University of Wollongong

RECREATION AND WELLNESS INTRANET
MANAGE YOUR HEALTH INC.

A Report submitted as a part of
the Assignment for the subject CSIT883

System Analysis and Project Management

from

UNIVERSITY OF WOLLONGONG

by

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2024

Recreation and Wellness Intranet
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ABSTRACT

A comprehensive workplace health program is crucial for fostering a positive corporate culture and maintaining a productive workforce. These programs encourage employees to manage their health proactively, which reduces absenteeism and minimizes health-related costs, ultimately boosting job satisfaction and productivity. By prioritizing wellness, organizations create a supportive environment that values the physical and mental well-being of their employees, leading to long-term benefits for both individuals and the business.

Manage Your Health Inc. (MYH), recognizing the importance of workplace health programs, has proposed developing a project that integrates a suite of health and wellness modules into its organizational framework. This initiative aims to cultivate a culture of wellness, enhance employee health, and reduce insurance costs, with projected net savings of $2,400,000 over the next four years.

This report offers a comprehensive overview of the system specifications and details the methodologies followed to implement the project successfully. It covers key components such as system analysis, resource allocation, stakeholder engagement, risk assessment, and UML modeling. Together, these elements create a cohesive roadmap that ensures the project's effectiveness in achieving the company's health management goals.

MEMBER CONTRIBUTION

Table 1: Contribution Table

Name	Student Number	Contribution
Karan Goel	7836685	contributed
Banin Sensha Shrestha	8447196	contributed
Kushal Rimal	8735876	contributed
Dipesh Baral	8712785	contributed
Affan Mehmood	8228851	contributed

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Part 1

Project Integration Management

Our first step in ensuring the successful delivery of this project to MYH is to gain a comprehensive understanding of their primary goals and objectives. This part provides an overview of the main objectives, initial proposals, and business case studies that have been developed in consultation with the MYH.

1.1 Proposals

Manage Your Health, Inc. (MYH) is a global healthcare provider ranked among the Fortune 500. With over 25,000 employees worldwide, including 20,000 full-time and 5,000 part-time workers, MYH is committed to cutting internal costs, enhancing cross-selling of products, and leveraging new web technologies to foster collaboration among employees, customers, and suppliers, thereby enhancing the delivery of healthcare products and services.

MYH has identified three potential projects in line with their strategic objectives:

1. **Health Coverage Costs Business Model:** This project involves developing a secure application to model and analyze healthcare expenses. It requires an initial investment of $100,000 and is projected to save $20 annually for each

full-time employee.

2. **Web-Enhanced Communications System:** The goal of this project is to implement a web-based system that streamlines the development and delivery of products. With a development cost of $3 million, the system is expected to save $2 million annually, notwithstanding ongoing maintenance costs.

3. **Recreation and Wellness Intranet Project:** This initiative aims to launch an intranet application to enhance employee health and wellness, potentially reducing healthcare premiums and saving $30 per employee each year through better health outcomes.

MYH requests a preliminary analysis to determine which project best meets their strategic goals and asks for a detailed business plan for the chosen proposal.

1.2 Project Analysis

In response to the request from MYH, we initiated a preliminary analysis of the proposed projects.

1.2.1 Objectives Analysis

The analysis began with an understanding of the strategic goals of MYH. These objectives were elucidated through comprehensive discussions with MYH's visionary leaders. The key strategic goals derived from these discussions are summarized in Table 1.1.

Goal	Description
Reduce-Cost	Aim to decrease internal costs to enhance efficiency and boost profitability.
Business-Growth	Increase market penetration and revenue through enhanced cross-selling opportunities.
Develop	Improve collaboration among employees, customers, and suppliers with new web-based technologies, thereby optimizing the development and delivery of healthcare products and services.

Table 1.1: Strategic Goals of Manage Your Health, Inc.

This structured approach allows us to align each project proposal with MYH's strategic objectives, facilitating an informed decision-making process for developing the subsequent business plan.

1.2.2 Proposal Analysis

Once the objectives were established, our team conducted a comprehensive analysis of each proposal to ensure they aligned with MYH's goals. We focused on several key metrics, assigning different weights to each criterion based on its importance:

- Tie to business strategy - 10%
- Upfront cost - 25%
- Potential net savings - 25%
- Realistic technology - 15%
- In-house expertise - 10%
- Potential resistance - 15%

The findings of our analysis are summarized in Table 1.2, providing a clear comparison of how each proposal measures up against the set criteria.

Table 1.2: Comparison of Project Criteria and Their Impact

Criteria	Weight	Health Coverage Costs Business Model	Web-Enhanced Communications System	Recreation and Wellness Intranet Project
Tie-to business strategy	10%	Reduce-Cost (1/3)	Business-Growth, Develop (2/3)	Reduce-Cost (1/3)
Upfront cost	25%	\$100,000	\$3,000,000	\$200,000
Potential net savings	25%	\$1,600,000	\$6,000,000	\$2,400,000
Realistic technology	15%	Data Analysts needed to analyze the premiums of current and past employees linked to 10 different insurance companies.	The project is highly achievable with modern technology, as we all have experience with similar systems.	The project is highly achievable with modern technology, as we all have experience with similar systems.
In-house expertise	10%	Organization might need to hire more experienced Data Analysts, even though we have expert developers to implement the application to analyze the data.	New components to be implemented and new services to be provided, such as delivery services, customer support, and suppliers management, necessitate hiring quite a few staff.	Project is easy to implement with proper guidance from a Team Lead.
Potential resistance	15%	Project might not face much resistance since the application is relatively easy to build.	Project might not face much resistance since the application is relatively easy to build.	Senior employees might resist involvement in recreational programs due to greater responsibilities like family care. Other employees might also show disinterest.

1.2.3 Weighted Model

To further analyze our findings, we quantified the results from Table 1.2 to create a weighted model, as shown in Table 1.3.

Criteria	**Weight**	**Health Coverage Costs Business Model**	**Web-Enhanced Communications System**	**Recreation and Wellness Intranet Project**
Tie to business strategy	10%	50	70	60
Upfront cost	25%	70	35	85
Potential net savings	25%	70	30	90
Realistic technology	15%	60	85	75
In-house expertise	10%	55	40	80
Potential resistance	15%	80	85	60
Total	100%	66.5	52.75	78

Table 1.3: Comparison of Project Criteria and Their Impact (Weighted Model)

The chart depicted in Figure 1.1 provides a visual representation of the evaluation model. From this chart, we can see that **Project 3: Recreation and Wellness Intranet Project** is the most preferred, followed by **Project 1: Health Coverage Costs Business Model**. This visual aids in understanding the relative preferences based on the weighted scoring of each project.

1.2.4 Financial Analysis

To enhance our project selection process, we conducted a financial analysis to ensure that the chosen projects provide maximum benefit to MYH. Our team evaluated the

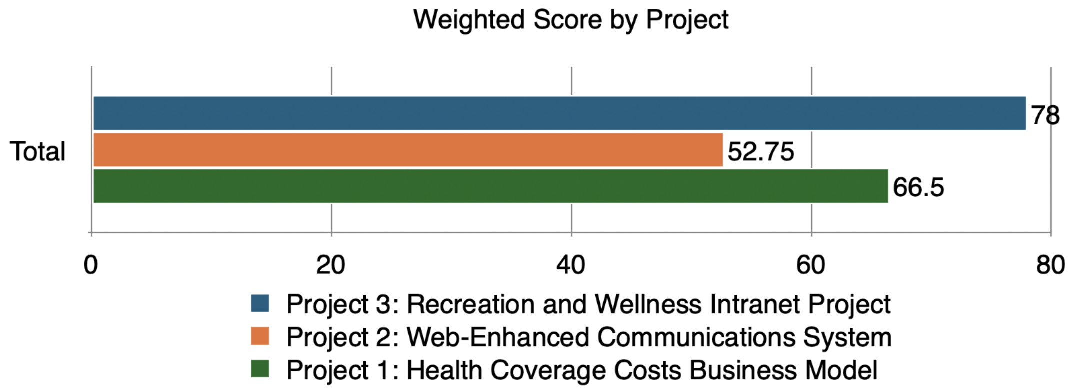


Figure 1.1: Weighted Score Model

Net Present Value (NPV) and Return on Investment (ROI) for each project to verify alignment with financial objectives and to ensure optimal returns. The detailed metrics and results of this analysis are summarized in the subsequent sections, providing a clear basis for our project recommendations.

Net Present Value (NPV)

Net Present Value (NPV) is a financial metric used to evaluate the profitability of an investment or project. It represents the difference between the present value of cash inflows and the present value of cash outflows over the investment's lifetime. NPV is calculated using the formula:

$$\text{NPV} = \sum_{t=0}^{n} \frac{C_t}{(1+r)^t}$$

where:

- C_t represents the cash flow at time t,
- r is the discount rate,
- t is the time period (usually in years),

- n is the total number of periods.

This formula discounts each of the cash flows back to their present value and then sums them up. A positive NPV indicates that the projected earnings exceed the anticipated costs, thus making it a potentially profitable investment.

Return on Investment (ROI)

Return on Investment (ROI) is a financial metric used to measure the efficiency of an investment or to compare the efficiencies of several different investments. ROI measures the amount of return on an investment relative to the investment's cost, calculated as:

$$\text{ROI} = \left(\frac{\text{Total Benefits} - \text{Total Costs}}{\text{Total Costs}} \right) \times 100\%$$

where:

- Total Benefits represents the total cash inflows from the investment,
- Total Costs represents the total cash outflows for the investment.

ROI is expressed as a percentage; a higher ROI means the investment gains compare favorably to its cost. It is used to evaluate the efficiency of an investment or compare the efficiencies of several different investments.

Financial Analysis of Projects

The NPV and ROI calculations for the projects are detailed and summarized in Table 1.4. This table provides insights into the financial viability and potential profitability of each project, aiding in the decision-making process.

Table 1.4: Financial Analysis for Three Projects

Item	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
			Project 1: Health Coverage Costs Business Model			
Benefits	$0	$400,000	$400,000	$400,000	$400,000	$1,600,000
Cost	$100,000	$0	$0	$0	$0	$100,000
Cashflow	-$100,000	$400,000	$400,000	$400,000	$400,000	$1,500,000
NPV(D=8%)			**$1,134,121.05**			
ROI			**1500%**			
			Project 2: Web-Enhanced Communications System			
Benefits	$0	$2,000,000	$2,000,000	$2,000,000	$0	$6,000,000
Cost	$3,000,000	$600,000	$600,000	$600,000	$600,000	$5,400,000
Cashflow	-$3,000,000	$1,400,000	$1,400,000	$1,400,000	-$600,000	$600,000
NPV(D=8%)			**$154,553.58**			
ROI			**11%**			
			Project 3: Recreation and Wellness Intranet Project			
Benefits	$0	$600,000	$600,000	$600,000	$600,000	$2,400,000
Cost	$200,000	$0	$0	$0	$0	$200,000
Cashflow	-$200,000	$600,000	$600,000	$600,000	$600,000	$2,200,000
NPV(D=8%)			**$1,654,885.28**			
ROI			**1100%**			

1.2.5 Project Selection

After a thorough analysis of each project, considering both financial metrics (Section 1.2.4) and qualitative criteria (Section 1.2.3) we made a final decision on project selection for MYH.

- **Project 1: Health Coverage Costs Business Model**
  - **NPV**: $1,134,121.05
  - **ROI**: 1500%
  - **Decision**: Project 1 is appealing for selection due to its high ROI and substantial positive NPV, indicating significant profitability and efficient capital utilization but requires careful consideration of the additional staffing

needs and its modest strategic tie.

- **Project 2: Web-Enhanced Communications System**
  - **NPV**: $154,553.58
  - **ROI**: 11%
  - **Decision**: Not recommended for immediate selection due to its lower ROI and marginal NPV, suggesting limited profitability and efficiency.
- **Project 3: Recreation and Wellness Intranet Project**
  - **NPV**: $1,654,885.28
  - **ROI**: 1100%
  - **Decision**: Project 3 offers a very high ROI and the highest NPV among the evaluated projects, ensuring excellent profitability and effective capital use. It presents a balanced option with moderate costs, significant expertise availability, and high feasibility with current technology, though it might face resistance impacting its implementation.

Based on the comprehensive analysis of financial metrics along with the qualitative assessments, **Project 3: Recreation and Wellness Intranet Project** stands out as the optimal choice. This project not only demonstrates substantial financial returns but also aligns with technological feasibility and existing in-house expertise. Although there may be some resistance from senior employees, its moderate initial investment and significant long-term benefits warrant its selection. The project's strategic alignment with enhancing employee engagement and wellness further supports its potential for positive organizational impact.

1.3 Business Case

This section presents the business case for **Project 3: Recreation and Wellness Intranet Project**, proposed by Manage Your Health Inc. (MYH).

The business case was developed based on the objectives, mission statement, goals, project phases, and financial and market analyses of the project. The results are summarized in Table 1.5. The detailed business case prepared by the project manager is presented below.

Table 1.5: Business case summary for Recreation and Wellness Intranet Project

Section	**Details**
Project Overview	• **Project Manager:** Tony Prince • **Client:** Manage Your Health Inc. • **Duration:** 6 months • **Budget:** $200,000
Executive Summary	Aims to improve employee health and reduce healthcare costs by engaging employees in wellness and recreational programs, targeting savings of at least $30 per employee per year.
Mission Statement	To empower and engage employees in enhancing their health and well-being through accessible digital wellness solutions.

Table 1.5 – *Continued from previous page*

Section	Details
Objectives	1. Reduce healthcare costs by improving employee health. 2. Enhance employee productivity and morale through structured wellness programs. 3. Offer a tailored intranet solution to promote health management.
Project Phases	Initiation, Planning, Execution, Monitoring and Control, Closure, and Post-Project Evaluation. Each phase includes specific tasks and resource allocations.
Financial Appraisal	Project targets net savings of $30 per employee per year, with a total budget of $200,000. (NPV: $1,654,885.28, ROI: 1100%)
Market Assessment	Targets 20,000 full-time employees.
Marketing Strategy	Uses the intranet portal, email campaigns, company meetings, and social media to promote the wellness application.

Table 1.5 – *Continued from previous page*

Section	**Details**
Conclusion	The **Recreation and Wellness Intranet Project** is designed to directly address these challenges by introducing a comprehensive digital platform aimed at enhancing the health and wellness of our workforce. By investing in this project, we anticipate not only a reduction in health-related costs but also improvements in employee productivity, engagement, and overall morale.

Business Case: Recreation and Wellness Intranet Project

Prepared by: Tony Prince, Project Manager

May 16, 2024

Problem Statement

As a leading global healthcare services provider, MYH faces significant challenges related to employee health management. Recent assessments indicate that the company's healthcare premiums are substantially higher than the industry average, primarily due to preventable health issues among employees.

Business Objectives

MYH introduces the Recreation and Wellness Intranet Project, with an allocated budget of $200,000 and a completion timeline of six months. The objectives are to:

1. Reduce healthcare costs by improving employee health.
2. Enhance employee productivity and morale through structured wellness programs.
3. Offer a tailored intranet solution to promote health management.

Critical Assumptions and Constraints

The application is designed to offer substantial value by addressing the critical issues of rising healthcare costs and deteriorating employee health within MYH's workforce. The success of the project depends on active employee participation, expected to lead to significant behavioral changes towards better health. This project is constrained by a fixed budget of $200,000 and a strict six-month timeline. The successful implementation also depends on the IT and development team's capabilities, overcoming potential resistance to change among employees, and ensuring seamless integration with existing systems. Legal and regulatory constraints may also impact the project's scope and execution.

Analysis of Options and Recommendation

- **Option 1: Do Nothing**
  - Pros: Minimal disruption and costs in the short term.
  - Cons: Missed opportunity to address rising healthcare costs and worsening employee health.
- **Option 2: Purchase an Existing Application**
  - Pros: Quicker implementation with potential access to tested features.
  - Cons: Initial costs for licensing, possible misalignment with specific needs, and limited customization.
- **Option 3: Design and Implement the Application**
  - Pros: Fully customizable to meet MYH's unique requirements, complete control over features, functionality, and user experience.
  - Cons: Longer development timeline and substantial initial investment.

