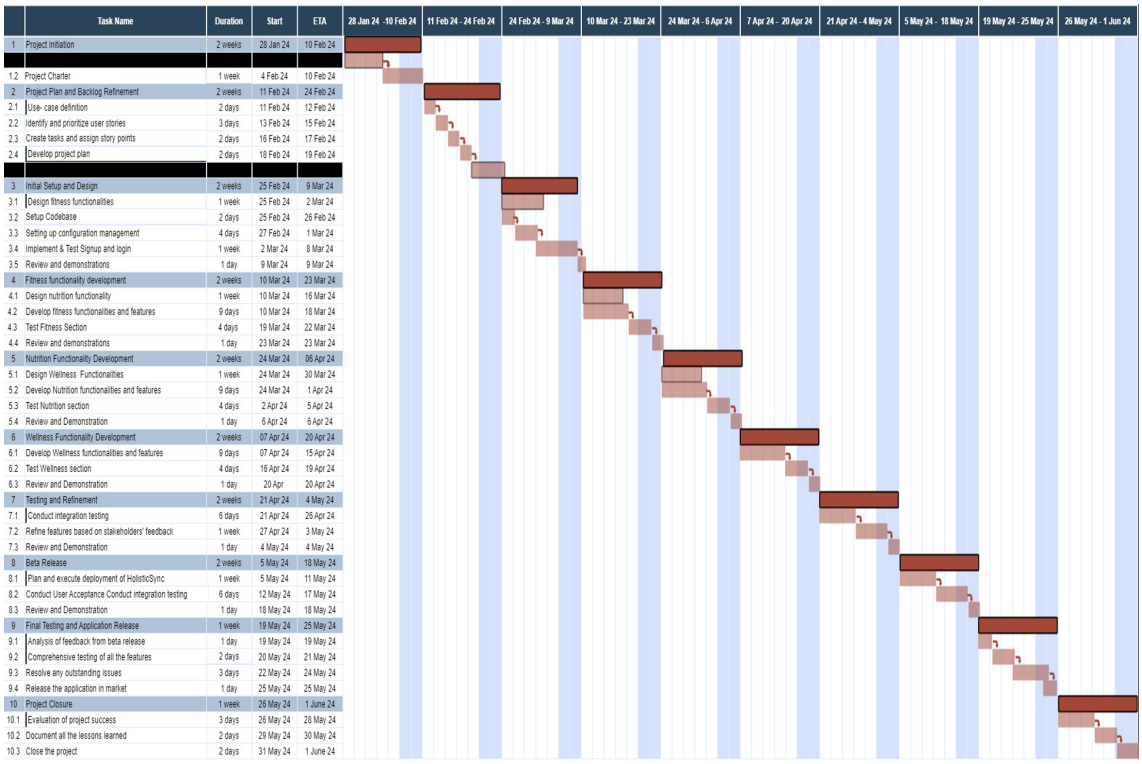
9. **Final Testing and Application Release (1 week)**

   (a) Analysis of feedback from beta release

   (b) Comprehensive testing of all the features

   (c) Resolve any outstanding issues.

   (d) Release the application in market.



	Task Name	Duration	Start	ETA
1	Project Initiation	2 weeks	28 Jan 24	10 Feb 24
1.2	Project Charter	1 week	4 Feb 24	10 Feb 24
2	Project Plan and Backlog Refinement	2 weeks	11 Feb 24	24 Feb 24
2.1	Use- case definition	2 days	11 Feb 24	12 Feb 24
2.2	Identify and prioritize user stories	3 days	13 Feb 24	15 Feb 24
2.3	Create tasks and assign story points	2 days	16 Feb 24	17 Feb 24
2.4	Develop project plan	2 days	18 Feb 24	19 Feb 24
3	Initial Setup and Design	2 weeks	25 Feb 24	9 Mar 24
3.1	Design fitness functionalities	1 week	25 Feb 24	2 Mar 24
3.2	Setup Codebase	2 days	25 Feb 24	26 Feb 24
3.3	Setting up configuration management	4 days	27 Feb 24	1 Mar 24
3.4	Implement & Test Signup and login	1 week	2 Mar 24	8 Mar 24
3.5	Review and demonstrations	1 day	9 Mar 24	9 Mar 24
4	Fitness functionality development	2 weeks	10 Mar 24	23 Mar 24
4.1	Design nutrition functionality	1 week	10 Mar 24	16 Mar 24
4.2	Develop fitness functionalities and features	9 days	10 Mar 24	18 Mar 24
4.3	Test Fitness Section	4 days	19 Mar 24	22 Mar 24
4.4	Review and demonstrations	1 day	23 Mar 24	23 Mar 24
5	Nutrition Functionality Development	2 weeks	24 Mar 24	06 Apr 24
5.1	Design Wellness Functionalities	1 week	24 Mar 24	30 Mar 24
5.2	Develop Nutrition functionalities and features	9 days	24 Mar 24	1 Apr 24
5.3	Test Nutrition section	4 days	2 Apr 24	5 Apr 24
5.4	Review and Demonstration	1 day	6 Apr 24	6 Apr 24
6	Wellness Functionality Development	2 weeks	07 Apr 24	20 Apr 24
6.1	Develop Wellness functionalities and features	9 days	07 Apr 24	15 Apr 24
6.2	Test Wellness section	4 days	16 Apr 24	19 Apr 24
6.3	Review and Demonstration	1 day	20 Apr	20 Apr 24
7	Testing and Refinement	2 weeks	21 Apr 24	4 May 24
7.1	Conduct integration testing	6 days	21 Apr 24	26 Apr 24
7.2	Refine features based on stakeholders' feedback	1 week	27 Apr 24	3 May 24
7.3	Review and Demonstration	1 day	4 May 24	4 May 24
8	Beta Release	2 weeks	5 May 24	18 May 24
8.1	Plan and execute deployment of HolisticSync	1 week	5 May 24	11 May 24
8.2	Conduct User Acceptance Conduct integration testing	6 days	12 May 24	17 May 24
8.3	Review and Demonstration	1 day	18 May 24	18 May 24
9	Final Testing and Application Release	1 week	19 May 24	25 May 24
9.1	Analysis of feedback from beta release	1 day	19 May 24	19 May 24
9.2	Comprehensive testing of all the features	2 days	20 May 24	21 May 24
9.3	Resolve any outstanding issues	3 days	22 May 24	24 May 24
9.4	Release the application in market	1 day	25 May 24	25 May 24
10	Project Closure	1 week	26 May 24	1 June 24
10.1	Evaluation of project success	3 days	26 May 24	28 May 24
10.2	Document all the lessons learned	2 days	29 May 24	30 May 24
10.3	Close the project	2 days	31 May 24	1 June 24

