Submitted by	
Minhazul Islam	40291529
Thu Trang Tran	40309740
Humayra Himi	40275654
Aneri Rangani	40312334
Hamad Ali Khan	40291053

Concordia University

INSE 6230 - Total Quality Project Management

Final Project:

INSE – Online Food Delivery

Submitted to:

Dr. Andrea Schiffauerova

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1. INTRODUCTION

In recent years, the number of small, family-operated restaurants and supermarkets has grown steadily. However, these businesses often lack the resources to offer home delivery services, which consumers are increasingly expecting. One of the most convenient ways to meet customer demand today is through online ordering.

The shift toward digital food purchasing has been shaped by evolving consumer preferences for speed, convenience, and minimal physical interaction. Events such as the COVID-19 pandemic accelerated this trend, but even post-pandemic, the habits formed have persisted and solidified. Today, ordering food online is not only about safety, but also about lifestyle and efficiency.

INSE addresses this shift by providing a cost-effective, user-friendly platform that enables small food businesses to reach more customers through online ordering and third-party delivery integration.

1.1. Objectives

INSE is designed to meet the evolving needs of both small food vendors and modern consumers. The platform's key objectives are to:

- Provide small businesses with an accessible platform to offer home delivery without managing their organization.
- Create a centralized application for customers to discover, order from, and support local food vendors.
- Offer a seamless, low-contact ordering experience suited to modern consumer lifestyles.
- Use app design and user experience strategies to enhance emotional engagement and satisfaction.
- Support vendor growth through analytics, customer feedback, and promotional tools.

2. PROJECT INITIATION

2.1. Weighted Decision Matrix

Our team considered three different approaches to implement online food delivery:

Project 1: Develop a mobile app compatible with multiple smartphone operating systems.

Project 2: Build a website accessible from desktops, laptops, and mobile devices.

Project 3: Deliver a comprehensive solution by integrating both the mobile app and website.

The first approach involves developing a mobile application compatible with major smartphone operating systems. This allows for a highly interactive and user-friendly experience, especially for users who prefer mobile access. While mobile apps offer features like push notifications and offline use, they require higher development costs and ongoing maintenance across multiple platforms.

The second approach focuses on building a responsive website accessible from desktops, laptops, and mobile devices. This option ensures wide accessibility and typically involves lower development and maintenance efforts. However, websites may lack the deeper user engagement and functionality offered by mobile apps, such as personalized notifications and native device integration.

The third approach combines both a mobile app and a website, offering the most comprehensive user experience. It maximizes accessibility and engagement by catering to all user preferences. Despite its benefits, this solution demands the most resources in terms of development time, cost, and system management, as it requires maintaining two separate platforms in parallel.

We used a weighted decision matrix to compare and decide on which project to invest in. Based on the Weighted Decision Matrix, Project 1 achieved the highest overall score of 89%, making it the most balanced and practical solution among the three options. This project performed consistently well across all key criteria, particularly in performance, ease of maintenance, and customer convenience, while maintaining a competitive cost. Project 2, although strong in implementation and cost, scored lower in returned benefits and customer convenience, leading to a total score of 80.5%. Project 3 offered high returns and customer satisfaction but was limited by low scores in implementation, maintenance, and cost-efficiency, resulting in a final score of 78.25%. These results indicate that Project 1, the website-only solution, provides the best balance between functionality, user accessibility, and resource management, making it the most suitable option for initial development and deployment.

Table 1. Weighted project score

Criteria Weight	Weight	Project 1	Project 2	Project 3
Performance	15%	100	90	95
Returned Benefits	10%	80	20	100
Ease of implementation	15%	80	100	50
Ease of maintenance	15%	90	100	60
Convenience to the Customer	20%	90	50	100
Cost	25%	90	100	70
Weighted Project Score	100%	89%	80.5%	78.25%

2.2.Return on Investment

Key points:

An initial investment of $105,000.

• A monthly subscription price of $5 ($60 yearly).

• A starting user count of 6230 in year 1, followed by 7000 in year 2 and 7500 in year 3.

• An 8% discount rate.

• The annual cost estimates are $50,000 in year 1, $70,000 in year 2, and $90,000 in year 3.

• Benefits per year: Number of users per year * subscription cost per year for each user.

With a positive NPV, the project is expected to be profitable, and its 276% ROI confirms that it delivers a highly attractive return on investment. Since the cumulative value of discounted benefits minus the discounted costs becomes positive in the first year, this indicates the payback period is the first year.

Table 2: Return of Investment

Discount rate	8%				
	Year 0	**Year 1**	**Year 2**	**Year 3**	**Total**
Costs (expenses)	$ 105,000	$ 50,000	$ 70,000	$ 90,000	
Discount factor	1	0.93	0.86	0.79	
Discounted costs	$ 105,000	$ 46,500	$ 60,200	$ 71,100	$ 282,800
Users		6230	7000	7500	
Yearly ($60)					
Benefits (revenues)	$ -	$ 373,800	$ 420,000	$ 450,000	
Discount factor	1	0.93	0.86	0.79	
Discounted benefits	$ -	$ 347,634	$ 361,200	$ 355,500	$ 1,064,334
Discounted(benefits-costs) (NPV)	$ (105,000)	$ 301,134	$ 301,000	$ 284,400	$ 781,534
Cumulative(benefits-costs)	$ (105,000)	$ 196,134	$ 497,134	$ 781,534	
ROI (%)	276				

2.3.SWOT Analysis

2.3.1. Strengths

- Provides smooth and efficient food ordering experience.
- Offers a wide range of food options in one app.
- Allow restaurants to promote exclusive deals to retain current customers and attract new ones.
- Creates an additional digital channel for restaurants to reach their audience.
- Help restaurants expand their customer base beyond regular, in-person visitors.
- Reduces the burden of managing deliveries for restaurants by handling organization.
- Creates employment opportunities for delivery drivers.
- Offers flexible working hours, making it an appealing option for part-time drivers.

2.3.2. Weaknesses

- The success of the app depends heavily on a creative and user-friendly design to keep users engaged.
- Only accessible to people who have smartphones and reliable internet connections.
- May require investment in marketing to teach customers how to use the app effectively.
- Resolving customer complaints can be difficult when it is unclear whether the issue lies with the app, the restaurant, or the driver.

2.3.3. Opportunities

- As contactless services become more common, the app can appeal to users who value convenience and limited physical interaction.
- Government policies may support digital solutions that ease pressure on public infrastructure or services.
- The rollout of faster internet technologies, like 5G, can improve the app's performance and make it easier for more people to use.

2.3.4. Threats

- The online food delivery market is becoming increasingly crowded and competitive.
- Economic slowdowns or reduced consumer spending may impact on demand for food delivery services.
- Some people may prefer traditional ways of ordering or dining and might be reluctant to switch to an app-based system.

2.4.Project Scope Statement

Version: 01
Project Title: INSE
Date: Feb 23, 2025

Project Justification

The aim of this project is to design and launch a user-friendly online food delivery application accessible across multiple digital devices. The platform will allow users to browse menus and place food orders conveniently from their homes, eliminating the need for in-person visits to restaurants.

Product Specifications & Requirements

- The project management team will select the most suitable programming language, web host, database system, and internet service provider to meet performance and reliability needs.
- Two specialized IT teams will be formed: a development team to build the application and a testing team to ensure its functionality.
- The development team will create an app that is fully compatible with both Android and iOS operating systems.
- The testing team will thoroughly verify and validate the code to ensure the final release is free from critical bugs.
- The marketing team will plan and execute a promotional campaign to introduce the app to both restaurants and end users.

Project Deliverables

- Final project report from the project management team.
- Marketing materials include flyers and posters for the promotional campaign.
- Fully functional platform versions (mobile and/or web).
- Budget estimation document.
- Detailed installation and setup guide.

Project Success Criteria

- Acquiring at least 6230 app subscribers within the first year of launch.

- Partnering with a minimum of 230 restaurants by the end of year one.
- Completing the project within the approved budget.
- Delivering the project according to the agreed timeline.
- Achieving broad awareness and reach through the promotional campaign.

Version: 02
Project Title: INSE
Date: Mar 02, 2025

Project Justification

This project aims to develop a user-friendly food delivery application within a timeline of 110 working days and a maximum budget of $105,000. The application will be designed to ensure accessibility for a diverse user base, regardless of age, education level, or cultural background. It will offer an intuitive experience for all users while expanding the digital capabilities of small restaurants and food vendors.

Product Specifications & Requirements

- The project management team will identify the most appropriate programming language, hosting service, database platform, and internet provider to support the application's functionality and performance.
- Two technical teams will be established under the IT department: one for development and the other for testing.
- The development team will be responsible for building an application compatible with both Android and iOS operating systems.
- The testing team will ensure the application is thoroughly reviewed and debugged before its final release.
- The marketing team will execute a promotional strategy to introduce the app to local restaurants and potential users.

Project Deliverables

- Final project report compiled by the project management team.
- Printed and digital promotional materials (flyers, posters, etc.).