Recommendation:
After thorough discussions with management, *Option 3: Design and Implement the Application* is the preferred choice. Despite the initial investment, the benefits of a tailored solution that aligns with MYH's strategic goals and seamlessly integrates with existing systems outweigh the disadvantages.

Preliminary Project Requirements

- Develop a user-friendly intranet application featuring program registration, participation tracking, and incentive management.
- Offer a range of recreational programs and health-management classes within the application.
- Ensure robust data security and privacy compliance.

Estimated Budget and Financial Evaluation

Budget for the Project: $200,000.
Estimated Savings: Over four years, projected savings amount to at least $30 per full-time employee per year.

Schedule Estimate

The project is expected to be completed within six months, adhering to the set timeline and project milestones.

Potential Risks

1. Low employee engagement may lead to minimal health improvements.
2. Technical challenges could delay application development.
3. Incentives may not sufficiently motivate employees.

Exhibits

1. Calculation of Potential Savings: The potential savings of $30 per employee per year over four years, highlighting the project's economic advantage.
2. Return on Investment (ROI): Post-project completion, the ROI will be calculated, comparing the actual savings against the investment.

Summary

The Recreation and Wellness Intranet Project is strategically designed to improve employee health and reduce healthcare costs, aligning with MYH's long-term goals. This comprehensive initiative is expected to generate significant savings and enhance employee wellbeing through targeted wellness programs and innovative health management solutions.

Part 2

Project Scope Management

In this part, we will detail the project scope, clearly defining what is included and what is excluded from the project. We will also describe the development of the Work Breakdown Structure (WBS) and the Gantt chart for this project. These tools are essential for ensuring that the project remains focused on its intended goals and is executed efficiently without unnecessary expansion or deviation. By establishing these parameters, we aim to provide a structured approach to managing the project's scope, facilitating better control over project deliverables and timelines.

2.1 Stakeholder Identification

The first step before developing the project scope is to identify all stakeholders. This process ensures that the needs and expectations of every individual or group affected by the project are considered from the outset.

The stakeholders identified for the project are listed in Table 2.1.

Table 2.1: Stakeholders in the Recreation and Wellness Project

Stakeholder	Role/Interest
Employees	Direct beneficiaries, interested in wellness programs and facilities
Project Management Team	Responsible for planning, executing, and closing the project
Human Resources	Interested in employee satisfaction and retention
IT Department	Responsible for supporting technology needs and system integration
Health and Safety Officers	Ensure compliance with health and safety regulations
External Vendors	Provide necessary equipment or services for the wellness programs
Senior Management	Strategic oversight and funding decisions

2.2 Requirements Analysis

The next step in developing the project scope is to gather and list the requirements necessary for project completion. In this section, we will detail the requirement gathering process and present the requirements in a Requirement Traceability Matrix (RTM). This matrix will help ensure that each requirement is clearly linked to project objectives and can be traced throughout the project lifecycle.

2.2.1 Requirements Gathering

To ensure a thorough evaluation of all system aspects relevant to the project, requirements have been collected from various sources using diverse methods:

1. **Stakeholder Interviews:** In-depth interviews with identified stakeholders are conducted to obtain detailed insights into their specific requirements and expectations.

2. **Employee Surveys:** Surveys are distributed among employees to gather a broad spectrum of data on their perspectives and needs.

3. **Focus Groups:** Focus group discussions are organized to explore particular issues or topics of interest in greater depth with a select group of stakeholders.

4. **Review of Existing Systems and Data:** Current systems and historical data are analyzed to establish a baseline and identify potential areas for improvement.

5. **Benchmarking:** Investigated and compared existing wellness programs or applications in other organizations to identify best practices and innovative features that could be incorporated into our project.

2.2.2 Requirement Traceability Matrix

Once the requirements have been collected, we constructed a Requirement Traceability Matrix (RTM) to map each requirement back to its source. This matrix serves as a critical tool for ensuring that all requirements are clearly linked to their origins and that they are fully addressed throughout the project lifecycle.

Table 2.2 list the Requirement Traceability Matrix (RTM) with its source and links it to specific features.

Table 2.2: Requirement Traceability Matrix

ID	**Requirement**	**Source**	**Feature**
R1	Develop a user-friendly interface for the wellness program application.	Stakeholder Interviews	User Interface Design
R2	Ensure compliance with data privacy laws in health management applications.	Legal Requirements	Data Security

Table 2.2 – *Continued from previous page*

ID	Requirement	Source	Feature
R3	Implement a system for tracking employee participation in wellness activities.	Employee Surveys	Activity Tracking
R4	Integrate third-party services for mental health resources.	Focus Groups	Third-Party Integration
R5	Create a feedback mechanism for users to report issues and suggestions.	Employee Surveys	User Feedback System
R6	Enable customization of wellness programs to meet individual health goals.	Stakeholder Interviews	Personalization Settings

2.3 Project Scope Statement - Version 1

This section presents the initial version of the project scope statement as created by the project manager. The document outlines key project objectives, deliverables, and the overall approach.

Project Scope Statement: Recreation and Wellness Intranet Project

Prepared by: Tony Prince, Project Manager
Version 1

Project Start Date: March 18, 2024

Project Budget

$200,000

Summary and Justification

The Recreation and Wellness Intranet project is designed to enhance staff health and reduce internal costs within a year, in alignment with MYH's strategic objectives. The project involves developing and deploying a user-friendly web-based application within a six-month period, with a budget of $200,000. This investment aims to negotiate lower health insurance premiums, with projected annual benefits of $600,000 and a total estimated saving of $2.4 million over the next four years, ensuring the project's sustainability and value.

Product Characteristics and Requirements

1. **Recreational Programs:** Provide a user-friendly interface for staff to register for activities such as walking, jogging, softball, soccer, and bowling.
2. **Health-Management Programs:** Deliver programs to assist employees in managing weight, reducing stress, and quitting smoking.
3. **Data Tracking:** Implement a system to collect and analyze data on employee participation in wellness activities.
4. **Incentive Program:** Establish a rewards system to encourage active participation and goal achievement.
5. **Application Accessibility:** Ensure the application is easily accessible via the company intranet using standard internet browsers.

6. **Budget and Timeline:** Complete the project within a six-month period while adhering to the allocated budget of $200,000.

Outcomes and Deliverables

Project Management Deliverables

The project will produce various deliverables including the business case, scope statement, work breakdown structure, schedule, cost baseline, project charter, team charter, progress reports, final project presentation, final project report, and a lessons-learned document, among other necessary documentation.

Product Deliverables

1. **Survey:** Develop and deploy a survey to collect feedback on employee preferences for recreational and health programs.
2. **Recreational Program:** Initiate a range of recreational activities based on employee interests.
3. **Health-Management Program:** Design and offer programs targeting weight management, stress reduction, and smoking cessation.
4. **Data Tracking System:** Set up a system to monitor and report employee participation in wellness activities.
5. **Incentive Program:** Design and implement an incentive scheme to boost employee participation.
6. **Testing:** Perform extensive testing to verify application functionality and user accessibility.
7. **Training:** Conduct training sessions to educate employees on how to effectively use the application.
8. **Announcement:** Implement promotional activities to inform and engage employees about the application's benefits.

Project Success Criteria

The project must meet specified requirements to fulfill company goals and employee needs, ensuring the application operates seamlessly. It is imperative to complete the project within the six-month timeframe and budget of $200,000. Achieving project independence within a year of implementation is critical to realizing the maximum benefits for the company and its employees.

2.4 Work Breakdown Structure

A comprehensive Work Breakdown Structure (WBS) has been developed to systematically organize and define the total scope of the "Recreation and Wellness Intranet" project. This structure delineates all key deliverables and breaks them down into manageable components, facilitating more effective planning and execution.

The WBS for our project is meticulously organized into five distinct phases, each tailored to ensure structured progress and effective management throughout the project lifecycle. These phases are as follows:

1. **Initiation:**
   - Proposal: Document the initial proposal provided by MYH.
   - Project Analysis: Perform initial feasibility and scope analysis.
   - Objectives Analysis: Align project objectives with strategic goals.
   - Proposal Reanalysis: Refine the proposal based on initial findings.
   - Financial Analysis: Calculate financial metrics like NPV and ROI.
   - Business Case: Develop and finalize the business case.
2. **Planning:**
   - Stakeholder Identification: Identify and document all key stakeholders.
   - Requirements Analysis: Detailed analysis of project requirements.
   - Requirement Gathering: Collection of specific system requirements.
   - Requirement Traceability Matrix: Creation of an RTM.
   - Project Scope: Development of a detailed project scope document.
   - Work Breakdown Structure: Create a detailed WBS for task organization.

- Gantt Chart: Develop a Gantt chart to outline project timelines.

3. **Execution:**

    - Project Quality Documentation: Set standards for project quality.
    - Project Resource Documentation: Document all project resources.
    - Project Risk Documentation: Assess and document project risks.
    - UML Diagram and System Design: Create UML diagrams and system designs.

4. **Monitoring and Control:**

    - Standard Draft Preparation: Develop standardized document templates.
    - Version Control: Implement version control systems like GitHub.
    - Performance Tracking: Monitor project performance against planned metrics.

5. **Closure:**

    - Final Documentation: Compile comprehensive project documentation.
    - Presentation: Prepare and deliver the final project presentation to MYH leadership.

6. **Post-Project Evaluation:**

    - Evaluate project outcomes against initial objectives.
    - Document lessons learned and provide recommendations for future projects.

Each of these phases plays a crucial role in the structured and successful delivery of the project, ensuring that all objectives are met and the project delivers the intended benefits.

Figure 2.1 provides a visual representation of the Work Breakdown Structure in the form of a flowchart, illustrating the hierarchical organization of project tasks.

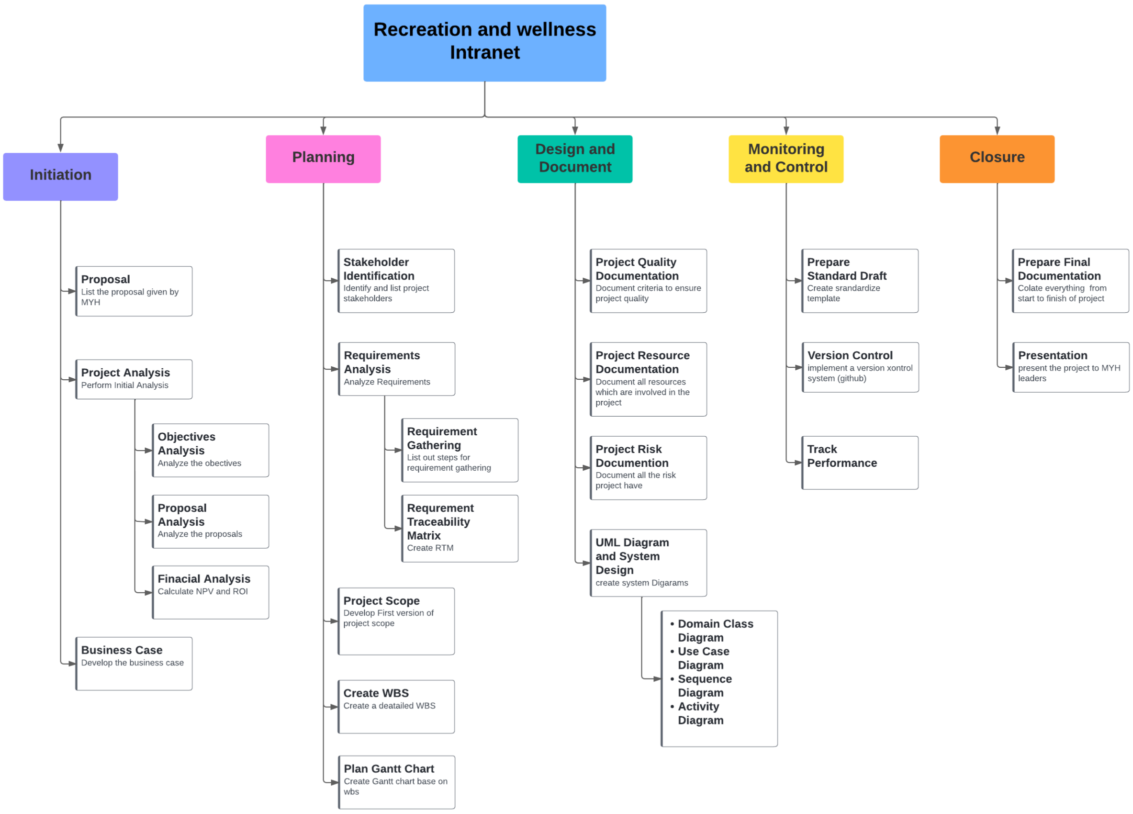


Figure 2.1: Work Breakdown Structure

2.5 Initial Gantt Chart

The initial Gantt chart, which outlines the project task and dependencies, is depicted in Figure 2.2 and 2.3.

1		**Initiation**	1 day?
2		Review Proposals	1 day?
3		**Project Analysis**	1 day?
4		Objective Analysis	1 day?
5		**Proposal Analysis**	1 day?
6		Create Weighted Model	1 day?
7		**Financial Analysis**	1 day?
8		Calculate NPV	1 day?
9		Calculate ROI	1 day?
10		**Business Case**	1 day?
11		Summarize Project	1 day?
12		Prepare Business Case Document	1 day
13		**Planning**	1 day?
14		Stakeholder Identification	1 day?
15		**Requirement Analysis**	1 day?
16		Requirement Gathering	1 day?
17		Requirement Tracebility Matrix	1 day?
18		**Project Scope**	1 day?
19		Write first Project Scope	1 day?
20		WBS	1 day?
21		Gantt Chart	1 day?

Figure 2.2: Gantt Chart

22		**Design and Document**	1 day?
23		**Project Quality Documentation**	1 day?
24		Create Petro Chart	1 day?
25		**Project Resource Documentation**	1 day?
26		Responsibilty Matrix	1 day?
27		**Project Risk Documentation**	1 day?
28		Positive and Negative Risk	1 day?
29		Risk Action	1 day?
30		**UML Diagram and System Desigr**	1 day?
31		Domain Class Diagram	1 day?
32		Use Case Diagram	1 day?
33		Sequence Diagram	1 day?
34		Activity Diagram	1 day?
35		**Monitoring and Control**	1 day?
36		**Prepare First Draft**	1 day?
37		Latex Template	1 day?
38		**Version Control**	1 day?
39		Setup Github	1 day?
40		Track Performance	1 day?
41		**Closure**	1 day?
42		Prepare Final Document	1 day?
43		Presentation	1 day?

Figure 2.3: Gantt Chart

Part 3

Project Schedule Management

In this section, we will elaborate on the subsequent activities that followed the development of the initial Gantt chart and Work Breakdown Structure (WBS). We will provide detailed information about the development team members and the milestones that have been established. Finally, we will present the final Gantt chart and the network diagram, illustrating the comprehensive planning and scheduling of the project.

3.1 Project Team

- **Project Manager:** Tony Prince
- **Team Leader:** Karan Goel
- **Business Analyst:** Banin Sensha Shrestha
- **Network Specialist:** Dipesh Baral
- **Programmer/Analyst:** Kushal Rimal
- **Programmer/Analyst:** Affan Mehmood

3.2 Project Milestones

1. **Project Kick-Off Milestone:** This marks the official start of the project, involving setting up and conducting the kick-off meeting. The agenda is prepared and all team members and stakeholders are notified and encouraged to understand their roles and responsibilities.

2. **Budget Approval Milestone:** Achieved upon successful estimation and approval of the project budget, encompassing tasks such as budget estimation and securing necessary approvals.

3. **Planning Phase Completion Milestone:** Completion of the planning phase, including integration of data analysis tools, creation of the Work Breakdown Structure (WBS), survey preparation, requirements analysis, risk management planning, budget estimation, and project schedule development. This milestone transitions the project from planning to execution.

4. **Gantt Chart Creation Milestone:** Completion of the project scheduling phase with the creation of the Gantt chart, facilitating visual tracking of project activities and timelines.