Figure 3.1: Project Gantt Chart

10. **Continuous Improvement, Support and Maintenance (Ongoing)**
    (a) Regular retrospectives and Adjustments.
    (b) Plan and implement continuous updates.
    (c) Customer defect fixes.
11. **Project Closure (1 week)**
    (a) Evaluation of project success (3 days)
    (b) Document all the lessons learned. (2 days)
    (c) Close the project. (2 days)

In conclusion, Total project duration is 18 weeks 4 months. Design, Development and Testing tasks will be carried out across 6 Sprints. Below is a Gantt chart depicting the key phases and timeline associated with each phase.

3.2.2 User stories and task breakdown

This section identifies all the user stories and corresponding tasks along with the Story Points (SPs) for each of the main functionalities of our HolisticSync application.

1. **Sign-up and Login**

   User Stories:

   (a) As a new user, I want to sign up for HolisticSync account with my personal information.
   (b) As a user, I want to log in with my credentials to access the application.
   (c) As a forgetful user, I want to reset my password.
   (d) As a user, I want to integrate my smartwatch with the application.

Tasks:

(a) **Implement user registration form:**

i. Create a registration form with fields for personal information. (2SP)

ii. Implement form validation to ensure accurate data entry. (1SP)

iii. Develop back-end logic to store user registration data securely. (3SP)

Story Points: 6

(b) **Create a secure password storage mechanism:**

i. Implement encryption for storing passwords. (1SP)

ii. Ensure the use of industry-standard hashing algorithms. (1SP)

iii. Test password storage and retrieval processes. (1SP)

Story Points: 3

(c) **Develop a login page:**

i. Design an intuitive user interface for the login page. (1SP)

ii. Implement back-end authentication logic and connect the login page to the user database. (3SP)

iii. Test login page (1SP)

Story Points: 5

(d) **Implement password reset functionality:**

i. Develop a password reset feature which can be accessed from the login page. (2SP)

ii. Implement email notifications for password reset requests (1SP)

iii. Test password reset requests (1SP)

Story Points: 4

(e) **Integrating email notification system:**

i. Implement a system for sending email notifications. (1SP)

ii. Create templates for account verification and password reset emails. (1SP)

iii. Test the email notification system. (1SP)

Story Points: 3

(f) **Integrate smartwatch with HolisticSync for added convenience:**

i. Integrate a smartwatch SDK for seamless authentication. (3SP)

ii. Ensure secure communication between the mobile and smartwatch (2SP)

Story Points: 5

2. **Fitness**

User Stories:

(a) As a user, I want to create a personalized fitness plan.

(b) As a fitness enthusiast, I want to track my workout sessions.

(c) As a coach, I want to modify users' fitness plans based on their progress.

(d) As a user, I want to share and discover new exercises.

(e) As a user with a smartwatch, I want my workout sessions to get track automatically.

(f) As a fitness freak, I want my smartwatch to sync with my fitness coach's recommendations.

Tasks:

(a) **Develop a user interface for creating fitness plans:**

i. Design a user-interface for users to input their fitness goals. (3SP)

ii. Implement a feature to customize user's workout routines. (3SP)

iii. Test the user-interface to ensure usability. (2SP)

Story Points: 8

(b) **Implement a workout tracker:**

i. Create a feature for users to log their workout sessions. (2SP)

ii. Develop a system to track different types of exercises performed by the user. (2SP)

iii. Implement progress charts so that users can visualize their fitness journey. (2SP)

iv. Test the workout tracking functionality. (2SP)

Story Points: 8

(c) **Enable fitness coaches to modify users' plans based on their physique:**

i. Develop a coach interface for reviewing user progress. (2SP)

ii. Implement features for coaches to adjust workout plans. (2SP)

iii. Develop a system for coaches to send workout recommendations directly to the user's smartwatch. (3SP)

iv. Test coach interface and all related functionalities. (2SP)