- Fully developed versions of the mobile application.
- A detailed cost estimation report.
- Step-by-step installation and deployment guide.

Project Success Criteria

- Reaching at least 6230 active subscribers within the first year.
- Securing partnerships with a minimum of 230 restaurants by the end of year one.
- Delivering the project within the approved budget of $105,000.
- Completing all project phases within the 110-days development timeline.
- Achieving wide visibility and user engagement through the promotional campaign.

2.5. Project Business Case

Date: Feb 26, 2025

1. Introduction / Background
Small, family-run restaurants and supermarkets often face limitations in offering delivery services due to budget constraints, lack of infrastructure, and limited digital presence. At the same time, consumer habits have shifted toward online ordering, favoring convenience, speed, and minimal physical interaction. INSE addresses this gap by providing a centralized food ordering and delivery platform that connects small vendors with customers through a mobile application. The platform aims to simplify digital ordering while supporting small businesses in expanding their customer base.
2. Business Objective
The primary goal of the INSE project is to develop and launch a mobile food delivery application within 110 working days and a budget of $105,000. The app will be accessible, easy to use across different demographics, and designed to support the unique needs of small food vendors. It will enable vendors to receive, manage, and fulfill delivery orders without needing their own organization network.
3. Current Situation and Problem / Opportunity Statement
- Small vendors lack the technical capacity to offer digital ordering or manage deliveries. - Many existing food delivery platforms charge high fees or prioritize larger chains. - There is an increasing demand for accessible, digital-first solutions among consumers.

- Technology adoption is rising, especially with faster mobile internet and improved user trust in online services.

4. Critical Assumptions and Constraints

The success of INSE depends on the following assumptions and constraints:
- Sufficient adoption among small businesses to populate the platform.
- User access to smartphones and reliable internet in target areas.
- Delivery service availability and driver partnerships in key zones.
- Compliance with data privacy regulations and payment security standards.
- Budget must not exceed $105,000 and development must stay within the 110-days schedule.

5. Analysis of Options and Recommendation

Three implementation strategies were considered:

- ❖ Project 1 – Mobile App Only (Recommended):

Provides an engaging user experience and aligns with current mobile usage trends. Scored highest in the decision matrix for performance, customer convenience, and cost-effectiveness.

- ❖ Project 2 – Website Only:

Lower cost and broader accessibility but lack engagement features and real-time convenience that mobile apps offer.

- ❖ Project 3 – Combined App + Website:

Maximum flexibility and reach but has the highest complexity, cost, and maintenance burden.

Recommendation:
Project 1 is the most practical and scalable solution for the initial launch phase, ensuring focused resource allocation and stronger user experience.

6. Preliminary Project Requirements

- Development of a mobile app compatible with Android and iOS.
- Intuitive user interface for customers and vendors.
- Vendor management dashboard for orders, products, and promotions.
- Secure digital payment system integration.
- A delivery tracking system linked to registered drivers.
- Promotional tools and push notifications.
- Marketing assets include flyers and digital content.
- Admin panel for monitoring, support, and analytics.

7.0 Budget Estimates and Financial Analysis

Total Project Budget: $105,000

Operating Costs: $50,000 in year 1, $70,000 in year 2, and $90,000 in year 3.

Revenue Model: $5/month subscription ($60/year per vendor)

User Growth Estimates:

Year 1: 6230 users → $373,800 Year 2: 7000 users → $420,000 Year 3: 7500 users → $450,000 Total Revenue (3 years): $1,243,800 ROI & NPV: Calculated using an 8% discount rate, the project shows a strong return by Year 1.
8.0 Schedule Estimate
The estimated time of delivering this project is 110 days, and no changes in the project should not delay the time of the project delivery.
9.0 Potential Risks
- Intense competition from established food delivery services. - Low adoption rate among traditional vendors without proper onboarding. - Customer resistance to app-based ordering due to unfamiliarity. - Budget overruns if development scope expands. - Service disruptions or dissatisfaction caused by delivery failures or poor app performance.

2.6. Project Charter

1. Summary	Project Name: INSE Executive Sponsor: Minhazul Islam Project Manager: Humayra Himi Project Start Date: Mar 01, 2025 Project End Date: Jun 18, 2025 Project Duration: 110 working days
2. Scope	The INSE project involves the development of a mobile application tailored for small local restaurants and supermarkets. The platform will allow customers to browse menus, place orders, and receive deliveries, while helping vendors reach more customers and simplify

	organization through a centralized digital service.
3. Project Objectives	- Deliver a functional mobile application compatible with Android and iOS devices. - Provide an intuitive and accessible user interface for customers and vendors. - Enable small food businesses to manage orders, promotions, and deliveries without the need for their own delivery team. - Achieve at least 6230 user sign-ups and 230 restaurant partners will be onboard in the first year. - Complete the project within 110 working days and within the allocated budget of $105,000.
4. Project Milestones	- Planning - Implementation - Installation - Monitor and Control - Closing
5. Success Criteria	- Completion of the project within the 110 working-day schedule. - Staying within the total budget of $105,000. - Meeting all functional, performance, and quality standards outlined in the scope. - Achieving targeted user adoption (6230 users) and vendor onboarding (230 partners) by the end of the first year. - Successful launch and public visibility through the marketing campaign.
6. Project Budget / Resources	Total Estimated Budget: $105,000 **Key Resources**: • Software development and testing teams. • UI/UX designers. • Marketing and vendor onboarding personnel.

	• Project management oversight. • Tools for communication, design, development, and promotion.

2.7.Roles and Responsibilities

Name	Role	Responsibilities	Contact Information
Minhazul Islam	Project Sponsor	- Provides strategic direction and high-level oversight for the project. - Approves major decisions, budget allocations, and timeline changes. - Ensures alignment of project goals with institutional or organizational priorities. - Supports resolution of escalated issues beyond the project team's control.	islamminhazul894@gmail.com
Humayra Himi	Project Manager	- Oversee the full project lifecycle and ensure timely execution of all phases. - Develops and manages the project schedule, resource allocation, and daily operations. - Coordinates communication among team members and documents progress. - Leads risk management planning and monitors success criteria.	himihumayra97@gmail.com
Aneri Rangani	Analyst	- Gathers and validates system requirements from all stakeholders. - Translates functional needs into technical specifications and user stories.	anerirangani2002@gmail.com

		- Supports interface planning and contributes to UI/UX layout drafts. - Assists in creating onboarding materials for vendors and users.	
Hamad Ali Khan	Quality Assurance Manager	- Designs the quality assurance plan and develops test cases. - Conducts internal testing, tracks bugs, and ensures resolution of issues. - Validates the performance, usability, and reliability of the application before release. - Reports test results and coordinate with the team to meet quality benchmarks.	hamadbhera10@gmail.com
Thu Trang Tran	Planning team Manager	- Leads the creation of project artifacts such as flyers, posters, and promotional content. - Supports tool setup and preparation of the development environment. - Coordinates resource planning and tracks milestone completion. - Assists with marketing readiness and app launch activities.	thutrangtrantp@gmail.com

3. PROJECT PLANNING

3.1. Team Contract

Project Name: INSE

Purpose

The purpose of this Team Contract is to establish a clear framework for team collaboration during the INSE project. It defines participation standards, communication methods, and expectations

regarding issue resolution and meeting management. The contract supports a professional, respectful, and effective team environment over the 110-days development period.

Project Team Members' Names and Sign-off

Table 3: Project Team Members

Name	Signature
Minhazul Islam	Minhazul
Humayra Himi	Humayra
Aneri Rangani	Aneri
Hamad Ali Khan	Hamad
Thu Trang Tran	Thu Trang

Code of Conduct

To maintain a productive and inclusive team environment, members agree to uphold the following principles:

- Treat all team members with respect, even when disagreements arise.
- Maintain honesty and integrity in all communications and commitments.
- Protect the privacy of all team discussions, especially when handling vendor, customer, or project-sensitive information.
- Provide feedback that is constructive and respectful and receive feedback with a growth mindset.

Participation

- Each team member will actively contribute to meetings, share ideas, and complete assigned responsibilities.
- Tasks will be distributed fairly to ensure balanced workload and equal contribution throughout the project lifecycle.
- Team members are expected to take responsibility for their deliveries and notify others in advance if they encounter delays.

Communication

- Open, clear, and respectful communication is essential for team coordination.

- Primary communication tools include Microsoft Teams and email; all messages should remain professional.
- Team members are expected to respond to messages within 24 hours to ensure continuity and accountability.

Problem Solving

- Issues will be addressed collaboratively, with all team members encouraged to share their perspectives.
- The team will focus on identifying root causes rather than placing blame, to develop lasting solutions.
- Decisions will be made by agreement whenever possible, but flexibility will be maintained to ensure timely project progress.

Meeting Strategy

- Regular meetings will be held twice per week during the 110-days timeline.
- Agendas will be shared in advance to keep meetings focused and organized.
- Meetings will start and end on time, with all planned topics addressed efficiently.