5. **Design Phase Completion Milestone:** Completion of the design phase, including the design of user interfaces and back-end systems, approval of Business Process Documents (BPD), and planning for hardware design and integration. This milestone prepares the project for a smooth transition to the development phase.

6. **Execution Phase Completion Milestone:** Represents the end of the execution phase, with major tasks such as the implementation of system components

like Recreation Programs Registration, Health-Management Classes Registration, Tracking System, Incentive System, and hardware installation completed.

7. **Testing and Quality Assurance Milestone:** Focuses on ensuring the system's readiness and reliability before deployment, including all levels of testing (unit, integration, user) and resolution of any issues, preparing the system for go-live.

8. **Monitoring and Promotion Milestone:** Beyond project completion, this milestone ensures the ongoing operation and promotion of the system, including system monitoring, addressing operational issues, gathering user feedback for continuous improvement, providing hyper-care support, and promotional activities to boost system usage among employees.

The Recreation and Wellness Intranet project's work breakdown structure with eight milestones is depicted in Figure 3.1, and 3.2 respectively.

1		⊟**Initiation**	10 days?	**18/03/24 8:00 ...**	**29/03/24 5:00 PM**	
2		Review Proposals	1 day?	18/03/24 8:00 AM	18/03/24 5:00 PM	
3		Project Kickoff Milestone	1 day?	19/03/24 8:00 AM	19/03/24 5:00 PM	2
4		⊟**Project Analysis**	4 days?	**20/03/24 8:00 ...**	**25/03/24 5:00 PM**	**3**
5		Objective Analysis	1 day?	20/03/24 8:00 AM	20/03/24 5:00 PM	
6		⊟**Proposal Analysis**	2 days?	**21/03/24 8:00 ...**	**22/03/24 5:00 PM**	**5**
7		Create Weighted Model	2 days?	21/03/24 8:00 AM	22/03/24 5:00 PM	
8		⊟**Financial Analysis**	2 days?	**21/03/24 8:00 ...**	**22/03/24 5:00 PM**	**5**
9		Calculate NPV	2 days?	21/03/24 8:00 AM	22/03/24 5:00 PM	
10		Calculate ROI	2 days?	21/03/24 8:00 AM	22/03/24 5:00 PM	
11		Budger Milestone	1 day?	25/03/24 8:00 AM	25/03/24 5:00 PM	6;8
12		⊟**Business Case**	4 days?	**26/03/24 8:00 ...**	**29/03/24 5:00 PM**	**11**
13		Summarize Project	1 day?	26/03/24 8:00 AM	26/03/24 5:00 PM	
14		Prepare Business Case Document	4 days	26/03/24 8:00 AM	29/03/24 5:00 PM	
15		⊟**Planning**	12 days?	**1/04/24 8:00 AM**	**16/04/24 5:00 PM**	**1**
16		Stakeholder Identification	1 day?	1/04/24 8:00 AM	1/04/24 5:00 PM	
17		⊟**Requirement Analysis**	4 days?	**1/04/24 8:00 AM**	**4/04/24 5:00 PM**	
18		Requirement Gathering	4 days?	1/04/24 8:00 AM	4/04/24 5:00 PM	
19		Requirement Tracebility Matrix	4 days?	1/04/24 8:00 AM	4/04/24 5:00 PM	
20		⊟**Project Scope**	4 days?	**5/04/24 8:00 AM**	**10/04/24 5:00 PM**	**17**
21		Write first Project Scope	4 days?	5/04/24 8:00 AM	10/04/24 5:00 PM	
22		WBS	2 days?	11/04/24 8:00 AM	12/04/24 5:00 PM	20
23		Gantt Milestone	2 days?	15/04/24 8:00 AM	16/04/24 5:00 PM	22
24		Planning Milestone	0 days?	16/04/24 5:00 PM	16/04/24 5:00 PM	23

Figure 3.1: Gantt Chart with Milestone 1

25	⊟Design and Document	11 days?	17/04/24 8:00 ...	1/05/24 5:00 PM	24
26	⊟Project Quality Documentation	5 days?	17/04/24 8:00 ...	23/04/24 5:00 PM	
27	Create Petro Chart	5 days?	17/04/24 8:00 AM	23/04/24 5:00 PM	
28	⊟Project Resource Documentation	5 days?	17/04/24 8:00 ...	23/04/24 5:00 PM	
29	Responsibilty Matrix	5 days?	17/04/24 8:00 AM	23/04/24 5:00 PM	
30	⊟Project Risk Documentation	5 days?	17/04/24 8:00 ...	23/04/24 5:00 PM	
31	Positive and Negative Risk	5 days?	17/04/24 8:00 AM	23/04/24 5:00 PM	
32	Risk Action	5 days	17/04/24 8:00 AM	23/04/24 5:00 PM	
33	⊟UML Diagram and System Design	5 days?	24/04/24 8:00 ...	30/04/24 5:00 PM	26;28;30
34	Domain Class Diagram	5 days?	24/04/24 8:00 AM	30/04/24 5:00 PM	
35	Use Case Diagram	5 days?	24/04/24 8:00 AM	30/04/24 5:00 PM	
36	Sequence Diagram	5 days?	24/04/24 8:00 AM	30/04/24 5:00 PM	
37	Activity Diagram	5 days?	24/04/24 8:00 AM	30/04/24 5:00 PM	
38	Design Milestone	1 day?	1/05/24 8:00 AM	1/05/24 5:00 PM	33
39	⊟Monitoring and Control	7 days?	17/04/24 8:00 ...	25/04/24 5:00 PM	24
40	⊟Prepare First Draft	6 days?	17/04/24 8:00 ...	24/04/24 5:00 PM	
41	Latex Template	6 days?	17/04/24 8:00 AM	24/04/24 5:00 PM	
42	⊟Version Control	1 day?	25/04/24 8:00 ...	25/04/24 5:00 PM	40
43	Setup Github	1 day?	25/04/24 8:00 AM	25/04/24 5:00 PM	
44	Execution,Testing and Quality Milestone	1 day?	26/04/24 8:00 AM	26/04/24 5:00 PM	43
45	⊟Closure	16 days?	2/05/24 8:00 AM	23/05/24 5:00 PM	38;44
46	Prepare Final Document	10 days?	2/05/24 8:00 AM	15/05/24 5:00 PM	
47	Presentation	6 days?	16/05/24 8:00 AM	23/05/24 5:00 PM	46
48	Monitoring and Promotion Milestone	0 days?	23/05/24 5:00 PM	23/05/24 5:00 PM	47

Figure 3.2: Gantt Chart with Milestone 2

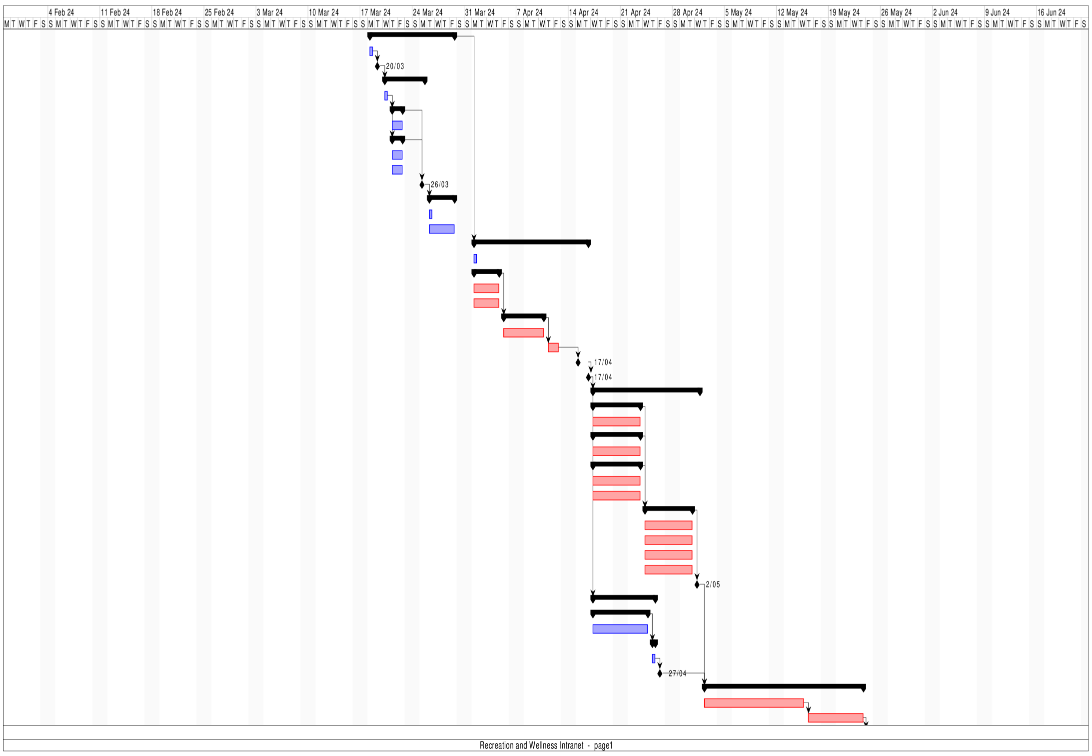


Figure 3.3: Final Gantt Chart

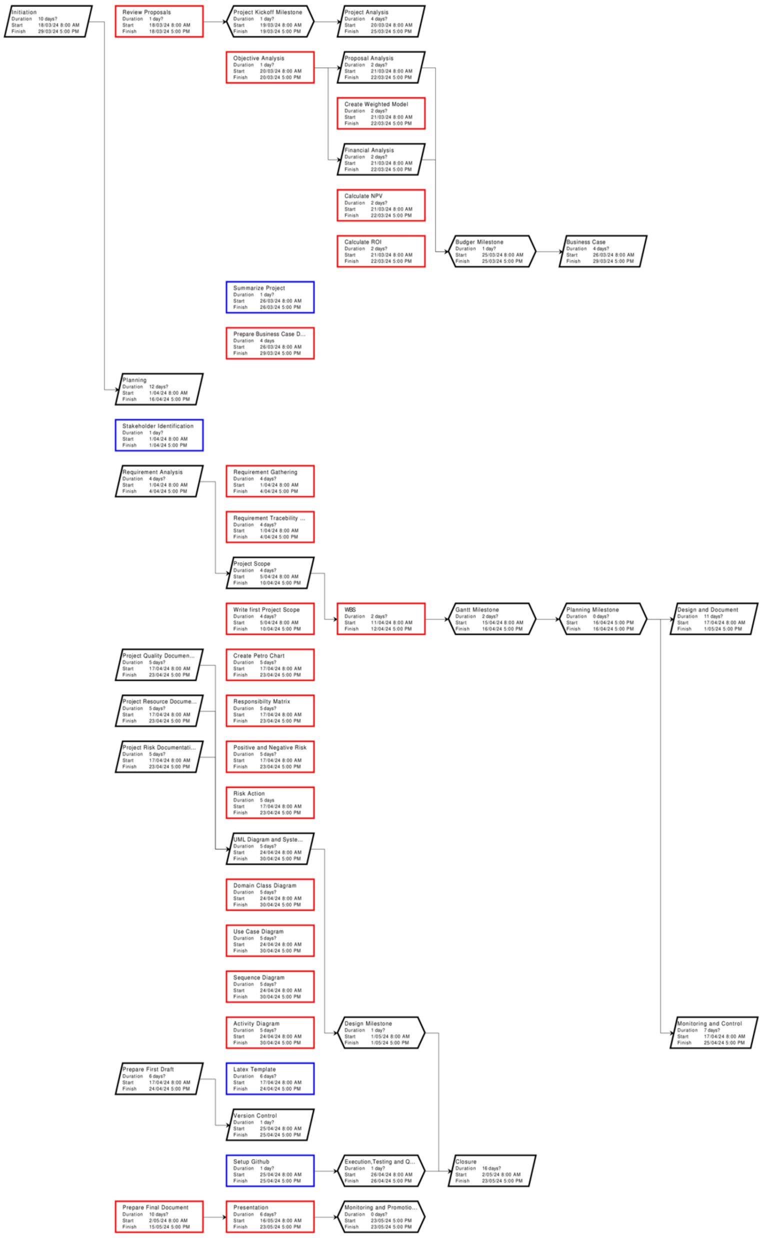


Figure 3.4: Network Diagram

3.3 Milestone Report

This section lists the status report on each milestone.

Late Milestones

Milestone Name	Expected Date	Finish Date	Delayed by
Execution Phase Completion Milestone	Fri 26/04/24	Wed 08/05/24	13 days
Testing and Quality Assurance Milestone	Fri 26/04/24	Wed 08/05/24	13 days
Design Phase Completion Milestone	Wed 01/05/24	Wed 08/05/24	7 days

Milestones Due This Month

Milestone Name	Finish Date
Monitoring and Promotion Milestone	Thu 23/05/24

Completed Milestones

Milestone Name	Finish Date
Project Kick-Off Milestone	Tue 19/03/24
Budget Approval Milestone	Mon 25/03/24
Gantt Chart Creation Milestone	Tue 16/04/24
Planning Phase Completion Milestone	Tue 16/04/24
Execution Phase Completion Milestone	Wed 08/05/24
Testing and Quality Assurance Milestone	Wed 08/05/24
Design Phase Completion Milestone	Wed 08/05/24
Monitoring and Promotion Milestone	Thu 23/05/24

Next Milestone

Monitoring and Promotion (Thu 23/05/24)

Milestone Graph

Milestone Name	Expected End Date	End Date
Project Kick-Off	3/19/2024	3/19/2024
Budget Approval	3/25/2024	3/25/2024
Gantt Chart Creation	4/16/2024	4/16/2024
Planning Phase Completion	4/16/2024	4/16/2024
Execution Phase Completior	4/26/2024	5/8/2024
Testing and Quality Assuranc	4/26/2024	5/8/2024
Design Phase Completion	5/1/2024	5/8/2024
Monitoring and Promotion	5/23/2024	5/23/2024

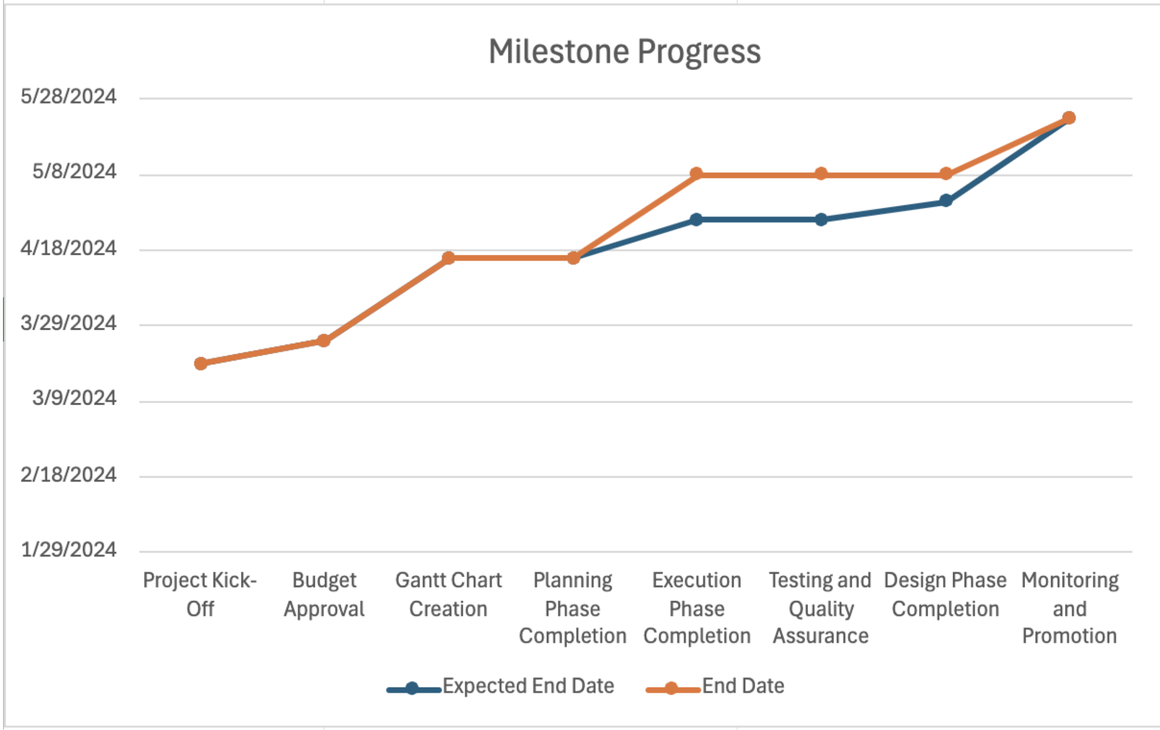


Figure 3.5: Milestone Progress Report

Part 4

Project Quality Management

To ensure that the Recreation and Wellness Intranet Project meets stakeholder expectations, including those of the project sponsor, senior managers, and users, we established quality standards or requirements. These requirements align with the project's goals of increasing system usage, improving employee health, and reducing healthcare costs. Here is a list of quality standards or requirements along with brief descriptions:

4.1 Quality Standards

- **User Adoption Rate**: Within the first month post-launch, we aim for a 90% participation rate among full-time employees accessing the system. This metric serves as a barometer for gauging initial user engagement and system uptake.