Story Points: 9

(d) **Create a feature for the users to share exercise routines with others:**

i. Implement a community-sharing platform. (2SP)

ii. Develop a rating and commenting system for shared exercises. (2SP)

iii. Ensure proper categorization of exercises. (2SP)

iv. Test the community sharing functionality. (2SP)

Story Points: 8

(e) **Integrate workout tracking with the smartwatches:**

i. Utilize the sensors of smartwatches, for instance – heart rate monitoring sensor to automatically track workouts. (3SP)

ii. Ensure a real-time synchronization between HolisticSync and the smartwatch. (3SP)

iii. Test the functionality with a real smartwatch (2SP)

Story Points: 8

(f) **Sync:**

i. Utilize the sensors of smartwatches, for instance – heart rate monitoring sensor to automatically track workouts. (3SP)

ii. Ensure a real-time synchronization between HolisticSync and the smartwatch. (3SP)

iii. Test the functionality with a real smartwatch (3SP)

Story Points: 9

3. **Nutrition**

User Stories:

(a) As a fitness enthusiast, I want to log my daily food intake.

(b) As a health-conscious user, I want personalized nutrition recommendations.

(c) As a nutritionist, I want to provide online consultations.

(d) As a user, I want to share healthy recipes with the community.

(e) As a nutritionist, I want access to users' smartwatches for customized meal recommendations.

Tasks:

(a) **Implement a food logging feature:**

i. Create a user-friendly interface for logging meals. (2SP)

ii. Implement a food database containing nutritional information. (2SP)

iii. Ensure accurate tracking of daily food intake. (1SP)

iv. Integrate the app with smartwatch sensors to detect and log food intake automatically. (2SP)

v. Test the food logging feature. (3SP)

Story Points: 10

(b) **Develop an algorithm to give personalized nutrition recommendations:**

i. Research and implement nutrition recommendation algorithms considering user preferences, dietary restrictions, and health goals. (5SP)

ii. Test and refine the recommendation engine. (3SP)

Story Points: 8

(c) **Create an interface to enable online consultations with a nutritionist:**

i. Develop a secure and private platform for online consultations. (3SP)

ii. Implement a scheduling system for appointments. (2SP)

iii. Test the functionalities in this feature. (2SP)

Story Points: 7

(d) **Enable users to share and discover healthy recipes using HolisticSync app:**

i. Implement a platform to allow users to share recipes. (2SP)

ii. Develop features for users to rate and comment on recipes. (2SP)

iii. Ensure categorization of the recipes based on dietary preferences. (2SP)

iv. Test all the functionalities in this feature. (2SP)

Story Points: 8

(e) **Enable the nutritionists to access smartwatch data:**

i. Develop a mechanism for the nutritionists enabling them to securely access the relevant data. (3SP)

ii. Develop features for nutritionists to utilize smartwatch data for giving personalized recommendations. (2SP)

iii. Test all the functionalities in this feature. (2SP)

Story Points: 7

4. **Wellness**

User Stories:

(a) As a user, I want to track my emotional well-being.

(b) As a user, I want the app to suggest activities based on my mood.

(c) As a mental health professional, I want access to users' emotional data for better support.

(d) As a user, I want my smartwatch to track my emotional well being and suggest me activities based on my mental state.

Tasks:

(a) **Develop an emotion tracking feature:**

i. Design a user-friendly interface for recording emotions. (2SP)

ii. Implement a system for periodic emotion check-ins. (2SP)

iii. Test the emotions tracking feature. (2SP)

Story Points: 6

(b) **Implement a suggestion system based on emotional data:**

i. Develop an algorithm for suggesting activities based on emotional states.

ii. Implement notifications for activity suggestions. (3SP)

iii. Test the effectiveness of suggestions on user mood. (2SP)

Story Points: 5

(c) **Integrate emotions tracking and push wellness activity suggestions to the smartwatch:**

i. Use smartwatch sensors to capture emotional data, such as heart rate variability. (3SP)

ii. Implement a feature for users to view emotional well-being trends on the smartwatch. (2SP)

iii. Implement notifications on the smartwatch for activity suggestions based on emotional states. (2SP)

iv. Test the effectiveness of all the feature. (2SP)

Story Points: 9

TOTAL STORY POINTS = 136

1. Sign up and Login: 26 SP
2. Fitness: 50 SP
3. Nutrition: 40 SP
4. Wellness: 20 SP

3.3 MILESTONE AND DELIVERABLES

Based on the work breakdown structure in the previous section, we have identified key milestones and deliverables for the development of our HolisticSync application. The project is broken down into 2 minor releases followed by a major release which delivers the end-to-end functionality to the targeted audience.

Minor release 1(Foundational Features):

1. **Project Initiation**

   Milestone: HolisticSync Project Kick-off

   Description: The "Project Kick-off" milestone serves as a crucial step for HolisticSync, the launching of the project that gathers the team together to start their journey. This step makes a complete presentation of the team Members and accordingly, helps everyone to understand what their function and duty is. During the team meeting the group participates in thorough discussions explaining the overall purpose of the project and clear set of tasks to be completed.

   Deliverables: Defined Overall Goals, Stakeholder Analysis, Project Charter, Team introduction

2. **Project Planning and backlog refinement**

   Milestone: Completion of Project Plan and identification of use cases.

   Description: Finalization of project plan, including scope, timeline, resource allocation, effort calculation and risk management.

