



FACULTY OF COMPUTING

SECD2523 - SYSTEM ANALYSIS DESIGN

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LECTURER'S NAME

DR ROZILAWATI BINTI DOLLAH @ MD ZAIN

PROJECT PROPOSAL

Title : Online Agro Marketplace - AgroXpress

NAME	MATRIC NO.
UMI IZZATUL NATASHA BINTI MOHD FADZIL	SX240227ECJHS01
BETTY OLIVIA ONG DANKER	SX240277ECRHS01
NUR FARRAH HA BINTI M WALED	SX241905ECJHF01

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1.0 INTRODUCTION

Today, online platforms are one of the most common methods for selling agricultural goods in many countries. E-commerce connects producers directly with consumers, retailers, and wholesalers, helping them reach new markets and improve their income. The purpose of this project proposal is to outline the creation of an online marketplace that will empower local farmers and small-scale businesses by providing them with a platform to reach all regions of Malaysian markets.

The proposed E-commerce marketplace aims to leverage the power of the internet and digital technologies to facilitate trade, increase sales, and promote the unique products created by these talented individuals and enterprises.

In Malaysia, agro-businesses are increasingly exploring E-commerce to boost the sale of local agricultural products. However, the success of this depends on the ability of entrepreneurs to manage operations effectively, maintain product quality, and meet market demands (Musa, 2022). An efficient Agro E-commerce system is a key part of supporting the agricultural sector, offering a cost-effective and accessible platform for farmers, entrepreneurs, and agro-businesses to market their products to a wider audience.

Recognizing this, various initiatives and platforms have been introduced to support local farmers and agro-entrepreneurs in promoting and selling their products online. These efforts aim to make agricultural products more accessible to the public while helping local businesses grow in a competitive market.

2.0 BACKGROUND STUDY

AgroXpress Sdn Bhd, is a start-up company that provides innovative agro-based E-commerce solutions. AgroXpress specializes in connecting farmers, suppliers, and consumers through a digital marketplace, facilitating the trade of agricultural products. AgroXpress is focusing on providing a platform for local farmers and suppliers in every state of Malaysia to accommodate sellers and buyers within their respective locations.

AgroXpress offers a range of benefits to its partners and users, such as wide market access, secure payment systems, real-time customer support, logistics assistance, and marketing tools to boost product visibility. In addition, their growing reputation as a trusted Agro E-commerce platform attracts farmers, agricultural businesses, and consumers to participate actively in their ecosystem.

With such growth and increasing demand, it is crucial to provide a centralized and fully digitalized marketplace. Therefore, this proposal focuses on developing a comprehensive digital platform where farmers can display their products, manage stock levels efficiently, and interact directly with consumers across Malaysia. This system will not only streamline transactions but also empower farmers by giving them greater control over their sales, improving transparency, and expanding their reach beyond traditional local markets.

3.0 PROBLEM STATEMENT

1. Lack of Trust and Transparency

Farmers and buyers may not trust an online platform for buying and selling agricultural goods. Trust is essential for the long-term success of E-commerce transactions. It is even more crucial in E-commerce than in traditional commerce due to the greater level of uncertainty involved (Lee, 2018)

One of the primary concerns for users is the fear of fraudulent transactions. Farmers may worry that once they deliver their goods, buyers will not fulfill their payment commitments, while buyers might fear paying for products that don't meet the promised quality or specifications. In such cases, the lack of reliable transaction processes can severely hinder the platform's growth.

Another issue is the lack of verified sellers and buyers. Without robust verification systems, anyone can list products, leading to potential fraud or subpar offerings that could damage the AgroXpress reputation. This uncertainty often discourages legitimate farmers and buyers from participating, as they can't be sure they're dealing with trustworthy partners.

Besides that, transparency around pricing and payment processes is critical. If a platform doesn't communicate its pricing structure, including transaction fees, delivery costs, or processing fees, buyers may feel that they are being taken advantage of. Pricing inconsistency or hidden charges can lead to frustration, reducing buyer confidence in the platform's fairness.