3.2.Kick-off Meetings

Project Name: INSE

Date: Feb 23, 2025

Next Meeting Date: Mar 15, 2025

Objective

To formally initiate the INSE project by aligning the team on project goals, confirming roles and responsibilities, reviewing documentation, and establishing a shared understanding of the development and delivery process. The meeting sets the foundation for collaboration and outlines the timeline and expectations for the 110 working-day period (March 1 – June 18, 2025).
Agenda

- Welcome and team introductions.

- High-level overview of INSE project objectives and value proposition.
- Review of the approved project scope, timeline, and deliverables.
- Clarification of each team member's roles and responsibilities.
- Review of key documents: project charter, business case, and requirements outline.
- Discussion of the system design and development strategy.
- Outline of communication protocols and decision-making process.
- Initial planning for testing and quality assurance activities.
- Risk identification and mitigation planning.
- Establish action items and agenda for next meeting.

Action Items & Assignments

Table 4: Action Items & Assignments

Action Item	Assigned To
Finalize detailed project schedule	Project Manager
Validate system requirements and use cases	Analyst
Set up development tools and app structure	Planning Team Manager
Begin UI/UX design and wireframing	Analyst + Planning Team Manager
Start building application interface & logic	Planning Team Manager
Draft QA plan and initial test cases	Quality Assurance Manager
Prepare marketing materials (flyers, posters)	Planning Team Manager
Conduct internal app testing and bug tracking	QA Manager + Analyst
Complete final testing and resolve issues	Quality Assurance Manager
Finalize launch materials and vendor onboarding	Analyst + Project Manager

This kick-off meeting ensures all team members begin with a shared understanding of expectations, project deliverables, communication methods, and key dates. It also reinforces team cohesion and accountability at the outset of this tightly scheduled initiative.

3.3. Work Breakdown Structure (WBS)

Figure 1. Work Breakdown Structure (WBS)

3.4. Gantt Chart

See [Appendix #1]

3.5. Activity Cost Requirement

The total allocated budget for the INSE Online Food Delivery project is $105,000 CAD and the details of the cost estimation can be seen in **Appendix #2**. The budget is carefully distributed across each phase of the project lifecycle to ensure optimal resource use and financial control. A bottom-up estimation approach was used, aligning with the project's Work Breakdown Structure (WBS) and Gantt chart.

Figure 2. Cost per phase

3.6. Activity Resource Requirement

ID	Task name	Milestone	Duration	Start date	Finish date	Predecessors
1	**INSE**	**No**	110	3/1/2015	7/31/2025	
2	**Initiation**	**No**	6	3/1/2015	3/7/2025	
3	Stakeholders recommendations/ requirements	No	2	3/1/2025	3/2/2025	
4	Prepare project charter	No	2	3/3/2025	3/4/2025	3
5	Submit and review Project charter	No	1	3/5/2025	3/5/2025	4
6	Approval by Stakeholders	No	1	3/8/2025	3/8/2025	5
7	End of phase	Yes	0	3/8/2025	3/8/2025	6
8	**Planing**	**No**	22	3/9/2025	4/7/2025	
9	Mobile application development plan	No	10	3/9/2025	3/20/2025	7
10	Analyze mobile application requirement specification	No	3	3/23/2025	3/25/2025	9
11	Find a suitable web server	No	2	3/23/2025	3/24/2025	9
12	Find a suitable database server	No	2	3/25/2025	3/26/2025	11
13	Develop mobile application architecture document	No	8	3/26/2025	4/4/2025	10
14	Develop testing plan	No	5	3/26/2025	4/1/2025	10
15	Milestone approval	No	1	4/7/2025	4/7/2025	13
16	End of phase	Yes	0	4/7/2025	4/7/2025	15
17	**Execution**	**No**	43	4/8/2025	6/5/2025	
18	Mobile application design specification	No	15	4/8/2025	4/28/2025	16
19	Configure the web server	No	6	4/8/2025	4/15/2025	16
20	Configure the database server	No	5	4/16/2025	4/22/2025	19
21	Link the web server with the database server	No	2	4/23/2025	4/24/2025	20
22	Setup and secure the connection	No	1	4/27/2025	4/27/2025	21
23	Code Android application	No	25	4/29/2025	6/2/2025	18
24	Code iOS application	No	28	4/29/2025	6/5/2025	18
25	End of phase	Yes	0	6/7/2025	6/7/2025	24
26	**Monitoring and Testing**	**No**	32	6/8/2025	7/21/2025	
27	Test the web server	No	2	6/8/2025	6/9/2025	25
28	test the database server	No	2	6/10/2025	6/11/2025	27
29	Test the link between seb server and database server	No	1	6/14/2025	6/14/2025	28
30	Test Android application	No	8	6/15/2025	6/24/2025	29
31	Test iOS application	No	10	6/15/2025	6/26/2025	29
32	Identify anomalies	No	1	6/29/2025	6/29/2025	31
33	Modify code Android/ iOS application	No	12	6/30/2025	7/15/2025	32
34	Retest Android/ iOS application	No	4	7/16/2025	7/21/2025	33
35	End of phase	Yes	0	7/21/2025	7/21/2025	31, 34
36	**Closing**	**No**	7	7/22/2025	7/30/2025	
37	Check against requirements specification	No	3	7/22/2025	7/24/2025	35
38	Gain stakeholders acceptance/ approval	No	2	7/27/2025	7/28/2025	37
39	Launch Android application on Google play store	No	1	7/29/2025	7/29/2025	38
40	Launch iOS application on Apple store	No	1	7/30/2025	7/30/2025	39
41	End of phase	Yes	0	7/31/2025	7/31/2025	40

Figure 3. Activity Resource Requirement

3.7. Project Time Management

Project Time Management is crucial for ensuring all deliverables are completed within the agreed schedule. It involves tracking task progress, managing resources efficiently, identifying key milestones, and determining critical paths to optimize delivery timelines.

3.7.1. Time Tracking via Gantt chart

Time tracking was managed using a Gantt chart (**See Appendix #1**), which clearly visualized activity start and end dates, durations, and dependencies across all project phases. This method helped compare planned vs. actual timelines and manage team workloads efficiently.

3.7.2. Resource Sheet

A resource sheet was maintained listing all people, software, and equipment used throughout the project lifecycle. This helped monitor availability, avoid resource overloads, and assign costs.

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate	Cost/Use	Accrue	Base
1	Management	Work		M		100%	$0.00/hr	$0.00/hr	$0.00	Prorated	Standard
2	Project Manager	Work		P		100%	$50.00/hr	$60.00/hr	$0.00	Prorated	Standard
3	Developer 1	Work		D		100%	$45.00/hr	$55.00/hr	$0.00	Prorated	Standard
4	Developer 2	Work		D		100%	$45.00/hr	$55.00/hr	$0.00	Prorated	Standard
5	Analyst	Work		A		100%	$35.00/hr	$45.00/hr	$0.00	Prorated	Standard
6	Designers	Work		D		100%	$40.00/hr	$50.00/hr	$0.00	Prorated	Standard
7	Tester 1	Work		T		100%	$40.00/hr	$50.00/hr	$0.00	Prorated	Standard
8	Tester 2	Work		T		100%	$40.00/hr	$50.00/hr	$0.00	Prorated	Standard
9	Quality Assurance Engineer	Work		Q		100%	$45.00/hr	$55.00/hr	$0.00	Prorated	Standard

Figure 4. Resource Sheet

3.7.3. Project Network Diagram

Project network diagram was created using Microsoft Project tool. We used the Activity in Node (AON) diagramming method to create the network diagram. The network diagram shows the sequence of activities along with the allocated resources (**See Appendix #3**).

3.7.4. Milestones

Milestones represent major deliverables or checkpoints in the project. These helped track whether key phases were completed on time.

Table 5. Milestones report

Milestone	Date	Status	Responsible
Initiation (end of phase)	Mar 8, 2025	Completed	Sponsor & Project Lead
Planning (end of phase)	Apr 7, 2025	Completed	Design Team
Execution (end of phase)	May 20, 2025	Completed	Dev Team

Monitoring and Testing (end of phase)	Jun 7, 2025	Completed	QA Team
Closing (end of phase)	Jul 31, 2025	On Schedule	Project Manager

3.7.5. Critical path Analysis

The Critical Path represents the longest sequence of dependent tasks that determine the shortest possible project duration. Any delay in these tasks would delay the overall project.