- **Interactive Program Engagement**: We encourage active participation by ensuring that 80% of registered employees interact with at least two wellness programs within the first six weeks. This standard underscores the importance of meaningful engagement beyond mere registration.

- **Health Tracking Integration**: We integrate a robust health tracking feature with at least 50% of users syncing wearable devices or manually inputting health data within the first three months. This requirement supports the project's emphasis on empowering employees to take ownership of their health journey.

- **Gamified Incentive Structure**: We implement a gamified incentive system where employees can earn rewards based on achieving health milestones or participating in challenges. The clarity and attractiveness of this incentive structure should drive 60% of employees to actively pursue rewards within the first two months.

- **Real-time Analytics Dashboard**: We develop a dynamic analytics dashboard providing real-time insights into participation rates, program effectiveness, and user feedback. This tool should be accessible to project stakeholders and updated weekly to inform decision-making.

- **Intuitive Mobile Accessibility**: We ensure seamless access and functionality across multiple devices with an emphasis on mobile usability. The system should prioritize responsive design principles to accommodate the diverse needs and preferences of users.

- **Data Privacy Compliance**: We adhere strictly to data privacy regulations with zero incidents of unauthorized access or breaches of employee health information. This standard underscores our organization's commitment to safeguarding sensitive data and maintaining trust.

- **Scalable Infrastructure**: We design the system architecture to accommodate future growth and scalability demands, with provisions for increasing user capacity and enhancing performance as needed.

- **Cost-Effectiveness Benchmark**: We establish a clear cost-benefit analysis framework to evaluate the project's impact on healthcare expenditure reduction. We aim for a demonstrable reduction in healthcare costs by at least 15% within the first year of implementation.

- **Dynamic Feedback Loop**: We implement an agile feedback mechanism allowing users to submit suggestions, report issues, and provide ongoing input for system improvement. We regularly review and incorporate user feedback to drive iterative enhancements and optimize user experience.

4.2 Quality Metrics

Once the quality standards or requirements are established, we define metrics for measuring progress toward meeting these requirements. Here's how we measure progress on meeting the requirements:

- **User Engagement**: We utilize backend analytics to track login activity and assess the frequency of employee logins within the first month post-rollout.

- **Adoption Rate**: We monitor the rate of adoption by tracking the number of active users engaging with the system's features within the initial six weeks.

- **Program Engagement**: We measure the level of engagement by analyzing the frequency and depth of interaction with various program modules within the system.

- **Incentive Effectiveness**: We implement regular surveys to gauge user perception of incentives and their impact on participation and motivation.

- **Comprehensive Reporting**: We utilize automated reporting tools to generate detailed insights into user behavior, program utilization, and outcomes.

- **Interface Optimization**: We conduct iterative usability tests and gather feedback to refine and enhance the system's interface for improved user experience.
- **Security Measures**: We perform regular security assessments and vulnerability scans to ensure robust protection against potential threats and breaches.
- **Performance Monitoring**: We utilize performance monitoring tools to track system responsiveness, uptime, and overall performance metrics.
- **Health Outcomes Evaluation**: We evaluate the system's impact on health outcomes by analyzing relevant health indicators and comparing pre- and post-implementation data.
- **Feedback Analysis**: We analyze feedback data to identify trends, address user concerns, and continuously improve the system's functionality and user experience.
- **Program Effectiveness**: We assess the effectiveness of various health programs by tracking key metrics such as participation rates, behavior change, and health improvements over time.

4.3 Pareto chart

Requested Programs	Number of Requests	% of Requests
Walking program	7115	24%
Volleyball program	2054	7%
Weight reduction class	8875	30%
Stop smoking class	4889	17%
Stress reduction class	1894	6%
Soccer program	3297	11%
Table tennis program	120	0%
Softball program	976	3%
Total	**29220**	**100%**

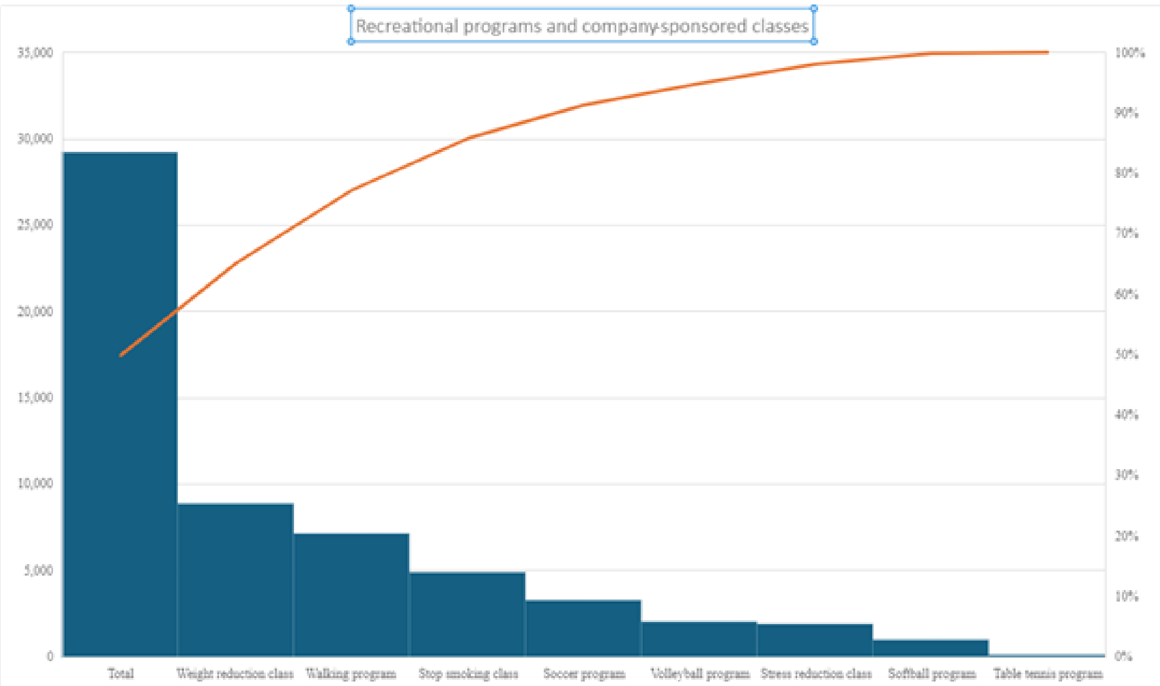


Figure 4.1: Program Requests Distribution

Part 5

Project Resource Management

This section of the report details the testing process and resource allocation for the project.

5.1 WBS for Testing Process

To allocate resources properly, we begin by creating a Work Breakdown Structure (WBS) for testing, as shown in Table 5.1.

Index	Task	Time	Deliverable
1	Write Test Plan	1 week	Test Plan Document
1.2	Unit Testing	1 week	Unit Test Reports
1.3	Integration Testing	2 weeks	
1.3.1	Registration Module	5 days	Integration Test Reports for Registration
1.3.2	Tracking Module	5 days	Integration Test Reports for Tracking
1.3.3	Incentives Module	4 days	Integration Test Reports for Incentives
1.4	System Testing	1 week	System Test Reports
1.5	User Acceptance Testing	1 week	User Acceptance Test Reports

Table 5.1: Work breakdown structure for testing

5.2 Responsibility Assignment Matrices (RAM)

WBS activities →

OBS units ↓

	1	1.1	1.2	1.3	1.3.1	1.3.2	1.3.3	1.4	1.5
Project Manager	R	R	RP	R	RP	RP	RP	R	RP
Programmer/Analyst	P			R					
Aspiring Project Manage			RP	P	P	P	P		
Network Specialist	R			P				P	
Business Analyst				R					P
Human Resources Staff Member									
Finance Staff Member									
User Representatives									R
Consulting Firm									P

Figure 5.1: RAM Matrix

RACI Chart for Testing Tasks

To clarify roles and responsibilities for testing tasks, the following RACI chart has been created:

Table 5.2: RACI Chart for Testing Tasks

Task	Project Manager	Programm	Network Specialist	Business Analyst	Users	Firm
Write Test Plan	R	R/C	C	C	I	R/C
Unit Testing	R	R/C	C	C	I	R/C

Table 5.2: (continued)

Task	Project Manager	Programm	Network Specialist	Business Analyst	Users	Firm
Integration Testing	R	R/C	R/A	R/C	I	R/C
Registration Module	R	R/C	R/A	R/C	I	R/C
Tracking Module	R	R/C	R/A	R/C	I	R/C
Incentives Module	R	R/C	R/A	R/C	I	R/C
System Testing	R	R/C	R/A	R/C	A	R/C
User Acceptance Testing	A	R/C	C	C	A	R/C

5.3 Weekly Data

The following table presents the resource allocation for each week during the testing phase.

Table 5.3: Weekly Data

Week	Senior Testers	Junior Testers	User Group	Managers
First week	1	0	2	0
Second week	1	0	0	0
Third week	1	2	0	0
Fourth week	1	2	4	0
Fifth week	1	2	4	3
Sixth week	1	2	4	3

5.4 Resource Histogram

To visualize the resource allocation over time, a resource histogram is provided in Figure 5.2.

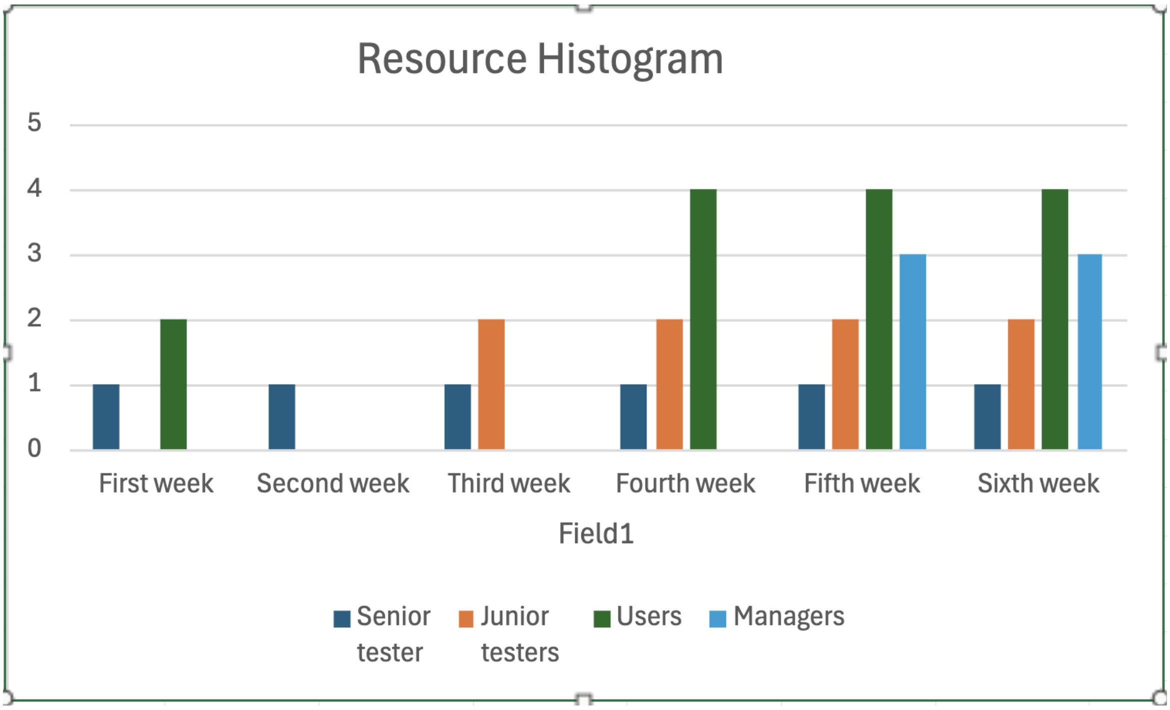


Figure 5.2: Resource Histogram

Part 6

Project Risk Management

Table 6.1: Risk Management Table

Risk ID	Risk Description	Type	Probability (1-10)	Impact (1-10)	Risk Score	Response Strategy	Cost Estimate
R1	Key team members leaving the company	Negative	8	9	72	Mitigate	$8500
R2	Uncooperative users	Negative	7	8	56	Mitigate	$3500
R3	High employee engagement	Positive	5	9	45	Enhance	$5000 + $1000/month
R4	Inability to track data effectively	Negative	6	7	42	Mitigate	$4000

Table 6.1: Risk Management Table (Continued)

Risk ID	Risk Description	Type	Probability (1-10)	Impact (1-10)	Risk Score	Response Strategy	Cost Estimate
R5	Team members not providing good status information	Negative	6	7	42	Mitigate	$2000
R6	Successful negotiation of lower health insurance premiums	Positive	4	8	32	Enhance	$2000

Risk Actions

Table 6.2: Risk Action Table

Risk ID	Risk Description	Action
R1	Key team members leaving the company	Cross-train the members, update project plan, and implement knowledge transfer as well as team building exercises.
R2	Uncooperative users	Conduct user engagement sessions regularly, gather feedback, and offer training sessions.

Table 6.2: Risk Action Table (Continued)

Risk ID	**Risk Description**	**Action**
R3	High employee engagement	Introduce incentive program, marketing campaign, and adjust program based on feedback.
R4	Inability to track data effectively	Implement a robust data tracking system and provide training on how to use it.
R5	Team members not providing good status information	Implement regular status meetings, develop a reporting template, and provide training on reporting.
R6	Successful negotiation of lower health insurance premiums	Collect and present data on improved health metrics, engage in negotiations with insurance providers.

Risk Scores

Table 6.3: Risk Score Table

Risk ID	Probability	Impact	Risk Score
R1	8	9	72
R2	7	8	56
R3	5	9	45
R4	6	7	42
R5	6	7	42
R6	4	8	32

Rationale for Risk Scores

Negative Risk: Key team members leaving the company (R1)

- **Probability: 8** - Given the history of the project and existing turnover, the probability of team members leaving is the highest.
- **Impact: 9** - Losing key team members can significantly disrupt project progress, requiring time and resources to onboard new members and carry out missed work.

Positive Risk: High employee engagement in the programs leading to improved health (R3)

- **Probability: 5** - There's a moderate chance of high engagement if the programs are well-promoted and incentivized.
- **Impact: 9** - If successful, high engagement can lead to significant improvements

in employee health, thereby achieving project goals and reducing insurance premiums.

Response Strategies

Negative Risk: Key team members leaving the company (R1)

- **Response Strategy: Mitigate**
  - **Tasks:**
    * **Create a knowledge transfer plan:** Document all critical processes and knowledge. (2 weeks, $2000)
    * **Cross-train team members:** Ensure multiple team members are knowledgeable about critical tasks. (4 weeks, $4000)
    * **Develop a succession plan:** Identify potential internal replacements and start preliminary training. (2 weeks, $1500)
    * **Engage in team-building activities:** Improve team cohesion and job satisfaction. (1 week, $1000)
- **Time and Cost Estimates:**
  - Total time: 9 weeks
  - Total cost: $8500

Positive Risk: High employee engagement in the programs leading to improved health (R3)

- **Response Strategy: Enhance**
  - **Tasks:**
    - **Develop a marketing campaign:** Create materials to promote the programs. (3 weeks, $3000)
    - **Introduce incentive programs:** Design rewards for participation and achievements. (2 weeks, $2000)
    - **Regularly collect and share success stories:** Highlight positive outcomes to motivate others. (Ongoing, $1000/month)
    - **Monitor and adjust programs:** Continuously improve based on feedback and participation rates. (Ongoing, $1000/month)
- **Time and Cost Estimates:**
  - Initial time: 5 weeks
  - Initial cost: $5000
  - Ongoing cost: $1000/month

Part 7

Project Stakeholder Management

This part provides an overview of stakeholder management for this project. Stakeholders are individuals, groups, or organizations that have an interest in the outcome of a project. Managing stakeholders involves identifying who they are, understanding their needs and expectations, and effectively communicating with them throughout the project lifecycle is critical for project success.