2. Insufficient Customer Support

Customer support plays a critical role in the success of any online platform, including those in the agro sector. AgroXpress often deals with farmers, buyers, and sellers who may not be highly tech-savvy or familiar with online marketplaces. When issues arise, whether related to technical difficulties, payment concerns, disputes, or product quality, users rely on customer support to resolve them quickly and efficiently.

One of the most common problems arising from poor customer support is delayed responses. If users have to wait for extended periods before receiving assistance, they may feel neglected or abandoned, especially when dealing with urgent matters like payment delays, delivery issues, or disputes with sellers. This frustration often leads to negative reviews, low user retention, and a damaged reputation for the platform.

Inadequate customer support also often means limited contact options, making it difficult for users to get in touch with someone who can help. Without multiple channels like live chat, email support, and phone assistance, users may find it challenging to seek help when they encounter problems. This becomes even more pronounced for farmers and buyers in remote areas who may rely on mobile phones or limited internet access to reach out for support. While product and price are important, offering exceptional customer service leads to repeat business and word-of-mouth recommendations that marketing alone cannot match (Mohamad & Adam, 2022)

3. Insufficient Product Information

For online platforms, detailed and accurate product information is essential for building trust between buyers and sellers. On AgroXpress where farmers sell goods such as crops, seeds and livestock, with insufficient product information can create a lot of barriers to successful transactions. Without clear details about the products being offered, buyers are likely to feel uncertain or hesitant about making purchases, leading to low sales and user dissatisfaction.

For example, if a farmer lists produce without specifying key details like the crop's origin, quality, size, or harvesting methods, potential buyers might question the authenticity or condition of the product. Similarly, if descriptions of agricultural equipment or seeds lack crucial specifications, such as usage instructions, compatibility, or warranty information, buyers may feel they are making a risky investment. Insufficient product details can lead to misunderstandings, disputes, and even returns or refunds, ultimately damaging the AgroXpress reputation.

4.0 PROPOSED SOLUTION

AgroXpress aims to create a secure, user-friendly environment for seamless transactions. With a focus on security and transparency, AgroXpress will offer features such as account verification for both farmers and buyers, ensuring that all parties are authentic and trustworthy. The product listings will contain clear and detailed information, including descriptions, images, and prices, allowing buyers to make informed decisions. Additionally, the platform will integrate secure payment gateways, ensuring that all financial transactions are protected. To enhance user satisfaction, AgroXpress will provide reliable customer support through multiple channels, including 24/7 live chat, a hotline, and an FAQ database. Buyers will also have the ability to filter products by state and category, making it easier to find the desired product and fostering a sense of trust in local offerings. By offering a secure, easy-to-use platform, AgroXpress will bridge the gap between local farmers and consumers, expanding market access and increasing profitability for agricultural producers .

4.1 FEASIBILITY STUDIES

4.1.1 TECHNICAL

From a technical perspective, AgroXpress is highly feasible as there is no need to integrate with any existing systems, which makes the development process more straightforward. The platform will be developed using Flutter, an open-source framework for building natively compiled applications for mobile, web, and desktop from a single codebase. This will allow the system to be compatible with both Android and iOS devices. The backend will be powered by Firebase, a cloud-based platform that offers real-time databases, user authentication, and a secure infrastructure for the app. To ensure the security of user data, the platform will implement SSL/TLS encryption for secure communication between the app and the server. Furthermore, multi-factor authentication will be used to secure user logins. The app will also support secure payment integration, enabling smooth and safe financial transactions.

Accessibility will be a key focus, and the platform will support multiple languages, including Bahasa Malaysia BM, English and Mandarin, to cater to the diverse linguistic demographics in Malaysia. This multilingual approach will enhance user adoption and facilitate ease of use for farmers, breeders and consumers alike.