ID	Task name	Duration	Start date	Finish date	Complete percentage	Remaining work
1	**INSE**	110	3/1/2015	7/31/2025	75%	564hrs
2	**Initiation**	6	3/1/2015	3/7/2025	100%	0 hrs
3	Stakeholders recommendations/ requirements	2	3/1/2025	3/2/2025	100%	0 hrs
4	Prepare project charter	2	3/3/2025	3/4/2025	100%	0 hrs
5	Submit and review Project charter	1	3/5/2025	3/5/2025	100%	0 hrs
6	Approval by Stakeholders	1	3/8/2025	3/8/2025	100%	0 hrs
7	End of phase	0	3/8/2025	3/8/2025	100%	0 hrs
8	**Planing**	22	3/9/2025	4/7/2025	100%	0 hrs
9	Mobile application development plan	10	3/9/2025	3/20/2025	100%	0 hrs
10	Analyze mobile application requirement specification	3	3/23/2025	3/25/2025	100%	0 hrs
11	Find a suitable web server	2	3/23/2025	3/24/2025	100%	0 hrs
12	Find a suitable database server	2	3/25/2025	3/26/2025	100%	0 hrs
13	Develop mobile application architecture document	8	3/26/2025	4/4/2025	100%	0 hrs
14	Develop testing plan	5	3/26/2025	4/1/2025	100%	0 hrs
15	Milestone approval	1	4/7/2025	4/7/2025	100%	0 hrs
16	End of phase	0	4/7/2025	4/7/2025	100%	0 hrs
17	**Execution**	43	4/8/2025	6/5/2025	100%	0 hrs
18	Mobile application design specification	15	4/8/2025	4/28/2025	100%	0 hrs
19	Configure the web server	6	4/8/2025	4/15/2025	100%	0 hrs
20	Configure the database server	5	4/16/2025	4/22/2025	100%	0 hrs
21	Link the web server with the database server	2	4/23/2025	4/24/2025	100%	0 hrs
22	Setup and secure the connection	1	4/27/2025	4/27/2025	100%	0 hrs
23	Code Android application	25	4/29/2025	6/2/2025	100%	0 hrs
24	Code iOS application	28	4/29/2025	6/5/2025	100%	0 hrs
25	End of phase	0	6/7/2025	6/7/2025	100%	0 hrs
26	**Monitoring and Testing**	32	6/8/2025	7/21/2025	14%	468 hrs
27	Test the web server	2	6/8/2025	6/9/2025	100%	0 hrs
28	test the database server	2	6/10/2025	6/11/2025	100%	0 hrs
29	Test the link between seb server and database server	1	6/14/2025	6/14/2025	100%	0 hrs
30	Test Android application	8	6/15/2025	6/24/2025	3%	62 hrs
31	Test iOS application	10	6/15/2025	6/26/2025	3%	78 hrs
32	Identify anomalies	1	6/29/2025	6/29/2025	0%	8 hrs
33	Modify code Android/ iOS application	12	6/30/2025	7/15/2025	0%	288 hrs
34	Retest Android/ iOS application	4	7/16/2025	7/21/2025	0%	32 hrs
35	End of phase	0	7/21/2025	7/21/2025	0%	0 hrs
36	**Closing**	7	7/22/2025	7/30/2025	0%	96 hrs
37	Check against requirements specification	3	7/22/2025	7/24/2025	0%	48 hrs
38	Gain stakeholders acceptance/ approval	2	7/27/2025	7/28/2025	0%	32 hrs
39	Launch Android application on Google play store	1	7/29/2025	7/29/2025	0%	8 hrs
40	Launch iOS application on Apple store	1	7/30/2025	7/30/2025	0%	8 hrs
41	End of phase	0	7/31/2025	7/31/2025	0%	0 hrs

Figure 5. Critical path Analysis

3.8. Project Cost Management

The process of estimating a project's cost scenario and making sure the project is finished within the predicted cost restrictions is known as project cost management. To ensure that the project stays within the estimated price and is finished on time, three procedures are incorporated.

Cost Estimation:
The goal of budget estimation is to approximate the overall expected cost of all resources and activities. Based on the tasks listed in the WBS, we estimated the budget using a bottom-up methodology.

Budget Determination:

To create a baseline for performance evaluation, the total cost estimate is distributed among the various projects and activities. WBs, activity cost estimates, and the project schedule are examples of necessary inputs that must be considered.

Cost Control:

In order to identify the necessary project modifications, a monitoring and comparison of the planned and actual costs will be carried out. To combine scope, time, and cost data, Earned Value Management (EVM), a technique for assessing project performance, will be used.

All expenses must be approved.

3.8.1. Earned Value Management

To assess the project's success in terms of meeting its objectives and budget, we employed Earned Value Management, or EVM.

We also need to define Planed Value (PV) and Actual Cost (AC) to compute Earned Value (EV).

PV is 105k based on the total budget, so the current EV for this project is the 75% of progress multiple PV. The result for EV is 78.75k which is bigger than AC 77.24k.

CV=EV-AC

Metric	Value
Planned Value (PV)	$105,000
Actual Cost (AC)	$77,240
Earned Value (EV)	$78,750
Cost Variance (CV)	$1,510

Figure 6. Cost Variance

3.8.2. Cost Indicator

To determine the project's cost status, we employ the Cost Performance Index (CPI) as a cost indicator. The CPI over time is displayed in the graph below, and it is evident that our project's CPI is typically greater than one, which is another evidence that costs are under control.

Figure 7. Cost Performance Index (CPI)

	#Units/hrs	Cost/Unit/hrs	Subtotal	WBS Level 1 Totals	% of Total
WBS intems					
Food delivery Software Project				$105,000.00	100%
Initiation				$2,200.00	
Stakeholders recommendations/ requirements	40	$20.00	$800.00		
Prepare project charter	40	$20.00	$800.00		
Submit and review Project charter	20	$20.00	$400.00		
Approval by Stakeholders	10	$20.00	$200.00		
End of phase	0	$0.00	$0.00		
Planing				$28,300.00	27%
Mobile application development plan	180	$80.00	$14,400.00		
Analyze mobile application requirement specification	40	$60.00	$2,400.00		
Find a suitable web server	30	$70.00	$2,100.00		
Find a suitable database server	30	$60.00	$1,800.00		
Develop mobile application architecture document	60	$60.00	$3,600.00		
Develop testing plan	60	$60.00	$3,600.00		
Milestone approval	20	$20.00	$400.00		
End of phase	0	$0.00	$0.00		
Execution				$38,000.00	36%
Mobile application design specification	120	$70.00	$8,400.00		
Configure the web server	60	$50.00	$3,000.00		
Configure the database server	60	$50.00	$3,000.00		
Link the web server with the database server	20	$50.00	$1,000.00		
Setup and secure the connection	20	$50.00	$1,000.00		
Code Android application	180	$60.00	$10,800.00		
Code iOS application	180	$60.00	$10,800.00		
End of phase	0	$0.00	$0.00		
Monitoring and Testing				$32,500.00	31%
Test the web server	40	$70.00	$2,800.00		
test the database server	40	$70.00	$2,800.00		
Test the link between seb server and database server	40	$70.00	$2,800.00		
Test Android application	70	$70.00	$4,900.00		
Test iOS application	70	$70.00	$4,900.00		
Identify anomalies	20	$50.00	$1,000.00		
Modify code Android/ iOS application	140	$80.00	$11,200.00		
Retest Android/ iOS application	30	$70.00	$2,100.00		
End of phase	0	$0.00	$0.00		
Closing				$4,000.00	4%
Check against requirements specification	60	$40.00	$2,400.00		
Gain stakeholders acceptance/ approval	20	$40.00	$800.00		
Launch Android application on Google play store	20	$20.00	$400.00		
Launch iOS application on Apple store	20	$20.00	$400.00		
End of phase	0	$0.00	$0.00		
Total project cost estimate				$105,000.00	

Figure 8. Cost Indicator

3.8.3. Earned Value Management Projection

To determine the project's future cost status, we employ Earned Value Management (EVM) projections for cost management. The table below displays the results of our calculations for the Budget at Completion (BAC) and Estimate at Completion (EAC) for 75% of the project's completion. Since we anticipate that our project will proceed under the same circumstances as it has up to this point, we selected a medium estimate for EAC.

BAC	CPI	SPI	EAC
105,000	1.05	1.00	102,941

Figure 9. Estimation at Completion

To estimate the remaining costs for our project and the potential cost status, the other estimates of Estimate to Complete (ETC) and Variance at Completion (VAC) are also computed. Based on the results below, the project's remaining cost is $25,701, and the VAC is $2,059, both of which are positive. We can anticipate that our project's cost will remain under control and within budget with this positive VAC.

ETC	VAC
25,701	2059

Figure 10. Variance at Completion

3.9.Project Risk Management

3.9.1. Risk Identification

Project risk management involves identifying, assessing, and responding to potential risks throughout the project's life cycle to keep it on track and meet its objectives. The risk management plan outlines possible risk events and includes evaluating their impact, developing strategies to respond (such as mitigation), and controlling them through contingency plans. Preparing for risks in advance helps manage both negative and positive effects, with the main aim being to reduce their impact on the project. Risk management plays a crucial role in ensuring a project runs smoothly by helping teams address challenges before they escalate.

To effectively identify risks, two key aspects must be considered:

- The risk condition — the root cause or trigger of the risk.
- The risk consequence — the potential impact the risk could have on the project.