7.1 Project Team

The following tables provide detailed information about the project team, including their roles, contact information, and their responsibilities within the project.

Table 7.1: Project Team Information

Name	**Role**	**Internal/External**	**Position**
Tony	Project Manager	Internal	Leader
Hillary	Project Sponsor	Internal	Sponsor
Karan Goel	Aspiring Project Manager	Internal	Leader

Continued on next page

Table 7.1 – *Continued from previous page*

Name	**Role**	**Internal/External**	**Position**
Banin Shrestha	Business Analyst	Internal	Team Member
Yang	Business Analyst	Internal	Team Member
Kushal Rimal	Programmer/Analyst	Internal	Team Member
Affan Mehmood	Programmer/Analyst	Internal	Team Member
Dipesh Baral	Network Specialist	Internal	Team Member
Nora	Network Specialist	Internal	Team Member
Ren	Business Analyst	Internal	Team Member
Blake	VP of Human Resources	Internal	Sponsor
Rose	Human Resource Analyst	Internal	Specialist
Tyrian	Financial Analyst	Internal	Specialist
Supplier A	System Trainer	External	Supplier

Table 7.2: Project Team Contact Information

Name	**Email**	**Contact**
Tony	tony@myh.com	Weekly status meetings, email, phone calls
Hillary	hillary@myh.com	Weekly status meetings, email, phone calls
Karan Goel	karan.goel@myh.com	Weekly status meetings, email, phone calls
Banin Shrestha	banin.shrestha@myh.com	Weekly status meetings, email
Yang	yang@myh.com	Weekly status meetings, email

Continued on next page

Table 7.2 – *Continued from previous page*

Name	**Email**	**Contact**
Kushal Rimal	kushal.rimal@myh.com	Weekly status meetings, email, code reviews
Affan Mehmood	affan.mehmood@myh.com	Weekly status meetings, email, code reviews
Dipesh Baral	dipesh.baral@myh.com	Weekly status meetings, email
Nora	nora@myh.com	Weekly status meetings, email
Ren	ren@myh.com	Weekly status meetings, email
Blake	blake@myh.com	Monthly status meetings, email, phone calls
Rose	rose@myh.com	Email, phone calls
Tyrian	tyrian@myh.com	Monthly status meetings, email
Supplier A	suppliera@myh.com	Weekly status meetings, email

7.2 Project Team Roles and Interests

The following table details the roles of each team member, their level of authority, and their interests in the project.

Table 7.3: Project Team Roles and Interests

Name	**Project Role**	**Level of Authority**	**Interest**
Tony	Project Manager	High	Leading
Hillary	Project Sponsor	High	Leading
Karan Goel	Aspiring Project Manager	High	Leading

Continued on next page

Table 7.3 – *Continued from previous page*

Name	Project Role	Level of Authority	Interest
Banin Shrestha	Business Analyst	Medium	Supportive
Yang	Business Analyst	Medium	Supportive
Kushal Rimal	Programmer/Analyst	Medium	Supportive
Affan Mehmood	Programmer/Analyst	Medium	Supportive
Dipesh Baral	Network Specialist	Medium	Supportive
Nora	Network Specialist	Medium	Supportive
Ren	Business Analyst	Medium	Supportive
Blake	VP of Human Resources	High	Leading
Rose	Human Resource Analyst	Medium	Supportive
Tyrian	Financial Analyst	Medium	Supportive
Supplier A	System Trainer	Medium	Supportive

Table 7.4: Stakeholder Management Information

Stakeholder	**Role**	**Most Important Goal**	**How will he/she contribute**	**Best way to manage**
Hillary	Project Sponsor	Ensure that the MYH Recreation and Wellness System meets the needs of the business and its users.	Will provide support and resources to the project team and approve key decisions.	Keep the project sponsor informed of the project's progress and any potential roadblocks. Regularly seek the project sponsor's input and feedback.
Gayle	VP of Human Resources	Ensure that the MYH Recreation and Wellness System meets the needs of the human resources department.	Will provide input on the system's requirements and help to promote the system to employees.	Keep Gayle informed of the progress of the project and seek her input on any aspects of the system that may impact the human resources department or its employees.

Continued on next page

Table 7.4 – *Continued from previous page*

Stakeholder	**Role**	**Most Important Goal**	**How will he/she contribute**	**Best way to manage**
Supplier A	Training and Incentives Provider	Provide training on the MYH Recreation and Wellness System to employees and manage the incentives program.	Will develop and deliver training materials and manage the incentives program.	Work with Supplier A to develop a training plan and incentives program that meets the needs of the project. Regularly communicate with Supplier A to ensure that the training and incentives program are on track.
Employees	Full-Time and Part-Time Employees	Use the MYH Recreation and Wellness System to improve their health and well-being.	Will use the system to track their fitness goals, participate in wellness programs, and earn incentives.	Communicate with employees about the benefits of using the system and provide them with support and training. Regularly collect feedback from employees on the system and use it to make improvements.

Part 8

Project Closing and Lessons Learned

8.1 Success Criteria Satisfaction

All the specified success criteria for the Recreation and Wellness Intranet Project were satisfied:

- **Scope:** The project developed a web-based application that records employee activity, provides rewards, and enables staff members to sign up for company-sponsored classes, leisure activities, and health-management programs.
- **Time:** In consistent with the initial plan, the project was finished in six months.
- **Cost:** The project stayed within the original budget of $200,000.
- **Self-sufficiency:** The project achieved self-sufficiency within one year of implementation, meaning that the revenue generated from the incentive program is now covering the cost of maintaining and operating the application.

Critical lessons learned: Managing the Recreation and Wellness Intranet Project taught the project team some important lessons:

- Be proactive in managing stakeholder expectations. It is important to keep stakeholders informed of the project progress and any changes to the plan, even if they are not directly involved in the day-to-day work. This helps to avoid surprises and ensure that everyone is on the same page.

- Use a variety of communication channels to reach stakeholders. Not everyone prefers the same way to communicate. Some stakeholders may prefer email, while others may prefer face-to-face meetings or phone calls. It is important to use a variety of communication channels to ensure that everyone can stay informed.

- Create a detailed project plan and budget. This will help to keep the project on track and avoid overspending. In order to ensure that the project plan and budget are still valid, it is also crucial to keep monitoring them.

- Conduct thorough testing of the application before launch. This will help to identify and fix any bugs or usability issues. It is also important to get feedback from users before launching the application to ensure that it meets their needs.

- Track and measure the success of the application. This will help to identify what is working well and what needs to be improved. It is also important to share the success of the application with stakeholders to show them the value of the project.

8.2 Examples of What Went Right and Wrong

8.2.1 Examples of What Went Right

- Effective collaboration with stakeholders: The project team established a robust rapport with stakeholders, facilitating the comprehensive definition of requirements. This engagement ensured that the final product seamlessly aligned with users' needs. For instance, conducting an employee survey provided invaluable insights into recreational programs, health-management classes, and incentives.
- Methodical project management: The team's adherence to a structured project management methodology proved instrumental in project success. The utilization of tools like Gantt charts for scheduling and risk registers for risk assessment and mitigation ensured that the project adhered to timelines and goals.
- Rigorous application testing: Prior to the official launch, the project team rigorously tested the application, uncovering and rectifying bugs and usability concerns. User acceptance testing, involving a select group of employees, was conducted to gather feedback and refine the application before its organization-wide deployment.
- Proactive application promotion: To guarantee the application's success, the team actively promoted it among employees. Creating a dedicated website, establishing a social media presence, and sending out informative email announcements encouraged its adoption.

8.2.2 Examples of What Went Wrong

- One challenge encountered was underestimating the time required for application development and launch. For instance, the team miscalculated the development duration for the tracking system, necessitating last-minute efforts, and causing stress to meet the deadline.

- Lack of familiarity with new tools caused delays and required additional training, which incurred extra costs and extended project timelines

8.3 What We Might Change for the Upcoming Project

We would approach the next project differently, having learned from our experience with the Recreation and Wellness Intranet Project:

- Keep stakeholders informed about the team's composition and any potential hazards early and frequently. Expectations will be better managed and unpleasant surprises will be avoided. Stakeholders would be updated on project progress and any modifications to the plan through frequent status meetings. Additionally, we would give out frequent email updates.

- By determining the maximum buffer period, we can create a project schedule and budget that are more specific. By doing this, delays and wasteful money would be reduced.

- Identify the main players on the team and create backup plans for each position. This can need instructing more team members on the relevant skills, or it might entail using consultants to cover for absent team members.

We believe that with the identified solution for multiple issues based on this project, we can ensure that future projects are successful.

8.4 Additional Thoughts

Throughout our project's duration, we saw a notable level of accomplishment, with teamwork and structured organization taking center stage. A cornerstone of this achievement was our adoption of collaborative tech tools. Primarily, GitHub emerged as our chief project coordination platform, harmoniously working alongside Microsoft 365's comprehensive toolkit, with a special nod to Microsoft Project. Tasks were systematically listed on a GitHub project board, allowing team members to pick and assign tasks based on consensus during team discussions. They could also update their statuses and benchmark their pace against predetermined deadlines. Many assignments were prepared using cloud versions of Microsoft Word, Excel, and Project, and completed tasks were archived in a shared folder on Microsoft OneDrive. These platforms made it possible to assign tasks and monitor progress, which encouraged members to take responsibility for their actions. The real-time updating feature and the capacity for simultaneous collaborative efforts minimized potential lags in our timeline, leading to a smooth, timely, and harmonious working environment.

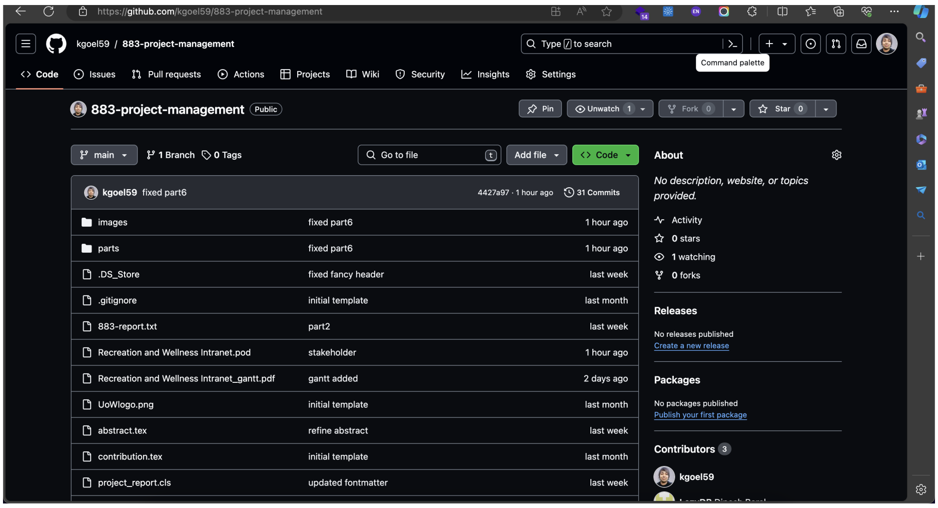


Figure 8.1: Using GitHub in Project Management

Part 9

UML Diagrams

Diagrams created using the Unified Modelling Language (UML) are crucial tools in software engineering that help to visualise and record system designs. Standardised representations known as UML diagrams aid in the comprehension, creation, and administration of complex software architectures. Below are few of the UML Diagrams designed by the team.

9.1 Domain Class Diagram

The structure and relationships between different entities in an employee management system are represented by this domain model class diagram as shown in **Figure 9.1**, which focuses on employee participation in events and programmes. Below is a summary of each section:

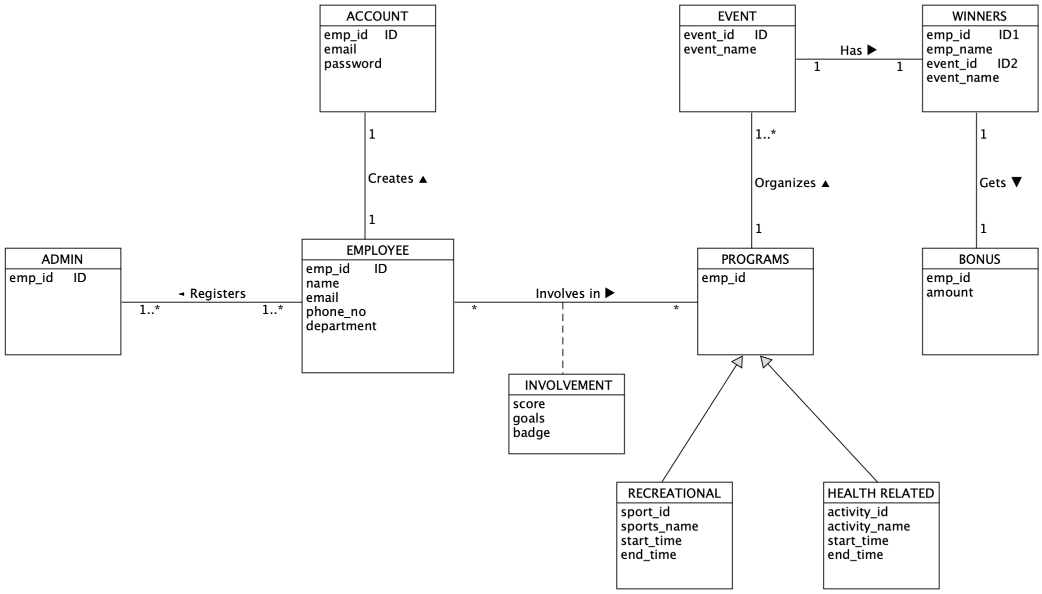


Figure 9.1: Domain Class Diagram

9.1.1 Entities and Attributes:

- **ACCOUNT**: Stores account details with attributes **emp_id**, **email** and **password**.
- **ADMIN**: Represents admin users with attribute **emp_id**.
- **EMPLOYEE**: Contains employee details with attributes **emp_id**, **name**, **email**, **phone_no**, and **department**.
- **EVENT**: Details of events with attributes **event_id** and **event_name**.
- **WINNERS**: Keeps track of event winners with attributes **emp_id**, **emp_name**, **event_id**, and **event_name**.
- **PROGRAMS**: Holds program details linked to an **emp_id**.

- **RECREATIONAL & HEALTH RELATED**: Subtypes of programs with specific attributes for sports and health activities.
- **BONUS**: Records bonus amounts given to employees with attributes **emp_id** and **amount**.
- **INVOLVEMENT**: Tracks employee involvement in programs with attributes **score**, **goals**, and **badge**. **INVOLVEMENT** is association class which contains link attributes.

9.1.2 Relationships

- **ADMIN** registers multiple **EMPLOYEEs** (1..* to 1..*).
- **ACCOUNT** is linked to an **EMPLOYEE** (1 to 1 relationship).
- **EMPLOYEE** creates **EVENTs** (1 to many relationship).
- **EVENT** organizes **PROGRAMS** (1 to many relationship).
- **EMPLOYEE** is involved in **PROGRAMS** (many to many relationship).
- **PROGRAMS** can be either **RECREATIONAL** or **HEALTH RELATED** (inheritance relationship).
- **EVENT** has **WINNERS** (1 to 1 relationship).
- **EMPLOYEE** receives **BONUS** (1 to 1 relationship).

9.2 Use Case Diagram

9.2.1 Registration Subsystem

A Use Case Diagram for a Registration Subsystem is shown in the diagram. Use case diagrams, which depict how the system interacts with outside actors, are used to illustrate the functional requirements of a system.