   Deliverables: Project Plan, User-stories and task breakdown, Prioritized user stories, Scope Document, Risk Management Plan

3. **Sprint 1: Initial Setup and Design:**

   Milestone: Sprint 1 Completion

   Description: Successful set-up of the codebase, completion of fitness functionality design, and initial UI/UX design, login-signup implementation.

   Deliverables: Codebase Set-up, Designed Fitness Functionality, Implemented Sign-up and Login, Tested Sign-up and Login, Sprint Review and Demo.

4. **Sprint 2: Fitness functionality development:**

   Milestone: Minor Release 1 – Foundational features

   Description: This milestone targets the 1st minor release which aims to deliver all the foundational features. These include login and signup functionality, initial integration with the smart watches and development of fitness features along with a release document.

   Deliverables: Designed Nutrition and Wellness Functionalities, Initial integration with the smart watches, Developed Fitness related features, Tested Respective Section, Sprint Reviews and Demos, Release documentation.

   Minor Release 2(Integration and Refinement):

5. **Sprint 3: Nutrition functionality development**

   Milestone: Sprint 3 completion

   Description: Sprint 3 includes the design of wellness features as well as implementation and testing of nutrition related functionalities.

   Deliverables: Designed Wellness features, Developed Nutrition related features, Tested Respective section, Sprint Reviews and Demo

6. **Sprint 4: Wellness functionality development**

   Milestone: Sprint 4 completion

   Description: This milestone includes the development of wellness features, along with its thorough testing and reviews.

   Deliverables: Developed Wellness Features, Tested Respective section, Sprint Reviews and Demo

7. **Sprint 5: Testing and Refinement**

   Milestone: Minor Release 2 - Integration and Refinement

   Description: Completion of testing for implemented features, identification, and resolution of bugs, and refinements based on initial testing feedback.

   Deliverables: Integrated All Sections, Conducted Integration Testing, Refined Features Based on Feedback, Sprint Reviews and Demos, Release documentation

   Major Release(Finalization and Deployment of HolisticSync application):

8. **Sprint 6 and Final Testing:**

   Milestone: Major Release - Finalization and Deployment of HolisticSync

   Description: This milestone aims to deliver the application in the market to the end-users after a through beta testing is conducted and features are refined and tested based on the user feedback.

   Deliverables: Planned and Executed Deployment, Conducted User Acceptance Testing, Finalized Features and Testing, Sprint Reviews and Demos

   Continuous Improvement and Project Closure:

9. **Continuous improvement, support, and Ongoing maintenance:**

   Milestone: Continuous Improvement and Support

   Description: The concluding sprints are focused on quality maintenance and delivering resilience to the HolisticSync application. The main aim of "Continuous Improvement and Support" shows the team's eagerness to enhance the application according to feedback and keeping it up to date while providing timely solutions to the customers' issues.

   Deliverables: Regular Retrospectives, Continuous Updates, Customer Defect Fixes

10. **Project Closure:**

    Milestone: Project Closure

    Description: The finishing point on our HolisticSync project path will be the achievement of the "Project Closure" milestone, thus celebrating the end of the project delineation. This stage involves invaluable tasks such as appraising general performance, collecting queried results and realizing the end of project according to formal regulations.

    Deliverables: Evaluation of Project Success, Documented Lessons Learned, Formal Closure of the Project

3.4 RESOURCE ALLOCATION

The project plan is incomplete without resource allocation. The team outlines and designates human resources by assigning roles and duties for all the teammates. This helps to ensure that every team member is on the same page, understands their respective role and how they contribute to the success of the project.

Given below is the human and technical resource allocation for each of the phases we discussed previously for the implementation of our HolisticSync application.

1. **Project Initiation**

   - **Human Resources:**
     - Project Manager (100%)
     - Business Analyst (100%)
   - **Technological Resources:**
     - Project charter templates: Microsoft Word / Google Docs
     - Stakeholder analysis tools: StakeholderMap / Lucidchart

2. **Project Plan and Backlog Refinement**

   - **Human Resources:**
     - Business Analyst (100%)
     - Project Manager (100%)

- Lead Developers (20%)
- Product Owner (100%)

- **Technological Resources:**
  - Use case definition tools: LucidChart
  - Backlog refinement tools: Jira
  - Project planning tools: Microsoft Project / TeamGantt

3. **Sprint 1: Initial Setup and Design**

   - **Human Resources:**
     - Scrum Master (50%)
     - Development Team – 5 developers (100%)
     - Architect (100%)
     - Subject Matter Expert (100%)
     - UI/UX Designers (100%)
     - Project Manager (50%)
   - **Technological Resources:**
     - Codebase setup tools: Git/Bitbucket
     - Configuration management tools: Jenkins
     - Design tools: Figma

4. **Sprint 2 – Sprint 6: Development and testing sprints**

   - **Human Resources:**
     - Scrum Master (50%)
     - Architect (50%)
     - Development Team – 13 developers (100%)
     - Testing Team – 4 testers (100%)
     - Project Manager (30%)
   - **Technological Resources:**
     - Development Tools: Android Studio, Xcode, VScode
     - Testing tools: Selenium, BrowserStack, Smartwatches like Apple watch/ Fitbit, Mobile devices – Galaxy , iPhone 15
     - Review and demo tools: Microsoft Teams, GitHub