3.9.2. Risk Register

The risk register is a structured document that records and monitors potential risks identified throughout the Online Food Delivery App project. It provides detailed insights into each risk, including its description, likelihood, impact, and the person responsible for managing it. This register also outlines proactive mitigation strategies to reduce or eliminate the impact of these risks.

By tracking risks such as development delays, technical failures, or regulatory issues, the team can make informed decisions, allocate resources effectively, and ensure the project stays on schedule and within budget. The risk register helps maintain project stability by ensuring that risks are identified early and addressed appropriately.

Table 6. Risk Register

No.	Rank	Risk	Description	Potential Response	Owner	Probability	Impact
R1	9	Delay in app development	Timeline risk due to late backend/API integration	Increase sprint review frequency and allocate buffer time in critical path	Project Manager	High	High
R2	8	Customer resistance to app ordering	Users may prefer offline food ordering	Simplify app design, run awareness campaigns, and offer first-time discounts	Project Manager	Medium	High
R3	7	Partner restaurant onboarding delays	Restaurants may delay sending menu/info for integration	Prepare onboarding toolkit and assign dedicated partner liaison	Project sponsor	Medium	Medium
R4	6	App store approval	App may be rejected due to policy violations	Follow app store guidelines strictly, review with platform expert before submission	QA Team	Low	Medium
R5	6	Server downtime during promotions	High load could crash servers during offers	Auto-scale cloud infrastructure and perform load testing	QA Team	Medium	High
R6	3	Rider shortage	Insufficient delivery staff during peak hours	Maintain a flexible hiring pool and offer surge incentives	Project sponsor	Medium	Medium
R7	2	Feature creep	Stakeholders may keep adding features mid-development	Define scope clearly in PRD; use a change management process	Project Manager	Low	Medium

3.9.3. Risk Breakdown Structure

To identify which parts of the project may need closer monitoring or proactive planning, we use a Risk Breakdown Structure. It helps categorize potential risks by team or function, making it easier to manage and address them effectively throughout the project.

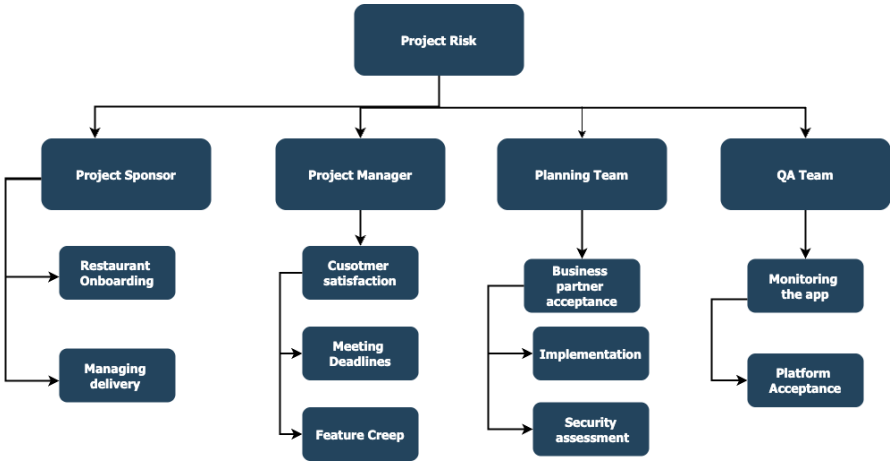


Figure 11. Risk Breakdown Structure

3.10. Project Quality Management

Project Quality Management is the process of ensuring that a project meets the standards and expectations of its stakeholders in terms of performance, functionality, and reliability.

It includes three main components:

1. Quality Planning – identifying quality standards relevant to the project and how to achieve them.
2. Quality Assurance – auditing and reviewing project activities to ensure quality requirements are being followed.
3. Quality Control – monitoring specific project results to check if they meet quality standards and identifying ways to eliminate causes of poor quality.

3.10.1. Quality Planning

Quality planning means thinking ahead to avoid problems and making sure the project turns out the way we want. It helps the team plan how to reach the expected level of quality.

It includes three main parts:

1. Design of Experiment – testing how different factors affect the system.
2. Communication – making sure everyone knows what quality means in the project.
3. Quality Metrics – using clear measurements to check if the system meets quality standards.

There are six important qualities to look at:

- Functionality – Assesses how well the system performs its intended tasks. Reusing software components helps save time and cost.
- Reliability – Checks whether the system performs accurately and consistently under various conditions.
- Usability – Measures how easy the app is to use. A user-friendly interface and simple navigation are essential.
- Efficiency – Looks at how quickly the system completes tasks and processes information.
- Maintainability – Refers to how easily the system can be updated or modified. It should allow smooth integration of new features and technologies.
- Portability – Considers how easily the application can be accessed or used across different platforms, considering cost and compatibility factors.

3.10.2. Project Quality Assurance Management

Focusing on making sure the project follows proper processes to meet quality standards. It aims to prevent problems by reviewing and improving how work is done. QA includes regular checks, audits, and encourages continuous improvement throughout the project.

3.10.3. Quality Control

It is the process of checking the final product or deliverables to make sure they meet the required standards. It involves testing, reviewing, and inspecting the work to find and fix any issues. The goal is to ensure the project result is correct, complete, and high quality before delivery.

3.10.4. Testing Phase

1. Unit Testing: Each function and module (like login, order placement, payment) is tested individually by developers to ensure they work as expected.
2. Integration Testing: Combined components (e.g., vendor module with customer interface) are tested together to check smooth data flow and interaction.
3. System Testing: The entire app is tested as a whole to verify that it meets the functional and non-functional requirements (e.g., performance, usability).
4. User Acceptance Testing (UAT): Real users (or team members acting as users) test the app to ensure it is user-friendly, easy to navigate, and ready for public release.
5. Bug Tracking and Fixing: Issues found during testing are logged, tracked, and fixed. Retesting is done to ensure problems are resolved without causing new ones.
6. Performance and Load Testing: The app is tested under heavy load to ensure it performs well during peak hours (e.g., lunch or dinner rush).
7. Security Testing: Tests are conducted to make sure user data, login information, and payment systems are secure from unauthorized access.
8. Final Deployment Testing: After all fixes and reviews, a final test is done in the live or staging environment before launch.

4. Project Execution:

4.1. Work Performance Information

4.1.1. Status Report 1

01 March 2025 till 31 March 2025.

27% work is done.

Work completed so far	Work to be completed	Overall performance:
• Project initiation completed • Scope and SWOT finalized • UI/UX design completed • Initial backend framework started • Team contracts signed	• Remaining backend development • Full testing strategy • Android build integration	• Some backend delays noted • Slightly behind schedule • Project temporarily over budget • Communication and task division effective

4.1.2. Status Report 2

01 March 2025 till 25 April 2025.

50% work is done

Work completed so far	Work to be completed	Overall performance:
• Android app 95% functional • Vendor dashboard integrated • Core modules and APIs complete • Mid-project stakeholder review passed	• iOS version development • Marketing and promotional planning • Start testing activities	• On time and under budget • Team coordination is strong • No internal delays reported • Project progressing steadily

4.1.3. Status Report 3

01 March 2025 till now

75% work is done

Work completed so far	Work to be completed	Overall performance:
• Android and iOS versions ready • Final round of QA underway • Training materials and vendor support setup	• App Store submission • Final integration testing • Launch readiness and documentation	• Project is fully on schedule • Under budget with CPI 1.05

• Promotional launch content finalized		• Excellent coordination across teams

5. Monitoring and Control Phase

5.1. Project Performance Measurement

Different team collaborated across different phases to ensure smooth development and delivery. Among them, the Planning Team had the highest workload, which was anticipated from the start. This team played a central role by combining the efforts of developers, designers, and testers, making it essential throughout the project lifecycle.