Table 9.1: The Registration Subsystem Use Cases

RWIP Registration Subsystem	
Use Cases	**Users/Actors**
Create Account	Employee
Verify Account	Employee
Login to Account	Employee

9.2.1.1 Components of the Use Case Diagram

- **Actors: Employee** is the primary actor interacting with the Registration Subsystem. Actors are represented by stick figures.
- **System Boundary:** The "Registration Subsystem" rectangle denotes the extent of the system under consideration. Every use case falling under this bound belongs to the Registration Subsystem.
- **Use Cases:**
  1. **Create Account:** This use case represents the process of creating a new account in the system.
  2. **Verify Account:** This use case represents the process of verifying an existing account.

3. **Login to Account:** This use case represents the process of logging into an account.

- **Relationships:** Interactions between the actor and the functionalities of the system are shown by lines linking the actor (employee) to each use case (Create Account, Verify Account, and Login to Account).

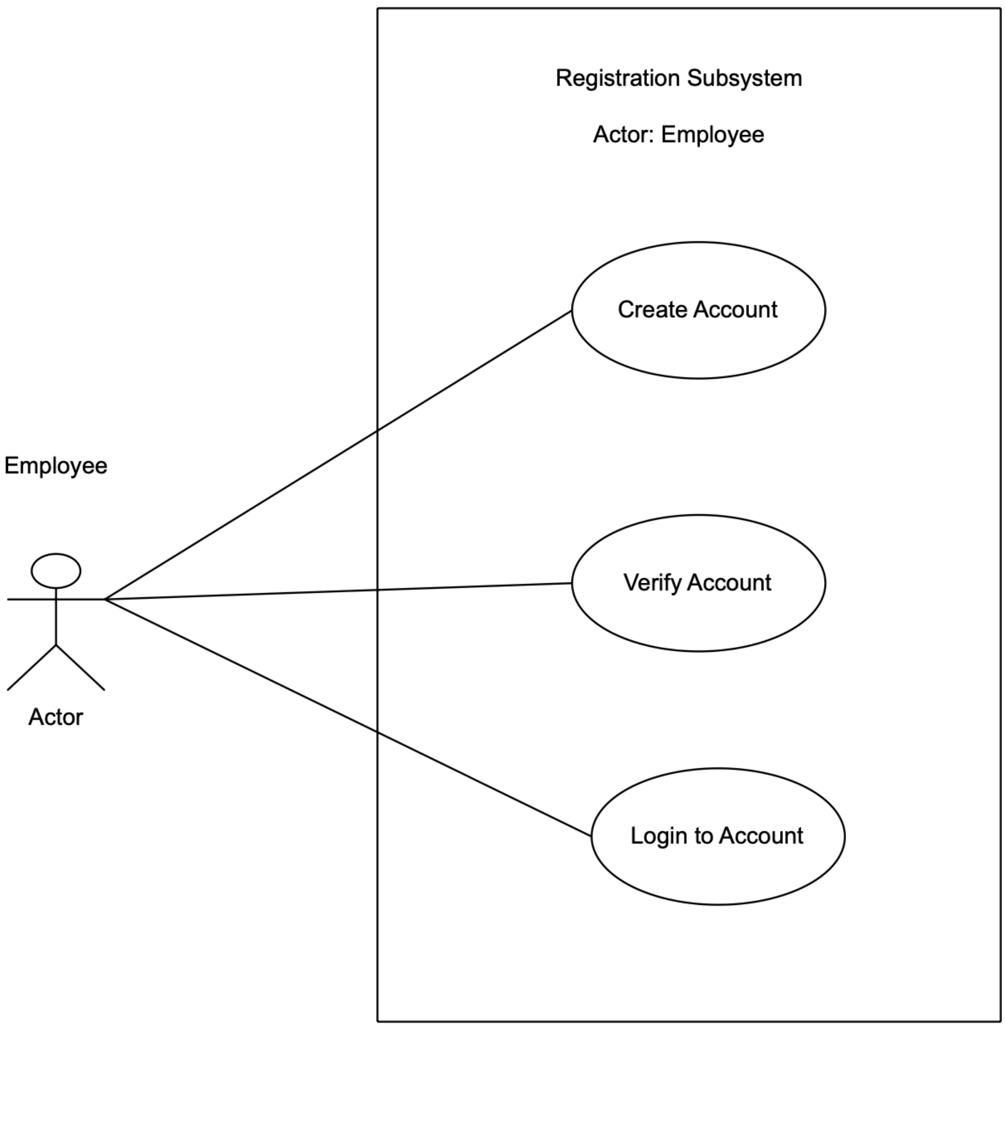


Figure 9.2: Use case diagram for Registration subsystem

An executive summary of the features found in the Registration Subsystem and the ways in which employees can utilise them is given in this diagram.

9.2.2 Program Subsystem

A Use Case Diagram for a Program Subsystem is shown in the diagram. Use case diagrams illustrate the functions of the system by providing a visual representation of the interactions between external actors and the system.

Table 9.2: The Program Subsystem Use Cases

RWIP Program Subsystem	
Use Cases	**Users/Actors**
Login	Employee
Select Programs	Employee
Book/Enroll Programs	Employee
Participate in Programs	Employee
Update badges and rewards	Employee

9.2.2.1 Components of the Use Case Diagram

- **Actors: Employee** is the primary actor interacting with the Program Subsystem. Actors are represented by stick figures and interact with the system's use cases.
- **System Boundary:** The rectangle labeled "Program Subsystem" defines the scope of the system being modeled. All use cases within this boundary are part of the Program Subsystem.

- **Use Cases:**

  1. **Login to Account:** This use case represents the process of an employee logging into their account.
  2. **Select Programs:** This use case involves the employee selecting programs they are interested in.
  3. **Book/Enroll Programs:** This use case covers the actions required for booking or enrolling in the selected programs.
  4. **Participate in Programs:** This use case represents the employee's participation in the programs they have enrolled in.
  5. **Update Badges and Rewards** This use case involves updating the employee's badges and rewards based on their participation and achievements.

- **Relationships:** Interactions between the actor and the features of the system are represented by lines linking the actor (employee) to each use case (Login to Account, Select Programs, Book/Enroll Programs, Participate in Programs, and Update Badges and Rewards).

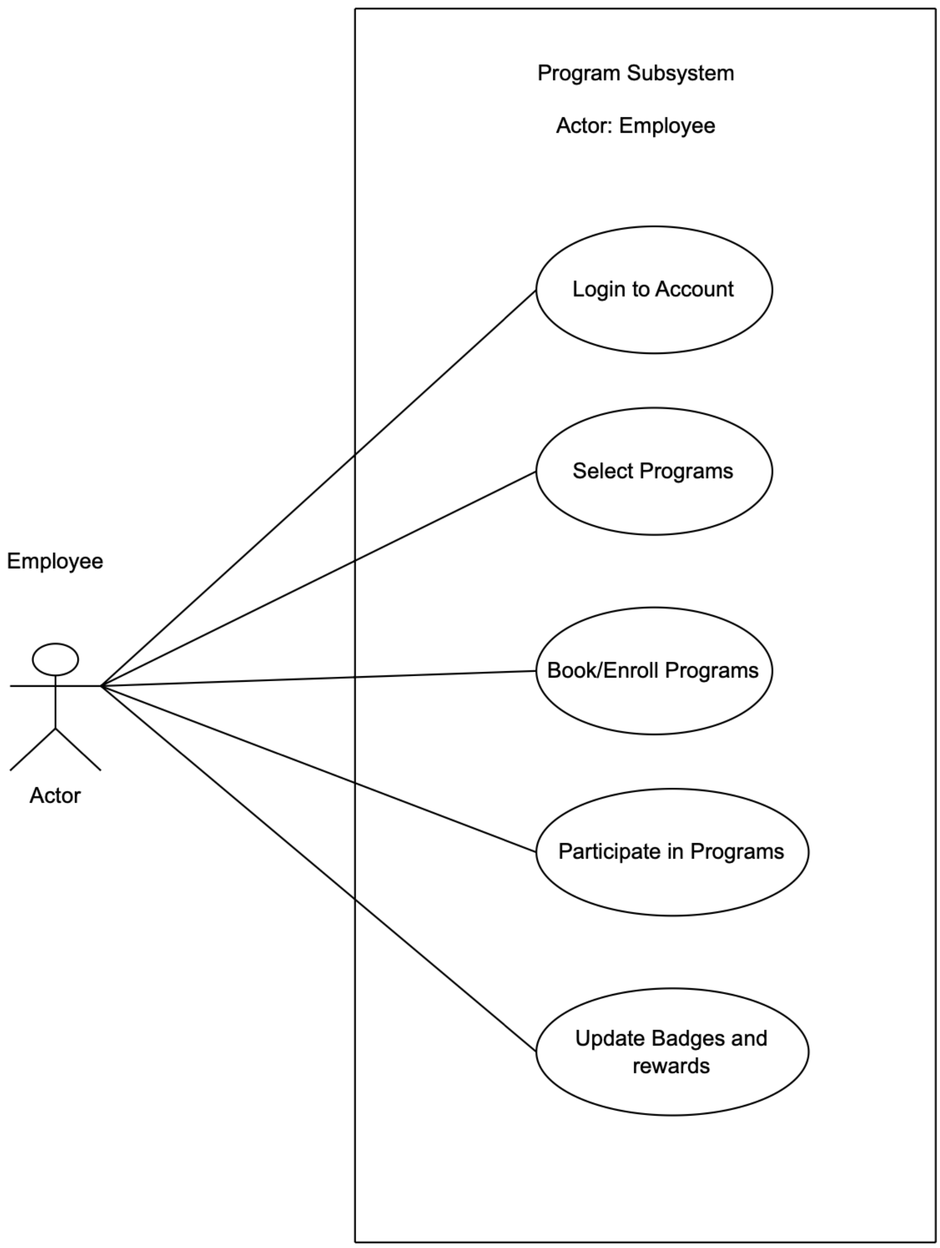


Figure 9.3: Use case diagram for Program subsystem

This diagram provides a high-level overview of the functionalities available in the Program Subsystem and the interactions that an employee can have with these functionalities.

9.2.3 Event Subsystem

The provided diagram is a Use Case Diagram for an Event Subsystem. Use case diagrams visually represent the interactions between external actors and the system, highlighting the system's functionalities.

Table 9.3: The Event Subsystem Use Cases

RWIP Event Subsystem	
Use Cases	**Users/Actors**
Organise Events	HR/Admin
Notify Events	HR/Admin, Employee
Design Banner	HR/Admin
Participate in Events	Employee
Declare winners	HR/Admin, Employee

9.2.3.1 Components of the Use Case Diagram

- **Actors:**

  1. **HR:** This actor is responsible for managing event-related tasks. Actors are represented by stick figures and interact with the system's use cases.
  2. **Employee:** This actor participates in various events and interacts with the system to stay informed and engage in activities.

- **System Boundary:** The rectangle labeled "Event Subsystem" defines the scope of the system being modeled. All use cases within this boundary are part of the Event Subsystem.

- **Use Cases:**

1. **Organise Events:** This use case represents the process of organizing events. It is primarily associated with the HR actor.
2. **Notify Events:** This use case involves notifying employees about upcoming events. Both HR and employees interact with this functionality.
3. **Design Banne:** This use case covers the creation and design of event banners. It involves both HR and employees.
4. **Participate in Events:** This use case represents the employee's participation in organized events.
5. **Declare Winners** This use case involves declaring winners for competitive events. It is managed by HR.

- **Relationships:** Lines connecting the actors (HR and Employee) to each use case (Organise Events, Notify Events, Design Banner, Participate in Events, and Declare Winners) represent interactions between the actors and the system's functionalities.

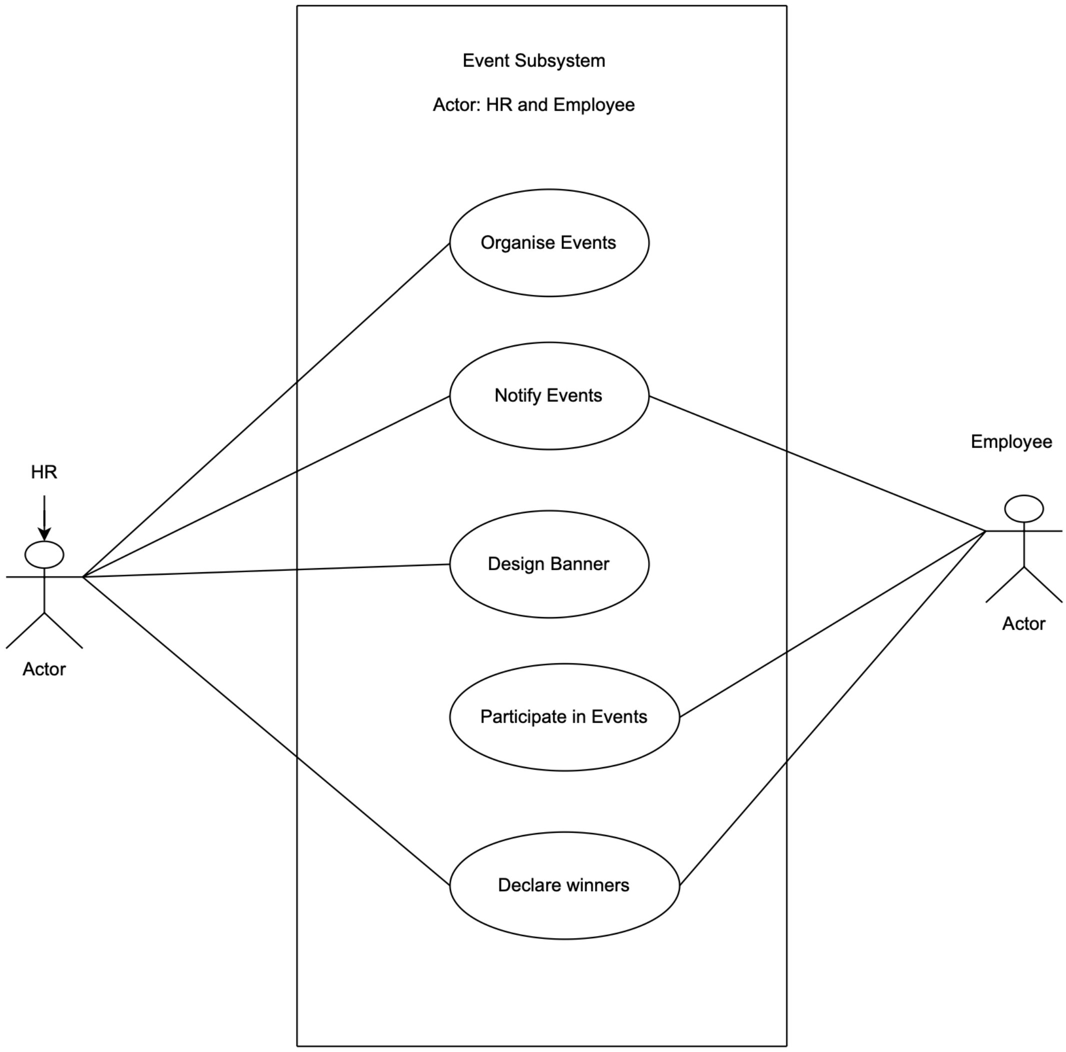


Figure 9.4: Use case diagram for Event subsystem

This diagram provides a high-level overview of the functionalities available in the Event Subsystem and the interactions that HR and employees can have with these functionalities.

9.2.4 Payroll Subsystem

The provided diagram is a Use Case Diagram for a Payroll Subsystem. Use case diagrams visually represent the interactions between external actors and the system, highlighting the system's functionalities.

Table 9.4: The Payroll Subsystem Use Cases

RWIP Payroll Subsystem	
Use Cases	**Users/Actors**
Get the list of winners in different Programs	Payroll Officer, Employee
Provide bonuses	Payroll Officer, Employee
Update Payroll	Payroll Officer

9.2.4.1 Components of the Use Case Diagram

- **Actors:**
  1. **Payroll Officer:** This actor is responsible for managing payroll-related tasks, such as getting the list of winners and providing bonuses.
  2. **Employee:** This actor participates in events and is eligible to receive bonuses.
- **System Boundary:** The rectangle labeled "Payroll Subsystem" defines the scope of the system being modeled. All use cases within this boundary are part of the Payroll Subsystem.
- **Use Cases:**
  1. **Get List of Winners:** This use case represents the process of obtaining the list of employees who have won awards or competitions. It involves

both the Payroll Officer and Employee.