5. **Final Testing and Application Release:**

   - **Human Resources:**
     - Scrum Master (30%)
     - Development Team – 3 developers (100%)
     - UAT testers – 4 testers (100%)
   - **Technological Resources:**
     - Comprehensive testing tools: Jenkins
     - Issue resolution tools: Jira

6. **Continuous Improvement, Support, and Maintenance:**

   - **Human Resources:**
     - Support Team (100%)

- **Technological Resources:**
  - Retrospective tools: FunRetro
  - Continuous integration tools: Jenkins
  - Customer support tools: Intercom / Zendesk

7. **Project Closure:**

- **Human Resources:**
  - Project Manager (100%)
  - Business Analyst (100%)
- **Technological Resources:**
  - Evaluation tools: Surveymonkey / Google Forms
  - Documentation tools: Confluence / Google Docs

Identification of Critical Dependencies:

1. **Use Case Identification and Backlog Refinement:**

- Dependency on stakeholder input and feedback to fine-tune use cases definition.
- Collaboration between Business Analyst and Development Team for backlog grooming.

2. **Sprints 1-7:**

- Constant interaction between Product Owner, Scrum Master, and Development Team for sprint planning stage and execution stage.
- Development team depends on the design team (architects) for the product design, architects and front-end developers also depend on the UI/UX designers for the user-interface design.
- Testers cannot proceed with testing until developers finish their work and provide testers with the developed features for testing.
- Project manager relies on the entire team for the success or failure of sprints to progress the overall project.

3. **Continuous Improvement and Support:**

- Users and support team feedback loop for defect fixes and continuous improvement.
- Together with the Scrum Master and Support Team, customers concerns should be dealt with.

Risk Management

4.1 Introduction

As we embark on the development journey of the HolisticSync application, it's imperative to assess potential risks that could impede the project's progress or affect its success. These risks can stem from various sources, including technical, operational, and external factors. Conducting a thorough risk assessment allows us to identify, evaluate, and prioritize potential challenges and uncertainties associated with the project.

4.2 Potential Challenges and Uncertainties

1. **Technical Complexity:** The development of a health and wellness application like HolisticSync involves integrating a wide range of functionalities, including fitness tracking, nutrition management, and wellness monitoring. These features require complex technical implementations, such as data synchronization across multiple devices, real-time data processing, and secure data storage. The technical complexity of implementing these features may lead to delays in development and potential technical challenges during the implementation phase. To mitigate this risk, thorough feasibility studies and technical assessments are conducted before initiating development. Additionally, Agile development methodologies are employed to iteratively address and resolve technical complexities through continuous feedback and adaptation. Leveraging experienced developers and technical architects is also crucial in designing scalable and modular solutions to reduce the risk of technical debt and system complexities.

2. **Resource Constraints:** Adequate allocation of human and technical resources is essential for the timely execution of project tasks. However, unexpected resource constraints, such as team member availability, skill gaps, or equipment failures, could impact project timelines and deliverables. To mitigate this risk, open communication channels are maintained within the project team to promptly address any resource constraints or conflicts. Cross-training team members helps mitigate the impact of skill gaps and ensures redundancy in critical roles. Contingency plans and alternative resource allocation strategies are also established to mitigate risks associated with team member availability or equipment failures.

3. **Integration Issues:** Integrating HolisticSync with external peripherals, such as smartwatches and fitness devices, requires seamless interoperability. Any compatibility issues or integration complexities could hinder the functionality and user experience of the application. To mitigate this risk, early integration testing and continuous integration practices are prioritized to identify and resolve integration issues proactively. Close collaboration with peripheral device manufacturers and leveraging their technical support helps streamline integration processes and address compatibility challenges. Robust API documentation and clear communication channels with external partners facilitate smooth integration workflows.

4. **Security Concerns:** Given the sensitive nature of health and fitness data, ensuring robust security measures to protect user information is paramount. Any breaches in data security or privacy violations could damage the reputation of the application and undermine user trust. To mitigate this risk, industry-standard security protocols and encryption mechanisms are implemented to safeguard user data. Regular security audits and penetration testing are conducted to identify vulnerabilities and address potential security gaps promptly. Transparent privacy policies and user consent mechanisms are provided to instill trust and confidence among users regarding data protection measures.

5. **Regulatory Compliance:** The health and wellness industry is subject to various regulations and compliance standards, such as HIPAA for handling medical information. Failure to comply with these regulations could lead to legal implications and penalties. To mitigate this risk, thorough research is conducted to stay updated with relevant regulations and compliance standards applicable to health and wellness applications. Collaboration with legal experts ensures adherence to regulatory requirements such as HIPAA compliance for handling sensitive medical information. Robust data encryption, access controls, and audit trails are implemented to maintain compliance with data privacy regulations and protect user confidentiality.

6. **Market Competition:** The health and wellness app market is highly competitive, with numerous existing solutions vying for user attention. Differentiating HolisticSync and gaining market traction amidst established competitors pose challenges in terms of marketing, user acquisition, and retention. To mitigate this risk, market research and competitive analysis are conducted to identify gaps and opportunities for differentiation in the health and wellness app market. Focus is placed on delivering unique value propositions and user-centric features that set HolisticSync apart from existing competitors. Robust marketing and user acquisition strategies, including targeted advertising, influencer partnerships, and community engagement, are developed to gain market traction and establish a strong user base.