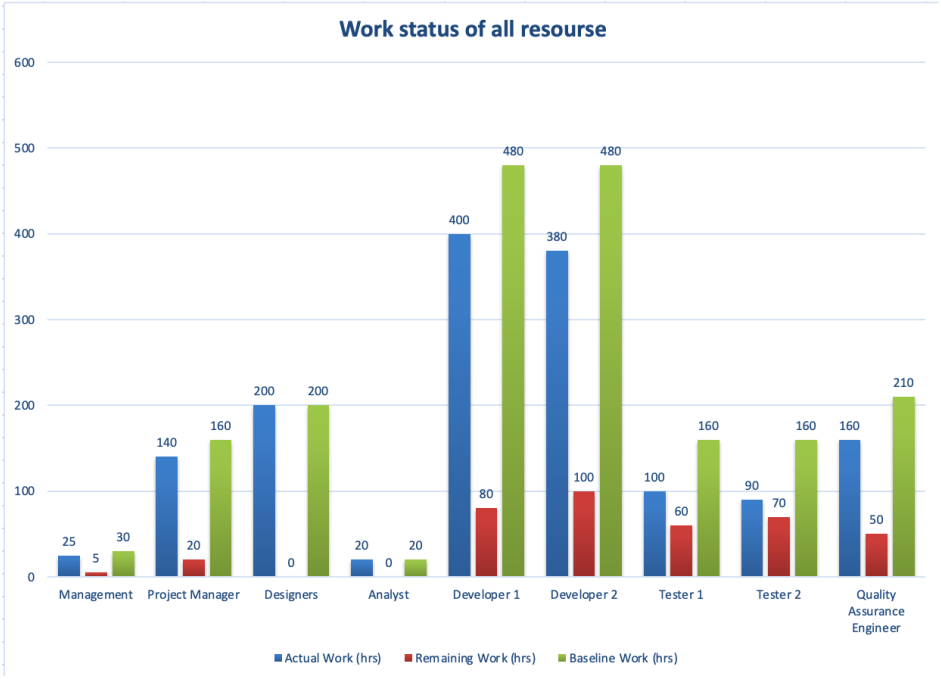


Figure 12. Work status of each resource

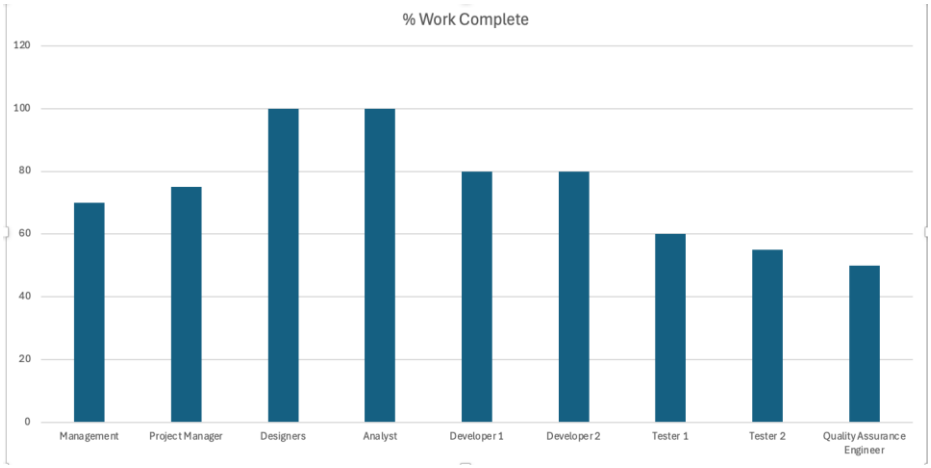


Figure 13. Work Percentage for each resource

5.2. Change Request Procedure

Change Request 1: UI/UX Redesign after Initial User Feedback

Reason for Change:
Early mock-ups received mixed feedback during stakeholder preview. Concerns about accessibility and usability were raised.

Impact Analysis:

- Scope: Redesign of 4 major UI components
- Time: +2 additional days for UI rework
- Cost: +$1,800 (UI designer hours)

Recommended Action:
Approved. Redesign aligned with inclusive UX standards to improve adoption rate among diverse users.

Change Request 2: Integration of Vendor Promotion Feature

Reason for Change:
Partnered restaurants requested ability to run exclusive promotions directly on the app.

Impact Analysis:

- Scope: Add new module for restaurant-side promotion management
- Time: +3 development days
- Cost: +$2,200

Recommended Action:
Approved. Enhances vendor satisfaction and competitiveness, aligned with strategic goals for restaurant onboarding.

6. Project Closing

Project closure is the last phase of finalizing all activities for the project management process. The key benefits of this process are the project or phase information is archived, the planned work is completed, and organizational team resources are released to pursue new endeavours.

6.1. Project Closure Documents

On July 31, 2025, the INSE Online Food Delivery project was finally closed because mobile food delivery application successfully developed and released to the market. The closure process saw that all the project deliverables were delivered, checked and received by the key stakeholders. Last but not least, the setup guides, promotional materials, and the project report were all archived so they could be used whenever they are needed later.

6.1.1. Project Report Goals

The project aimed to build a cost-effective, user-friendly food delivery app supporting small local vendors by enabling them to offer online ordering without needing internal delivery infrastructure. This approach not only extended the market reach for vendors but also provided customers with a seamless, low-contact experience aligned with evolving digital habits.

6.1.2. Project Report Summary

The table below indicates the summary of the variance costs between the start date and finish date.

Table 7: Project Report Summary

Item	Planned	Actual	Variance
Start Date	March 1, 2025	March 1, 2025	0 days
End Date	July 31, 2025	July 31, 2025	0 days
Budget	$105,000	$77,240	Under by $27,760
Completion Duration	110 working days	110 working days	On schedule

The project was completed on time and under budget, with all deliverables accepted by stakeholders.

6.1.3. Project metrics Performance

Targeted User Signups: 6230 users (achieved)

Vendor Partnerships: 230 vendors onboarded (achieved)

Cost Performance Index (CPI): 1.05 (cost-efficient)

Schedule Performance Index (SPI): 1.00 (on time)

App Platforms: Fully operational on Android and iOS

Return on Investment (ROI): Positive within Year 1

These metrics confirm strong performance across scope, budget, and schedule dimensions.

6.2.Lessons Learnt Document

What Was Done Well	What Could Be Improved	Lessons Learned
Effective team communication and agile response	Initial vendor outreach could have started earlier	Early stakeholder engagement accelerates onboarding and improves adoption.
Dedicated QA and testing ensured app stability	UI feedback loop required redesign mid-phase	Iterative testing and user feedback are essential for inclusive, accessible design.
Strong cross-team collaboration and role clarity	Advertising budget constraints impacted reach	Buffering for outreach budgets enhances promotional impact.

The key takeaway is the critical importance of early planning, clear role definitions, and iterative testing to manage scope and user expectations effectively. Use of EVM and weekly monitoring allowed timely corrective actions.

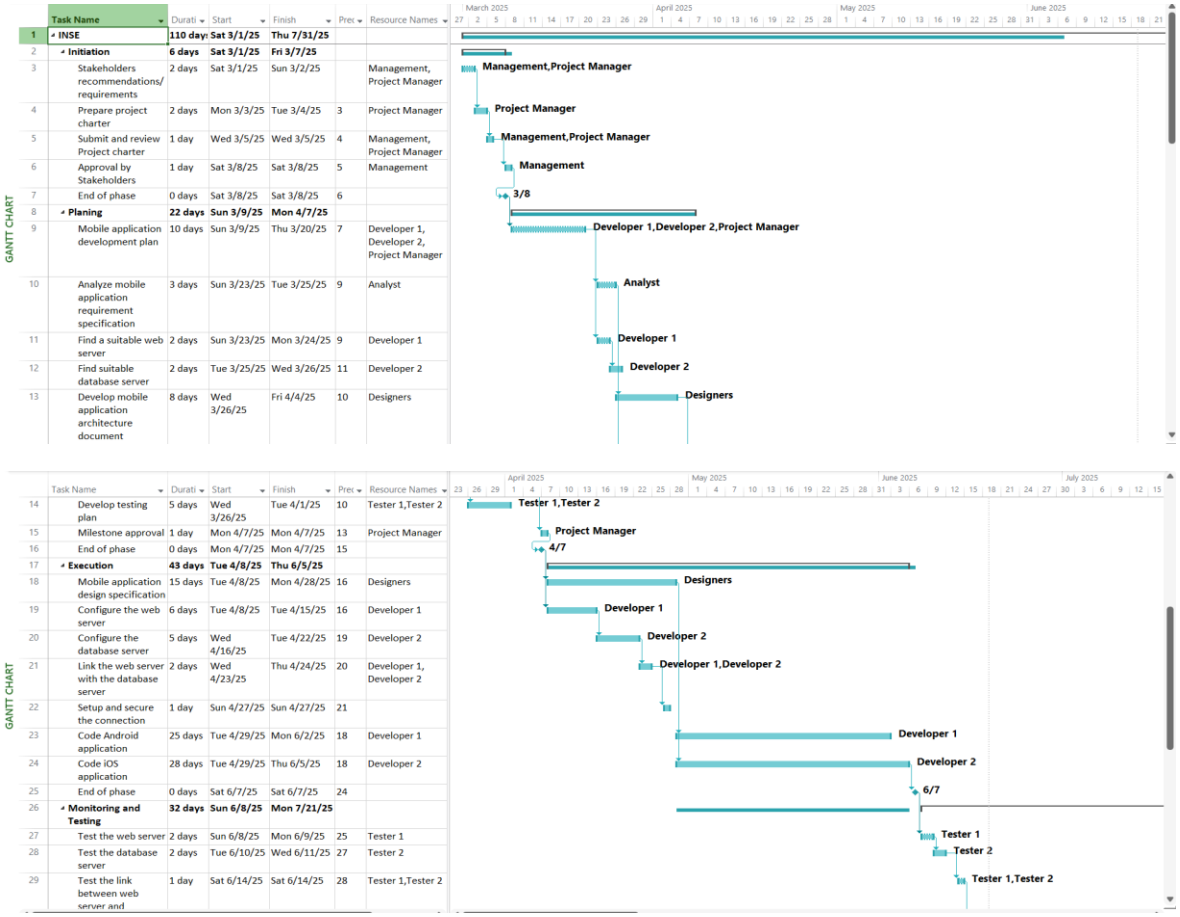
6.3. Recommendations for Future Projects

- Pilot Program: Begin with a smaller launch to test market assumptions and stability.
- Scalable Architecture: Build the system to support future feature additions such as loyalty programs.
- Dedicated Risk Register: Maintain an actively reviewed and updated risk log throughout the project.
- Structured Feedback Loops: Incorporate regular UI/UX testing sessions with diverse user groups.