2. **Provide Bonus to Winners:** This use case covers the action of allocating bonuses to employees who are on the winners' list. The Payroll Officer primarily manages this task.

3. **Update Payroll:** This use case involves updating the payroll system to reflect the bonuses provided to the winners. It is managed by the Payroll Officer.

- **Relationships:** Lines connecting the actors (Payroll Officer and Employee) to each use case (Get List of Winners, Provide Bonus to Winners, and Update Payroll) represent interactions between the actors and the system's functionalities.

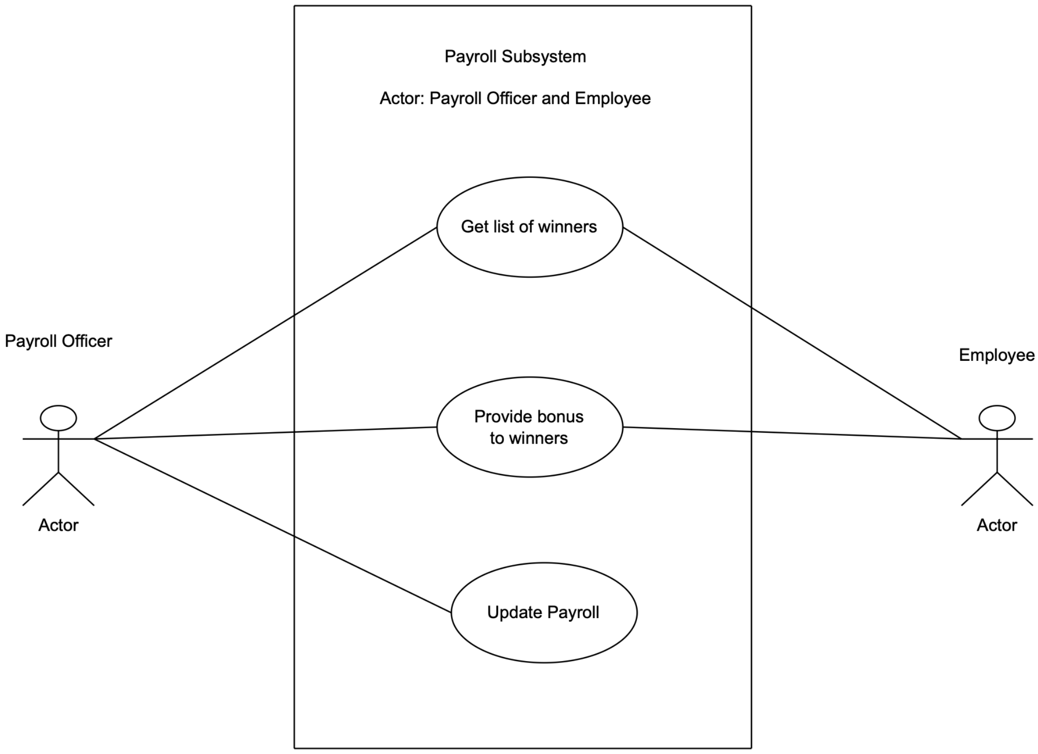


Figure 9.5: Use case diagram for Payroll subsystem

This diagram provides a high-level overview of the functionalities available in the Payroll Subsystem and the interactions that the Payroll Officer and employees can have with these functionalities.

9.2.5 Analysis Subsystem

The provided diagram is a Use Case Diagram for an Analyst Subsystem. Use case diagrams visually represent the interactions between external actors and the system, highlighting the system's functionalities.

9.2.5.1 Components of the Use Case Diagram

- **Actors:**

Table 9.5: The Analysis Subsystem Use Cases

RWIP Analysis Subsystem	
Use Cases	**Users/Actors**
Register as Admin	Analyst
Login as Admin	Analyst
Fetch Data	Analyst
Analyze Data	Analyst
Generate Report	Analyst, Developers
Make Decisions	Analyst

1. **Analyst:** This actor is responsible for data analysis and decision-making tasks.
2. **Developer:** This actor interacts with the system to perform specific tasks related to data fetching and analysis support.

- **System Boundary:** The rectangle labeled "Analyst Subsystem" defines the scope of the system being modeled. All use cases within this boundary are part of the Analyst Subsystem.
- **Use Cases:**

1. **Register as Admin:** This use case represents the process of an analyst registering as an admin within the system.
2. **Login as Admin:** This use case covers the action of logging in as an admin to access system functionalities.
3. **Fetch Data:** This use case involves retrieving necessary data for analysis. Both the analyst and the developer can interact with this functionality.

4. **Analyze Data:** This use case represents the process of analyzing the retrieved data. It is primarily performed by the analyst.

5. **Generate Reports** This use case covers the creation of reports based on the analyzed data.

6. **Make Decisions** This use case involves making decisions based on the generated reports and analyzed data.

- **Relationships:** Lines connecting the actors (Analyst and Developer) to each use case (Register as Admin, Login as Admin, Fetch Data, Analyze Data, Generate Reports, and Make Decisions) represent interactions between the actors and the system's functionalities.

Figure 9.6: Use case diagram for Analysis subsystem

This diagram provides a high-level overview of the functionalities available in the Analyst Subsystem and the interactions that analysts and developers can have with these functionalities.

9.3 Fully Developed Use Case Description

Table 9.6: Register/Create Account

Use case name:	Create employee account
Scenario:	Create online employee account
Triggering event:	Employee wants to join the recreational and wellness programs
Brief description:	Employee signs up or creates new account by providing their employee email id to access, book and participate in activity
Actors:	Employees
Related use cases:	Admin can create account on behalf of employee
Stakeholders:	Admin, HR
Pre-conditions:	Registration subsystem must be available
Post-conditions:	Employee account must be created and saved
Exception conditions:	Employee might not have email id provided by employer

9.4 Sequence Diagram

The provided diagram is a Sequence Diagram that illustrates the interactions between different components of a system for specific use cases. Sequence diagrams are used to depict the flow of messages, events, and actions between objects or components over time.

The sequence diagram is divided into four lifelines representing the different components involved in the interactions: Employee, UI, Logic, and Database.

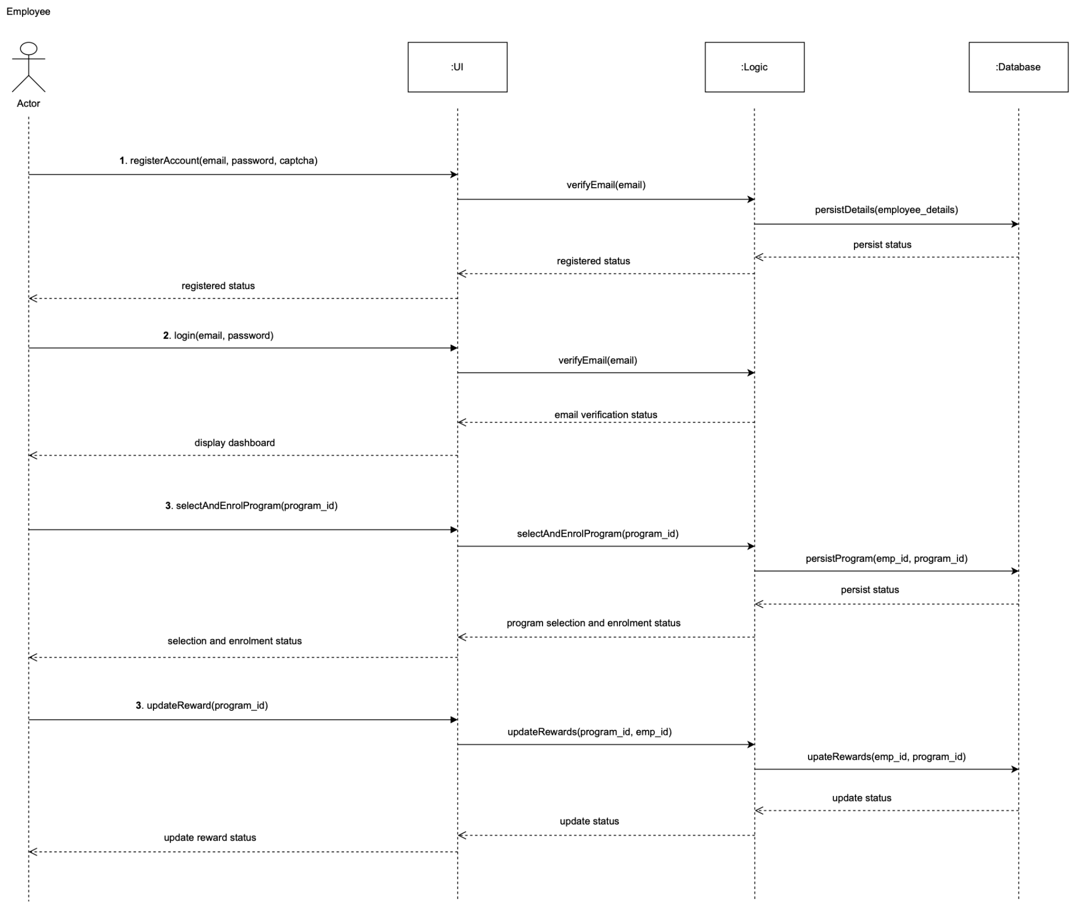


Figure 9.7: Sequence Diagram

9.4.1 Details of Interactions

Register Account

- Employee initiates the process by calling registerAccount(email, password, captcha) on the UI.
- UI forwards the verifyEmail(email) request to Logic.
- Logic processes the email verification and responds with registered status to UI.
- UI then sends persistDetails(employee_details) to the Database to save the registration details.

- Database returns persist status to Logic, which is then propagated back to the UI.

Register Account

- Employee sends login(email, password) to the UI.
- UI forwards the verifyEmail(email) request to Logic for email verification.
- Logic processes the verification and returns email verification status to UI.
- If the verification is successful, UI displays the dashboard to the employee.

Select and Enroll in Program

- Employee initiates program selection by calling selectAndEnrollProgram(program_id) on the UI.
- UI sends the selectAndEnrollProgram(program_id) request to Logic.
- Logic processes the program selection and sends persistProgram(emp_id, program_id) to the Database to save the enrollment details.
- Database returns persist status to Logic, which then returns program selection and enrollment status to UI.

Update Reward

- Employee calls updateReward(program_id) on the UI to update rewards based on program participation.
- UI forwards the updateRewards(program_id, emp_id) request to Logic.

- Logic processes the reward update and sends updateRewards(emp_id, program_id) to the Database to save the updated reward details.
- Database returns update status to Logic, which then propagates the update status back to UI.

This sequence diagram provides a comprehensive view of the interactions and message exchanges between the employee, UI, logic, and database components for the registration, login, program enrollment, and reward update processes. It clearly shows the flow of control and data, helping to understand the sequence of operations and the dependencies between various system components.

9.5 Activity Diagram

The provided diagram is an Activity Diagram that illustrates the sequence of activities across various subsystems within a system. Activity diagrams are used to model the workflow of a system and show the flow of control from one activity to another.
The diagram is divided into five subsystems, each with specific activities and flow of control.

Registration Subsystem

- **Start:** The process begins with the "Start" node.
- **Employee Registration:** The first activity where an employee registers into the system.
- **Login:** After registration, the employee logs into the system. This activity also connects to the Program Subsystem.

Programs Subsystem

- **Select Programs:** Employees select programs they are interested in.
- **Enroll/Book Programs:** After selecting, employees enroll or book these programs.
- **Participate in Programs:** Employees participate in the programs they have enrolled in.
- **Achieve Goals/Badge:** Participation leads to achieving goals or badges.

Analysis Subsystem

- **Register as Admin:** An analyst registers as an admin in the system.
- **Login as Admin:** The analyst logs in as an admin.
- **Fetch Data:** Data is retrieved for analysis.
- **Analyze Data:** The fetched data is analyzed.
- **Generate Reports:** Reports are generated based on the analysis, particularly focusing on employee involvement.
- **Make Decisions:** Decisions are made based on the generated reports.

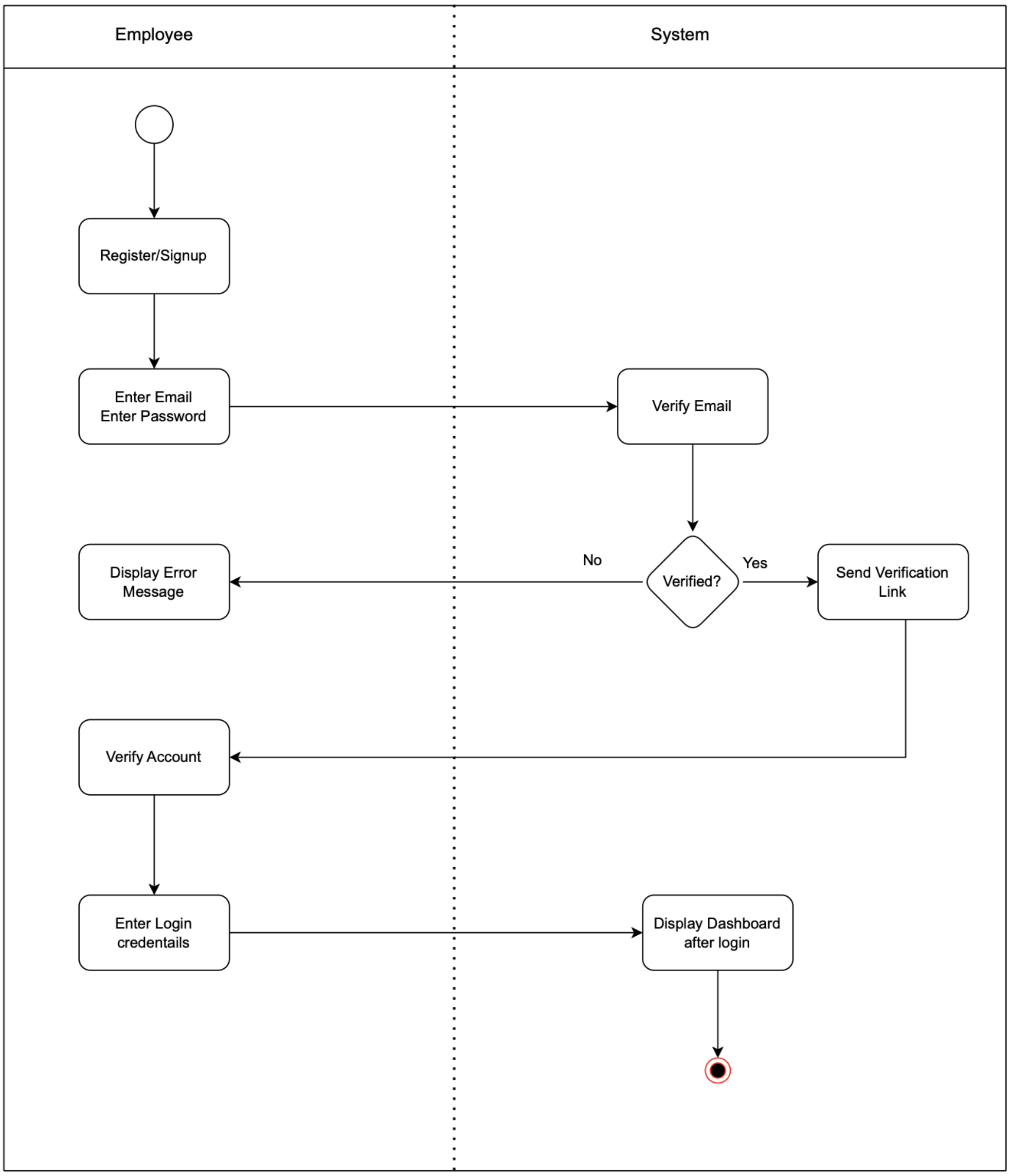


Figure 9.8: Activity Diagram of Create Account use case

Event Subsystem

- **Organize Events:** Events are organized within the system.