4.3 Risk Impact Analysis

1. **Technical Complexity**

   - **Impact:** High
   - **Likelihood:** Medium
   - **Description:** The technical complexity associated with integrating multiple features and ensuring seamless functionality could result in delays in development and potential rework, impacting project timelines and resource utilization.
   - **Mitigation:** Utilize experienced developers and technical architects to design scalable solutions, conduct thorough feasibility studies, and implement Agile methodologies to address technical challenges iteratively.

2. **Resource Constraints**

   - **Impact:** Medium
   - **Likelihood:** High
   - **Description:** Unexpected resource constraints, such as team member availability or skill gaps, could lead to delays in project tasks, affecting overall project timelines and deliverables.
   - **Mitigation:** Maintain open communication channels within the team, cross-train team members to address skill gaps, and establish contingency plans to mitigate the impact of resource limitations.

3. **Integration Issues**

    - **Impact:** High
    - **Likelihood:** Medium
    - **Description:** Integration complexities and compatibility issues with external peripherals like smartwatches could hinder the seamless interoperability and functionality of the application, affecting user experience and satisfaction.
    - **Mitigation:** Prioritize early integration testing, collaborate closely with external partners to streamline integration processes, and maintain clear communication channels to address integration challenges promptly.

4. **Security Concerns**

    - **Impact:** High
    - **Likelihood:** Low
    - **Description:** Security breaches or privacy violations could lead to reputational damage, loss of user trust, and potential legal implications, compromising the success and viability of the application.
    - **Mitigation:** Implement robust security protocols, conduct regular security audits, and ensure compliance with data privacy regulations to safeguard user information and mitigate security risks effectively.

5. **Regulatory Compliance**

    - **Impact:** Medium
    - **Likelihood:** Low
    - **Description:** Failure to comply with regulatory requirements such as HIPAA could result in legal implications, fines, and reputational damage, impacting the success and market viability of the application.
    - **Mitigation:** Conduct thorough research on regulatory requirements, collaborate with legal experts to ensure compliance, and implement comprehensive compliance measures throughout the project lifecycle.

6. **Market Competition**

    - **Impact:** Medium
    - **Likelihood:** High
    - **Description:** The highly competitive health and wellness app market poses challenges in terms of differentiation, user acquisition, and retention, affecting the market traction and success of HolisticSync.
    - **Mitigation:** Conduct market research and competitive analysis, focus on delivering unique value propositions, and develop robust marketing strategies to differentiate HolisticSync and gain a competitive edge in the market.

4.4 Risk Mitigation Plan

To address and minimize the identified risks, we have developed a comprehensive risk mitigation plan with strategies aimed at mitigating potential challenges and uncertainties throughout the project lifecycle.

1. **Technical Complexity:**

- **Thorough Feasibility Studies:** Conduct detailed feasibility studies and technical assessments before initiating development to identify potential technical challenges and assess the feasibility of proposed features.
- **Agile Development Methodologies:** Implement Agile development methodologies such as Scrum or Kanban to iteratively address and resolve technical complexities through continuous feedback and adaptation. Agile allows for flexibility and responsiveness to changing requirements and technical challenges.
- **Expert Resource Utilization:** Leverage experienced developers, technical architects, and domain experts to design scalable and modular solutions, reducing the risk of technical debt and system complexities. Utilize their expertise to tackle complex technical challenges efficiently.

2. **Resource Constraints:**

   - **Communication and Collaboration:** Maintain open communication channels within the project team to promptly address any resource constraints or conflicts. Encourage collaboration and teamwork to leverage collective expertise and mitigate the impact of resource limitations.
   - **Skill Development:** Cross-train team members to mitigate the impact of skill gaps and ensure redundancy in critical roles. Invest in continuous learning and skill development programs to enhance the capabilities of team members and address resource constraints effectively.
   - **Contingency Planning:** Establish contingency plans and alternative resource allocation strategies to mitigate risks associated with team member availability or equipment failures. Identify backup resources or external partners to fill resource gaps and ensure project continuity.

3. **Integration Issues:**

   - **Early Integration Testing:** Prioritize early integration testing and continuous integration practices to identify and resolve integration issues proactively. Conduct comprehensive testing of integrated components to ensure seamless interoperability and functionality across different systems.
   - **Collaboration with Partners:** Collaborate closely with peripheral device manufacturers and external partners to streamline integration processes and address compatibility challenges. Maintain clear communication channels and engage in collaborative problem-solving to resolve integration issues efficiently. **Robust Documentation:** Develop robust API documentation and maintain clear communication channels with external partners to facilitate smooth integration workflows. Provide comprehensive integration guidelines and support documentation to ensure seamless integration of HolisticSync with external peripherals.

4. **Security Concerns:**

   - **Security Protocols:** Implement industry-standard security protocols and encryption mechanisms to safeguard user data and mitigate the risk of data breaches. Utilize encryption technologies, secure authentication methods, and access controls to protect sensitive user information from unauthorized access.
   - **Regular Security Audits:** Conduct regular security audits and penetration testing to identify vulnerabilities and address potential security gaps promptly. Collaborate with cybersecurity experts to assess the security posture of HolisticSync and implement necessary security enhancements.

- **Transparent Privacy Policies:** Provide transparent privacy policies and user consent mechanisms to instill trust and confidence among users regarding data protection measures. Clearly communicate how user data is collected, stored, and processed, and obtain explicit user consent for data collection and usage.