The INSE project successfully fulfilled its purpose, delivering a scalable, impactful solution that aligns with the university's emphasis on total quality project management. Future teams can build on this foundation by expanding features and vendor engagement.

7. APPENDICES

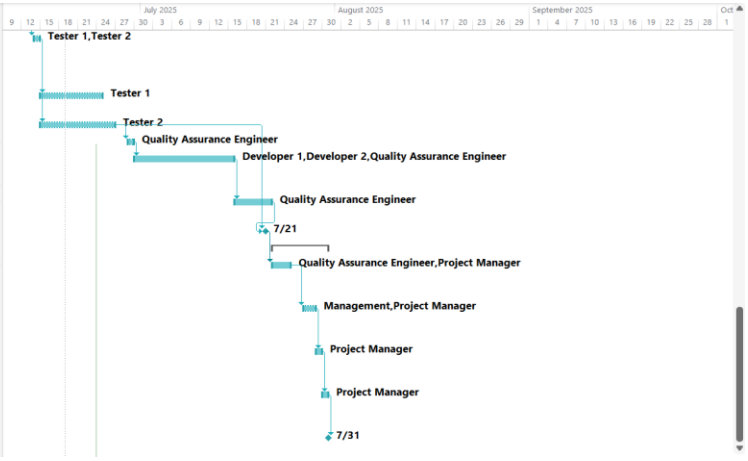
7.1. APPENDIX 1: GANTT CHART



	Task Name	Durati	Start	Finish	Prec	Resource Names
1	**INSE**	**110 days**	**Sat 3/1/25**	**Thu 7/31/25**		
2	**Initiation**	**6 days**	**Sat 3/1/25**	**Fri 3/7/25**		
3	Stakeholders recommendations/ requirements	2 days	Sat 3/1/25	Sun 3/2/25		Management, Project Manager
4	Prepare project charter	2 days	Mon 3/3/25	Tue 3/4/25	3	Project Manager
5	Submit and review Project charter	1 day	Wed 3/5/25	Wed 3/5/25	4	Management, Project Manager
6	Approval by Stakeholders	1 day	Sat 3/8/25	Sat 3/8/25	5	Management
7	End of phase	0 days	Sat 3/8/25	Sat 3/8/25	6	
8	**Planing**	**22 days**	**Sun 3/9/25**	**Mon 4/7/25**		
9	Mobile application development plan	10 days	Sun 3/9/25	Thu 3/20/25	7	Developer 1, Developer 2, Project Manager
10	Analyze mobile application requirement specification	3 days	Sun 3/23/25	Tue 3/25/25	9	Analyst
11	Find a suitable web server	2 days	Sun 3/23/25	Mon 3/24/25	9	Developer 1
12	Find suitable database server	2 days	Tue 3/25/25	Wed 3/26/25	11	Developer 2
13	Develop mobile application architecture document	8 days	Wed 3/26/25	Fri 4/4/25	10	Designers
14	Develop testing plan	5 days	Wed 3/26/25	Tue 4/1/25	10	Tester 1,Tester 2
15	Milestone approval	1 day	Mon 4/7/25	Mon 4/7/25	13	Project Manager
16	End of phase	0 days	Mon 4/7/25	Mon 4/7/25	15	
17	**Execution**	**43 days**	**Tue 4/8/25**	**Thu 6/5/25**		
18	Mobile application design specification	15 days	Tue 4/8/25	Mon 4/28/25	16	Designers
19	Configure the web server	6 days	Tue 4/8/25	Tue 4/15/25	16	Developer 1
20	Configure the database server	5 days	Wed 4/16/25	Tue 4/22/25	19	Developer 2
21	Link the web server with the database server	2 days	Wed 4/23/25	Thu 4/24/25	20	Developer 1, Developer 2
22	Setup and secure the connection	1 day	Sun 4/27/25	Sun 4/27/25	21	
23	Code Android application	25 days	Tue 4/29/25	Mon 6/2/25	18	Developer 1
24	Code iOS application	28 days	Tue 4/29/25	Thu 6/5/25	18	Developer 2
25	End of phase	0 days	Sat 6/7/25	Sat 6/7/25	24	
26	**Monitoring and Testing**	**32 days**	**Sun 6/8/25**	**Mon 7/21/25**		
27	Test the web server	2 days	Sun 6/8/25	Mon 6/9/25	25	Tester 1
28	Test the database server	2 days	Tue 6/10/25	Wed 6/11/25	27	Tester 2
29	Test the link between web server and	1 day	Sat 6/14/25	Sat 6/14/25	28	Tester 1,Tester 2

GANTT CHART

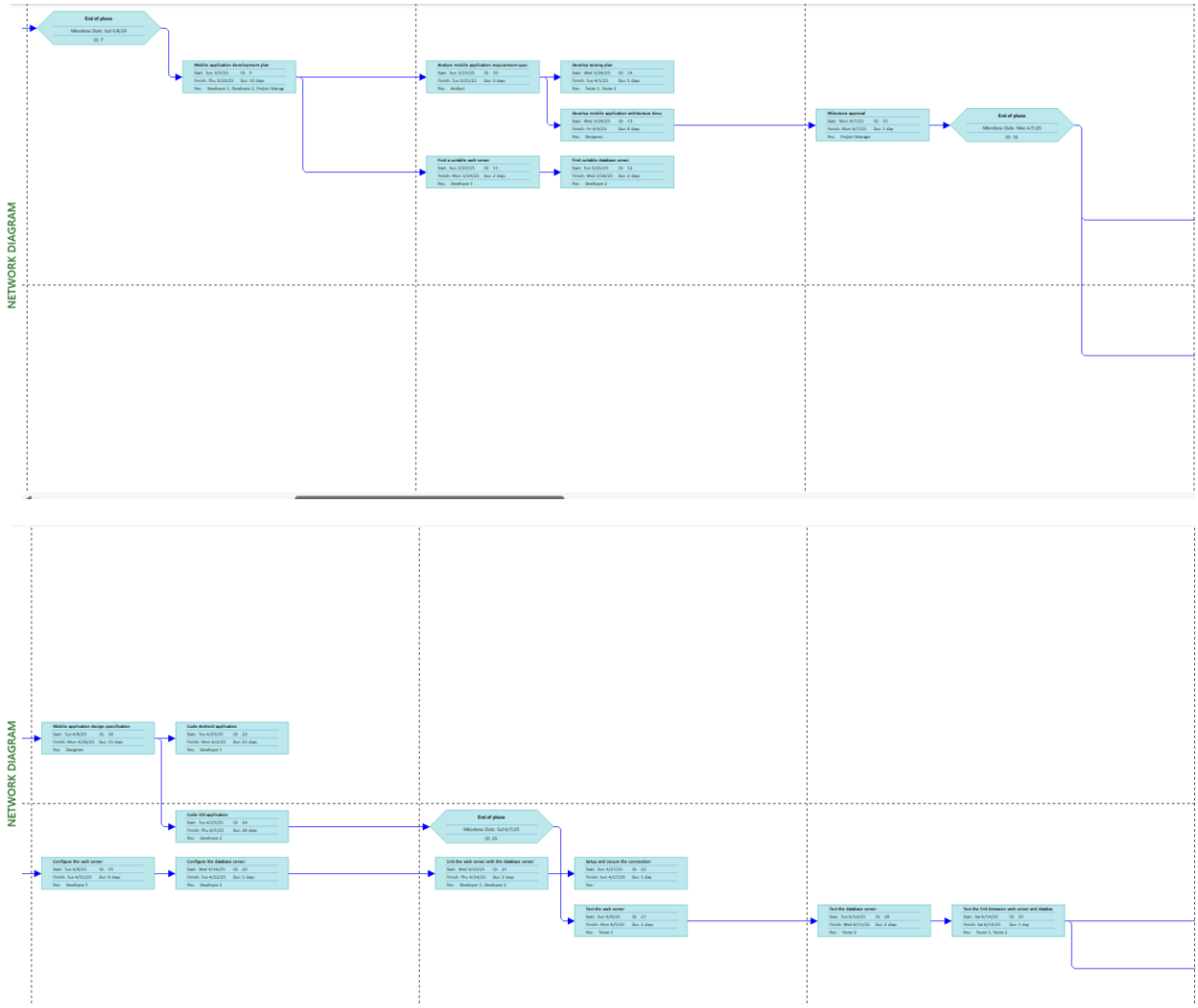
	Task Name	Durati	Start	Finish	Prec	Resource Names
29	Test the link between web server and database server	1 day	Sat 6/14/25	Sat 6/14/25	28	Tester 1,Tester 2
30	Test Android applaction	8 days	Sun 6/15/25	Tue 6/24/25	29	Tester 1
31	Test iOS application	10 days	Sun 6/15/25	Thu 6/26/25	29	Tester 2
32	Identify anomalies	1 day	Sun 6/29/25	Sun 6/29/25	31	Quality Assurance
33	Modify code Android/ iOS application	12 days	Mon 6/30/25	Tue 7/15/25	32	Developer 1, Developer 2, Quality Assurance
34	Retest Android/ iOS application	4 days	Wed 7/16/25	Mon 7/21/25	33	Quality Assurance Engineer
35	End of phase	0 days	Mon 7/21/25	Mon 7/21/25	31,34	
36	**Closing**	**7 days**	**Tue 7/22/25**	**Wed 7/30/25**		
37	Check against requirements specification	3 days	Tue 7/22/25	Thu 7/24/25	35	Quality Assurance Engineer Project Manager
38	Gain stakeholders acceptance/ approval	2 days	Sun 7/27/25	Mon 7/28/25	37	Management, Project Manager
39	Launch Android application on Google play store	1 day	Tue 7/29/25	Tue 7/29/25	38	Project Manager
40	Launch iOS application on Apple store	1 day	Wed 7/30/25	Wed 7/30/25	39	Project Manager
41	End of phase	0 days	Thu 7/31/25	Thu 7/31/25	40	