- **Notify to Employees:** Employees are notified about the events.

- **Participate in Events:** Employees participate in the organized events

Payroll Subsystem

- **Decide Winners:** Winners are decided based on the participation and performance in events.
- **Provide Bonuses:** Bonuses are provided to the winners.
- **Stop:** The process ends with the "Stop" node.

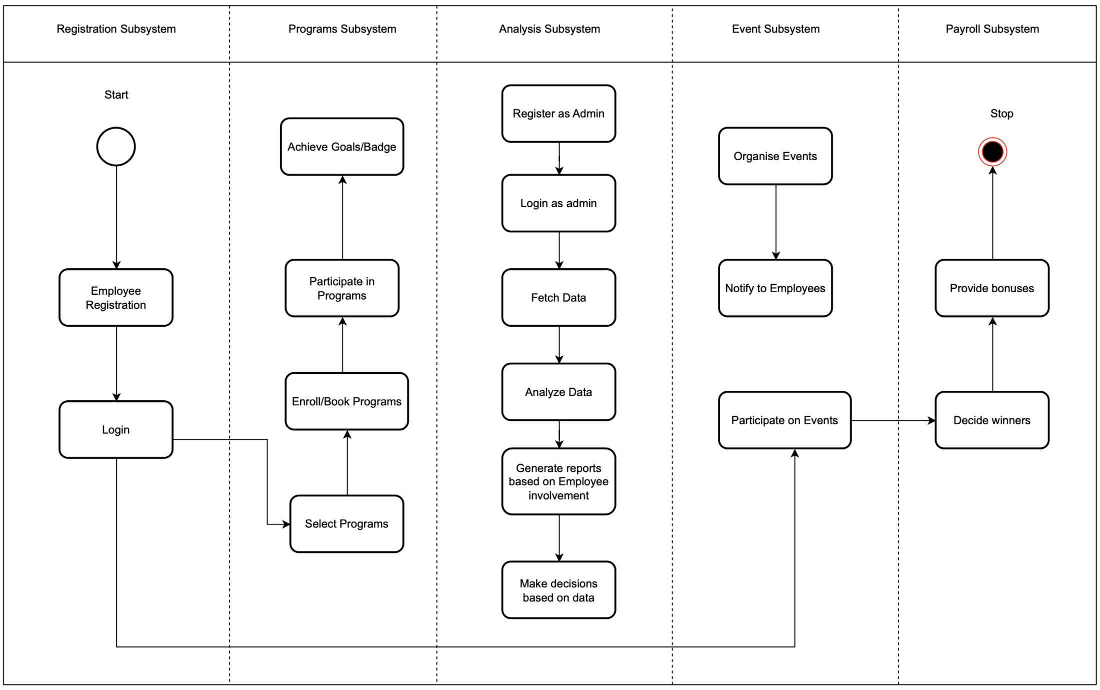


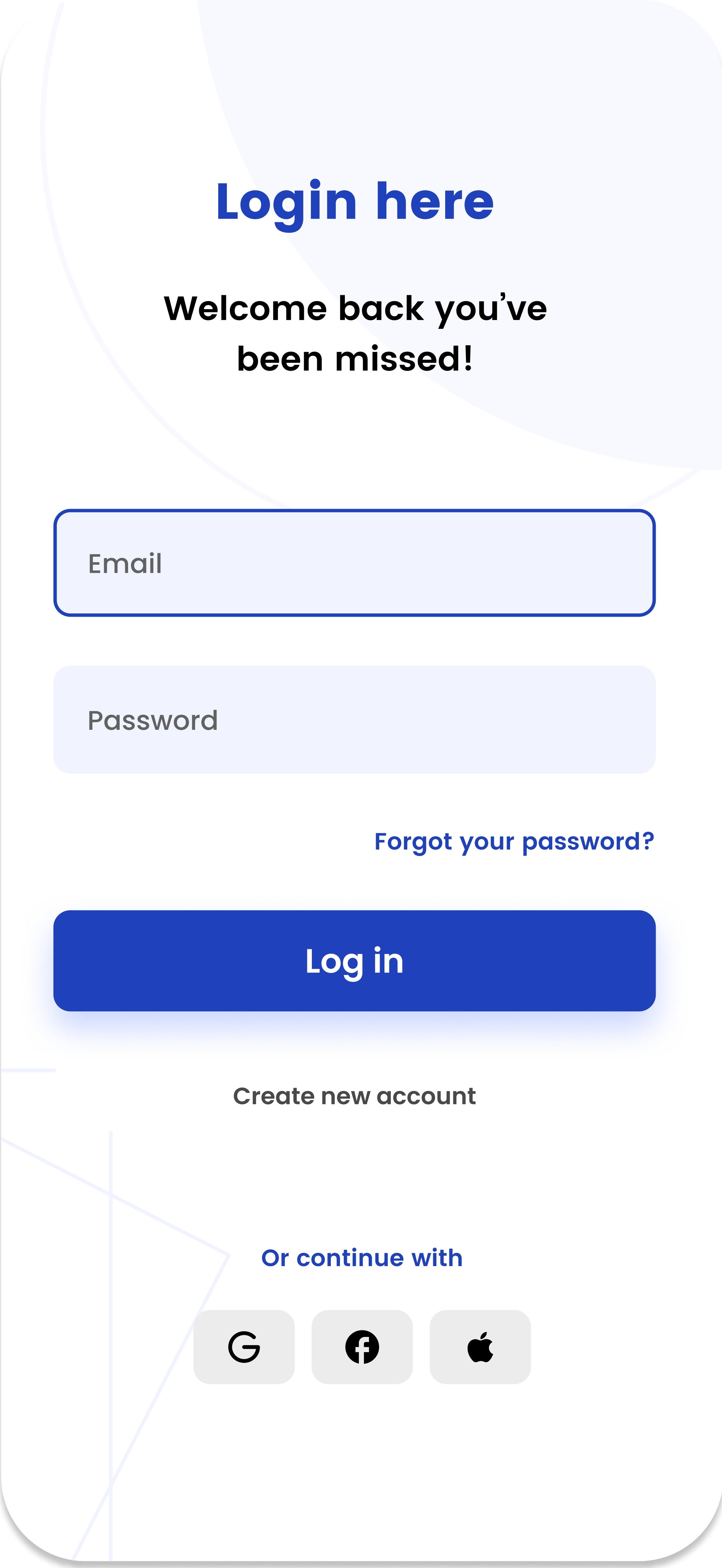
Figure 9.9: Activity Diagram of all the subsystem

9.6 Final Product Design and Project Code

You can find the project management code on GitHub: `https://github.com/kgoel59/883-project-management`.

Log in

Sign up


Login here
Welcome back you've been missed!
Email
Password
Forgot your password?
Log in
Create new account
Or continue with

Create Account

Create an account so you can explore all the existing jobs

Email

Password

Confirm Password

Employee ID number

Sign up

Already have an account

Or continue with

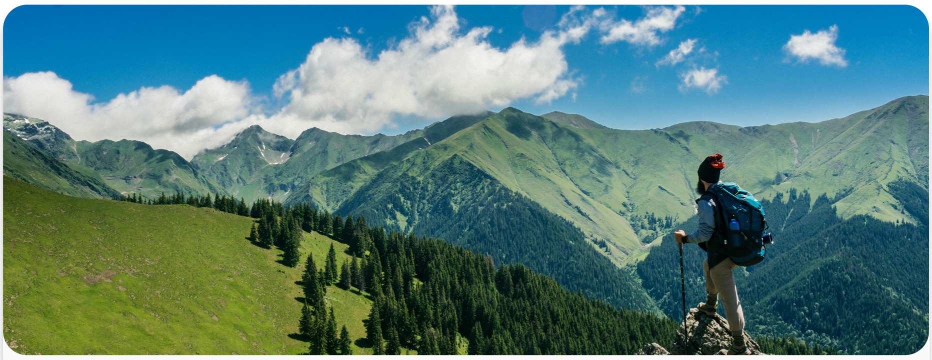
Category

Sports

Hiking

HOME EVENTS BOOKINGS Payment

Activities



Hiking 0.8 km

Office Warehouse 05-15-2024

Status : Available

Book Now

Remove

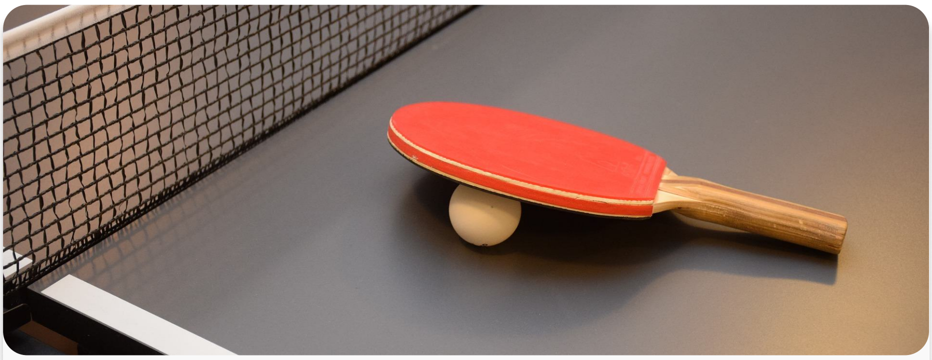


Table Tennis Game 5 km

Marvel Stadium 04-10-2024

Status : Available

Book Now

Remove

HOME

EVENTS

BOOKINGS

Payment

Booked Events

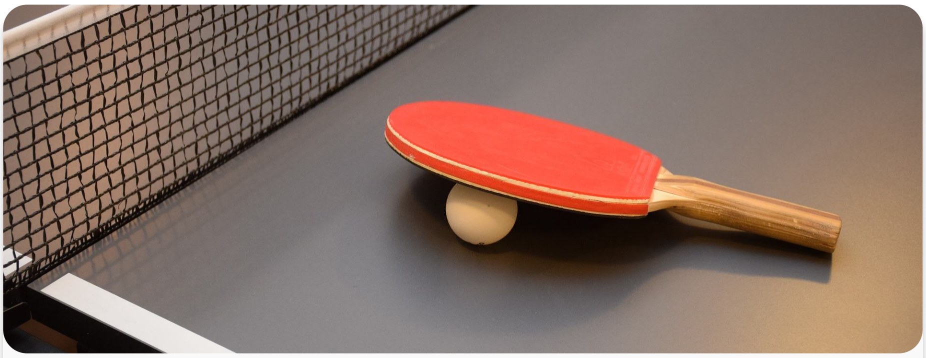


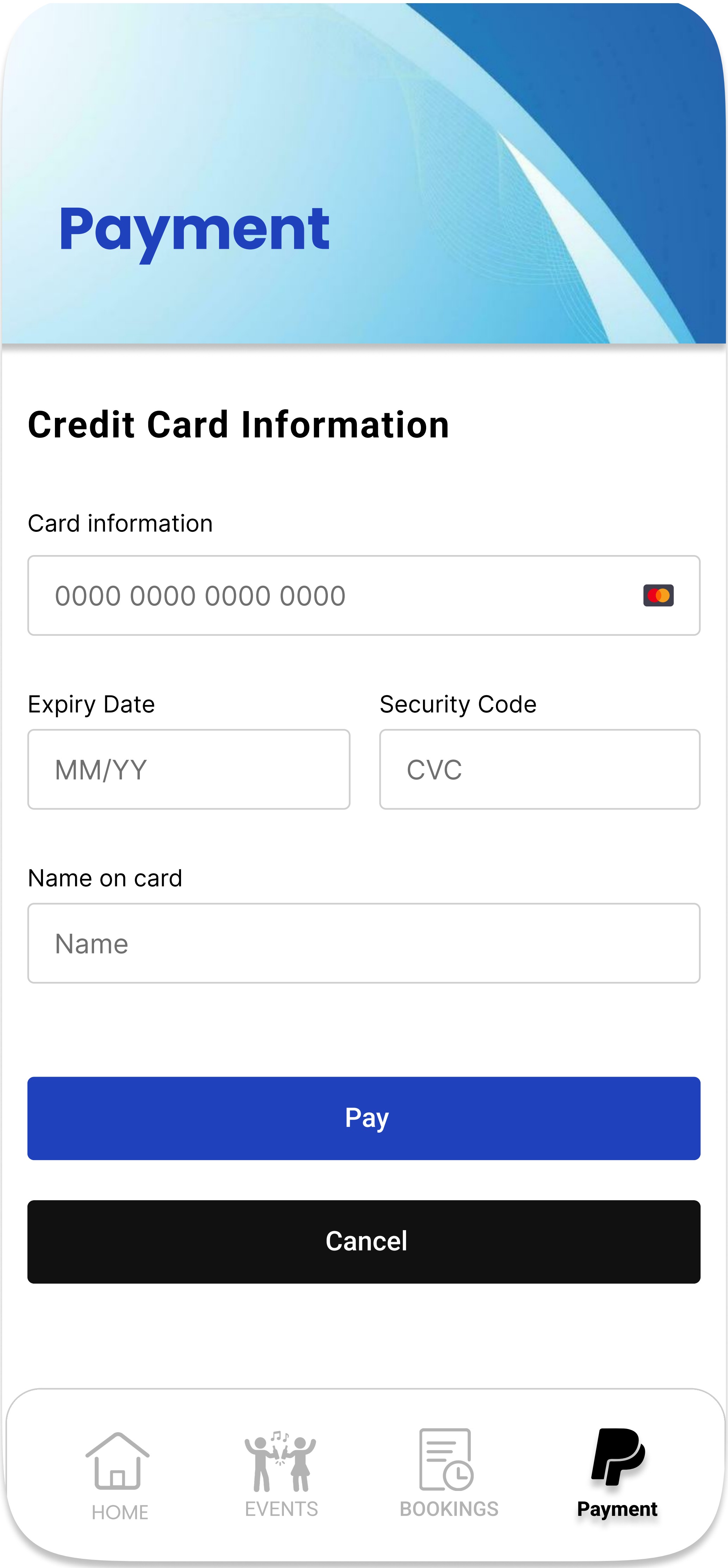
Table Tennis Game 5 km

Marvel Stadium 04-10-2024

Status : Booked

Cancel

HOME EVENTS **BOOKINGS** Payment


Payment
Credit Card Information
Card information
0000 0000 0000 0000
Expiry Date
MM/YY
Security Code
CVC
Name on card
Name
Pay
Cancel
HOME
EVENTS
BOOKINGS
Payment

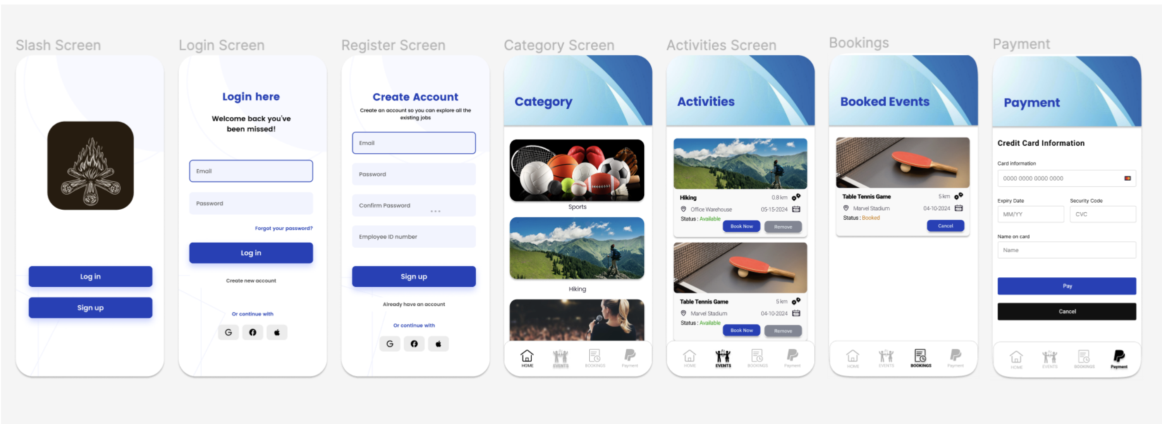


Figure 9.10: Final Product Design - Figma