5. **Regulatory Compliance:**

   - **Regulatory Research:** Conduct thorough research and stay updated with relevant regulations and compliance standards applicable to health and wellness applications. Collaborate with legal experts to ensure adherence to regulatory requirements such as HIPAA compliance for handling sensitive medical information.
   - **Comprehensive Compliance Measures:** Implement robust data encryption, access controls, and audit trails to maintain compliance with data privacy regulations and protect user confidentiality. Develop comprehensive compliance measures and protocols to ensure adherence to regulatory requirements throughout the project lifecycle.

6. **Market Competition:**

   - **Market Analysis:** Conduct market research and competitive analysis to identify gaps and opportunities for differentiation in the health and wellness app market. Analyze competitors' strengths and weaknesses to identify areas where HolisticSync can offer unique value propositions and stand out in the market.
   - **Differentiation Strategies:** Focus on delivering unique value propositions and user-centric features that set HolisticSync apart from existing competitors. Identify key differentiators such as innovative features, personalized user experiences, or niche market segments to attract and retain users in a competitive market landscape.
   - **Strategic Marketing:** Develop robust marketing and user acquisition strategies, including targeted advertising, influencer partnerships, and community engagement, to gain market traction and establish a strong user base. Utilize data-driven marketing techniques and user feedback to refine marketing strategies and optimize user acquisition efforts.

By proactively identifying potential risks and implementing effective risk mitigation strategies, we aim to minimize the impact of uncertainties and ensure the successful development and deployment of the HolisticSync application. Regular monitoring and reassessment of risks throughout the project lifecycle will enable us to adapt and respond to emerging challenges effectively.

Budgeting

5.1 Introduction

The goal of HolisticSync's software development budget is to give stakeholders a transparent financial plan that will enable the application's successful development and implementation while guaranteeing cost-effectiveness and financial accountability throughout its lifetime. The budget will be covering the planning, designing, developing, testing, deploying, and maintaining our application.

5.2 Cost Categories

1. **Development Cost:**

   - **Salaries and Wages:** Costs associated with compensating developers, designers, project managers, and other team members who worked on creating the program. Budget allocated to this category is $300,000.
   - **Hardware Cost:** These costs include the cost of purchasing computers, smartphones, testing equipment, and other items of hardware required for testing and development. Budget allocated to this category is $50,000.
   - **Software Tools and Licenses:** Expenses associated with project management platforms, version control systems, design software, and integrated development environments (IDEs). Budget allocated to this category is $100,000.
   - **Development Environment Setup:** Expenses related to establishing development environments, such as databases, cloud services, and tools for deploying health and wellness data. Budget allocated to this category is $50,000.
   - **Prototyping and Design:** Costs associated with developing wireframes, prototypes, and UI/UX designs specifically for the health and wellness sector. Budget allocated to this category is $80,000.

     >The total budget allotted to Development Cost adds up to a sum of $580,000<

2. **Testing Cost:**

   - **Testing Tools and Software:** Investments made in testing equipment for the health and wellness application's usability, performance, security, and functional testing. Budget allocated to this category is $70,000.
   - **Testing Infrastructure:** Costs associated with building up virtual computers, purchasing testing equipment, and establishing test environments for a variety of platforms. Budget allocated to this category is $60,000.
   - **Testing Personnel:** The price of employing QA testers and experts in the field of testing health and wellness apps. Budget allocated to this category is $120,000.

- **External Testing Services:** Money set aside for contracting with outside testing firms that focus on health and wellness app testing to carry out specific testing tasks. Budget allocated to this category is $50,000.
- **Bug Fixing and Debugging:** Resources to ensure the app's dependability and user experience by identifying and fixing bugs, faults, and mistakes found during the testing phase. Budget allocated to this category is $40,000.

  >The total budget allotted to Testing Cost adds up to a sum of $340,000<

3. **Marketing Costs:**

- **Advertising and Promotion:** Costs associated with advertising strategies that use influencer relationships, social media promotions, and internet advertisements to reach health-conscious people, fitness enthusiasts, and wellness groups. Budget allocated to this category is $200,000.
- **Public Relations:** PR expenditures to produce favourable press coverage, press releases, and collaborations with influential figures in the fields of health and wellness. Budget allocated to this category is $80,000.
- **Content Creation:** Money to create interesting material about nutrition, fitness, mental health, and overall wellness in order to draw and keep users. Budget allocated to this category is $100,000.
- **Events and Sponsorships:** Expenses related to attending conferences, expos, and health and wellness events in order to promote the HolisticSync app and interact with potential users. Budget allocated to this category is $70,000.
- **Marketing Technology:** Costs associated with CRM software, analytics platforms, and marketing automation technologies for tracking user engagement, calculating marketing return on investment, and refining marketing plans for the health and wellness sector. Budget allocated to this category is $50,000.