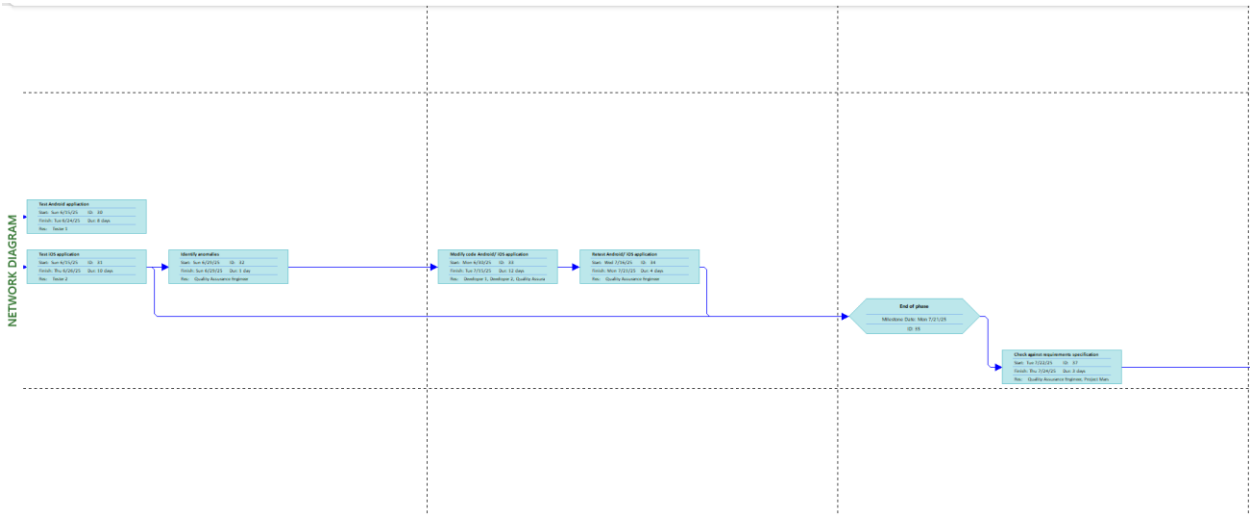


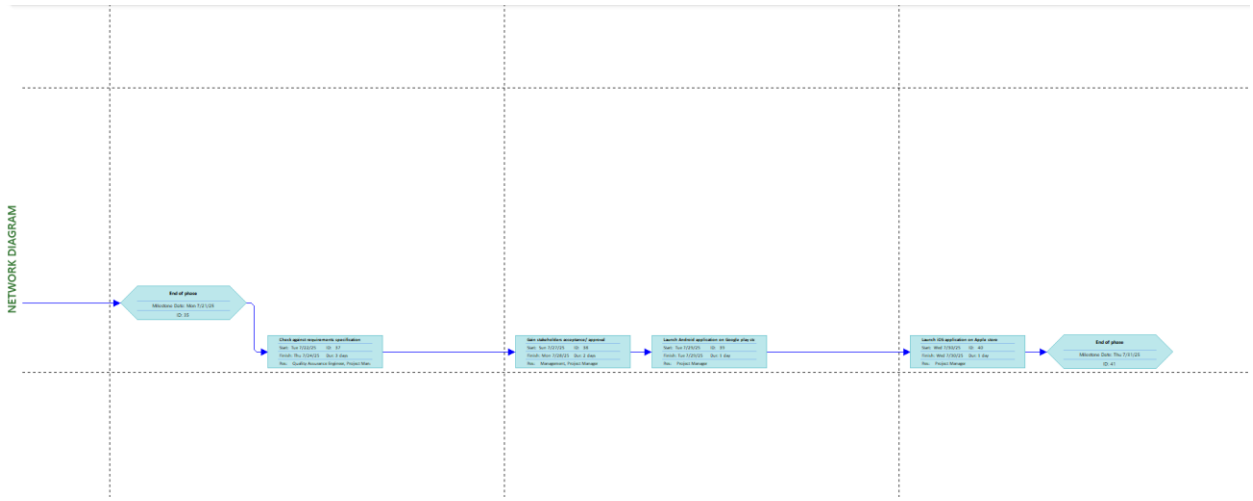
7.2. Appendix #2 Activity Cost Requirement

ID	Task Name	Cost
1	**INSE**	$77,240.00
2	**Initiation**	$2,000.00
3	Stakeholders recommendations/ requirements	$800.00
4	Prepare project charter	$800.00
5	Submit and review Project charter	$400.00
6	Approval by Stakeholders	$0.00
7	End of phase	$0.00
8	**Planing**	$19,640.00
9	Mobile application development plan	$11,200.00
10	Analyze mobile application requirement specification	$840.00
11	Find a suitable web server	$720.00
12	Find a suitable database server	$720.00
13	Develop mobile application architecture document	$2,560.00
14	Develop testing plan	$3,200.00
15	Milestone approval	$400.00
16	End of phase	$0.00
17	**Execution**	$29,280.00
18	Mobile application design specification	$4,800.00
19	Configure the web server	$2,160.00
20	Configure the database server	$1,800.00
21	Link the web server with the database server	$1,440.00
22	Setup and secure the connection	$0.00
23	Code Android application	$9,000.00
24	Code iOS application	$10,080.00
25	End of phase	$0.00
26	**Monitoring and Testing**	$22,440.00
27	Test the web server	$640.00
28	test the database server	$640.00
29	Test the link between seb server and database server	$640.00
30	Test Android application	$2,560.00
31	Test iOS application	$3,200.00
32	Identify anomalies	$360.00
33	Modify code Android/ iOS application	$12,960.00
34	Retest Android/ iOS application	$1,440.00
35	End of phase	$0.00
36	**Closing**	$3,880.00
37	Check against requirements specification	$2,280.00
38	Gain stakeholders acceptance/ approval	$800.00
39	Launch Android application on Google play store	$400.00
40	Launch iOS application on Apple store	$400.00
41	End of phase	$0.00

7.3. Appendix #3 Project Network Diagram




NETWORK DIAGRAM
Test Android application
Test iOS application
Identify anomalies
Modify code Android/ iOS application
Retest Android/ iOS application
End of phase
Check against requirements specification


NETWORK DIAGRAM
End of phase
Check against requirements specification
Launch Android application on Google play ok
Launch iOS application on Apple store
End of phase

CONTRIBUTION TABLE:

Name	Task
Minhazul Islam 40291529	Project selection and definition Project Scope Statement Project Charter Preparing Gantt chart, network diagram Preparing Microsoft Project file (.mpp) Preparing Project Closure Documents Preparing Lessons Learnt Document Preparing Recommendations for Future Projects Preparation of final presentation and report
Thu Trang Tran 40309740	Project selection and definition Creating the weighted decision matrix Return on Investment SWOT analysis Project Scope Statement Developing the business case Project Charter Drafting Work Breakdown Structure (WBS) Preparing Gantt chart, network diagram Preparing Microsoft Project file (.mpp) Preparation of final presentation and report
Humayra Himi 40275654	Project selection and definition Project Scope Statement Project Charter Preparing Gantt chart Preparing Project Cost Management Preparing Project Risk Management Preparing Project Quality Management Preparation of final presentation and report
Aneri Rangani 40312334	Project selection and definition Project Scope Statement Project Charter Activity Cost Requirement Activity Resource Requirement Preparing Project Cost Management Preparing Project Time Management Preparation of final presentation and report
Hamad Ali Khan 40291053	Project selection and definition Project Scope Statement Preparing Roles and Responsibilities Project Charter Preparation of final presentation and report