  >The total budget allotted to Marketing Cost adds up to a sum of $500,000<

4. **Ongoing Maintenance Costs:**

- **Supportive and Helpdesk Services:** Resources for customer service, answering questions from users, and fixing HolisticSync app-related technical problems via email assistance, live chat, or helpdesk systems. Budget allocated to this category is $100,000.
- **Software Updates and Patches:** Releases of patches, updates, and bug fixes with the goal of enhancing the application's functionality, addressing security flaws, and adding new features. Budget allocated to this category is $70,000.
- **Server Hosting and Infrastructure Maintenance:** The costs associated with keeping up the database management systems, server infrastructure, and cloud hosting services required to host and operate the HolisticSync app effectively and safely. Budget allocated to this category is $120,000.
- **License Renewals and Subscriptions:** Expenses associated with renewing memberships, software licenses, and third-party APIs utilized in the HolisticSync app ecosystem. Budget allocated to this category is $60,000.
- **Continuous Improvement:** Money set aside for continuous improvements, adjustments, and upgrades to the HolisticSync app in response to user input, market trends, and technological developments in the health and wellness space. Budget allocated to this category is $80,000.

  >The total budget allotted to Ongoing Maintenance Cost adds up to a sum of $430,000<

5.3 Resource Costing

In order to build HolisticSync, resource costing entails projecting the costs related to technology, human resources, and any outside services needed during the course of the software development lifecycle. This thorough analysis guarantees efficient budget management and adherence to project schedules and objectives.

1. **Human Resources:**

   - **Development Team:** The development team is made up of programmers, designers, project managers, and more staff members who are in charge of creating the HolisticSync application. It's critical to project their pay, benefits, and any supplemental costs like training or skill-development initiatives. Budget allocated to this category is $500,000.
   - **Testing Team:** In order to guarantee the app's functioning, usability, and performance, QA testers and specialists are essential. For efficient resource allocation, their pay, benefits, and training expenses must be determined. Budget allocated to this category is $250,000.
   - **Support Team:** Ensuring user pleasure requires providing exceptional customer assistance. After deployment, successful operations are ensured by projecting support staff salaries, benefits, and training expenditures. Budget allocated to this category is $150,000.

     >The total budget allotted to Human Resources adds up to a sum of $900,000<

2. **Technology:**

   - **Software Tools and Licences:** Expenses associated with project management platforms, version control systems, design software, and integrated development environments (IDEs). Budget allocated to this category is $100,000.
   - **Hardware Costs:** These costs include the cost of purchasing computers, smartphones, testing equipment, and other items of hardware required for testing and development. Budget allocated to this category is $50,000.
   - **Server Infrastructure:** The HolisticSync app requires databases, server maintenance, and cloud hosting services in order to be hosted and operated securely and effectively. Budget allocated to this category is $200,000.
   - **Testing Tools and Software:** Investments made in testing apparatus for functional, performance, security, and usability testing of the health and wellness application. Budget allocated to this category is $70,000.

     >The total budget allotted to Technology adds up to a sum of $420,000.<

3. **External Services:**

   - **Third-Party APIs:** Subscription fees or usage-based charges apply when integrating external APIs for services like wearable device integration, nutrition data, or fitness tracking. Budget allocated to this category is $50,000.
   - Outsourced Development: Budgetary planning may be required if specific development work or specialized services must be contracted out to independent contractors or vendors. Budget allocated to this category is $100,000.
   - **Consulting Services:** Consulting costs may apply when seeking advice or assistance from consultants or specialists in software architecture, user experience design, or fitness app development. Budget allocated to this category is $50,000.

- **Marketing and Promotion:** The budget should account for the expenses incurred by outsourcing marketing initiatives including influencer alliances, social media management, and advertising campaigns. Budget allocated to this category is $200,000.

  >The total budget allotted to External Services adds up to a sum of $400,000.<

5.4 Contingency Budget

Allocating a contingency budget for unforeseen expenses is essential to mitigate risks and uncertainties that may arise during the software development lifecycle. The contingency budget can be allocated as follows:

1. **Allocation of Contingency Budget:** A contingency budget is a fraction of the total budget reserved for unforeseen expenses or events that might arise while the HolisticSync app is being developed. Generally, contingent budgets are represented as a percentage of the overall project budget, with a range of 5% to 15% based on the project's complexity and level of risk. We allocated approximately 10% of the total estimated cost. This the total contingency cost sums up to $317,000.

2. **Rationale Behind the Contingency Budget:**

   - **Mitigating Risks:** Risks associated with developing HolisticSync include technological difficulties, scope modifications, and delivery delays. Setting aside money for a contingency budget offers a financial safety net to handle these risks without compromising the project's quality or schedule.
   - **Uncertainty in Requirements:** Throughout the development phase, requirements for the HolisticSync app may alter or evolve, requiring more effort or modifications. A contingency budget gives you the flexibility to adjust to these developments without going over your initial budgetary limits.
   - **Market Dynamics:** The health and wellness sector is ever-changing due to shifting consumer tastes, trends, and technology breakthroughs. In order to remain competitive, the project team can include new features or functionalities and adjust to changes in the market with the use of a contingency budget.
   - **Technical Challenges:** During the development of HolisticSync, unexpected technical problems or complexity could occur despite careful planning and risk assessment. Having a contingency budget makes it possible to purchase extra materials, equipment, or knowledge in order to successfully address these obstacles.
   - **External Factors:** The project budget may be impacted by external events like modifications to regulations, shifts in the economy, or interruptions to supply networks. Setting up money for a contingency budget guarantees project continuance and offers resilience against such outside concerns.

     >The total estimated budget for the development of HolisticSync, including the contingency budget, is $3,487,000<

REFERENCES

Collaboration Environments

1. **Github :** https://github.com/DarCyStorm/SOEN-6841-Course/tree/main/Project