4.1.2 OPERATIONAL

In terms of operational feasibility, AgroXpress will be easy to implement and integrate into the daily operations of farmers and consumers. The platform will be designed with a simple registration process for farmers and breeders, with guided tutorials to help them understand how to use the system and list their products effectively. This will ensure that agricultural producers of all technological skill levels can participate. Admin operations will be straightforward, with dedicated staff monitoring product listings to ensure quality control, verifying transactions, and handling any disputes or issues that may arise. Customer support will be a central aspect of the platform, with 24/7 live chat, a hotline, and a comprehensive FAQ database available to assist users at any time.

Stakeholder interviews have shown strong support for AgroXpress, as there is a clear demand for a platform that can streamline the process of buying and selling agricultural produce. The system is expected to be widely adopted and become a long-term solution for improving the efficiency of the agricultural supply chain in Malaysia.

4.1.3 ECONOMICAL

CBA - COSTS				
COST	YEAR 0	YEAR 1	YEAR 2	YEAR 3
Development Cost				
Hardware	22,000			
Software	16,500			
Training	11,000			
Consulting	11,000			
Total	60,500			
Production Cost				
Supplies		11,000	11,770	12,594
IS Salaries		27,500	29,425	31,485
Advertisement		11,000	11,770	12,594
Maintainance		5,500	5,885	6,297
Annual Prod. Cost		55,000	58,850	62,970
(Present Value)		50,000	48,636	47,310
Accumulated Cost (PV)		110,500	159,136	206,446

CBA - BENEFITS				
Benefits				
Increased sale		90,000	94,500	99,225
Reduced saving		18,000	18,900	19,845
Annual Benefit Cost		108,000	113,400	119,070
(Present Value)		98,182	93,719	89,459
Accumulated Benefits (PV)		98,182	191,901	281,360

Gain or Loss		- 12,318	32,764	74,914
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PROFITABLE INDEX	1.238
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Table 4.1.3.1 Cost Benefit Analysis of AgroXpress

Since the profitable index = 1.238, it shows that this project is a good investment because its index is more than one.

5.0 OBJECTIVES

The proposed system for AgroXpress aims to address several key objectives, all of which are focused on enhancing the overall user experience and making the platform more efficient and systematic for both farmers and consumers. One of the primary objectives is to provide **comprehensive and clear product descriptions and specifications**. Many farmers and agro-suppliers struggle with explaining their products effectively, which can leave consumers confused and hesitant to make purchases. By offering thorough product information, including specifications, uses, and quality details, AgroXpress ensures that customers have all the necessary information to make informed purchasing decisions. This approach will build confidence among consumers, reduce returns or dissatisfaction, and promote a more educated buying experience.

In addition to providing product details, the system aims to **enhance customer service**. Effective customer service is crucial for any E-commerce platform, and AgroXpress seeks to ensure that users can easily reach support if needed. Whether customers are looking for product recommendations, assistance with their orders, or have general inquiries, a responsive and helpful customer service feature will improve satisfaction. By offering multiple communication channels, such as live chat, email support, and a comprehensive FAQ section, the platform will be equipped to handle diverse customer needs quickly and efficiently.

Finally, an essential objective is to **build trust with both suppliers and customers**, which is important for building long-term relationships. This can be achieved through transparent product information, allowing customers to view all relevant details about a product before purchasing. Additionally, customer reviews and ratings will be incorporated into the platform, enabling buyers to make informed decisions based on the experiences of others. Positive reviews and ratings will not only increase trust but also encourage repeat business and brand loyalty. As trust grows, so will customer retention, ensuring AgroXpress's continued success in a competitive market. By meeting these objectives, the proposed system will not only improve the user experience for both farmers and consumers but will also help AgroXpress grow as a leading digital marketplace in Malaysia's agricultural sector.

6.0 SCOPE OF THE PROJECT

The scope of this project focuses on the development and implementation of key features aimed to built AgroXpress digital marketplace. The project will involve designing and integrating a system that provides comprehensive and clear product descriptions and specifications for all agricultural products listed on the platform. Each product will include detailed information such as quality indicators, usage guidelines, and specifications to ensure that customers are fully informed before making a purchase. This will support more confident buying decisions and improve overall user satisfaction.

In addition to enhancing product information, the project will include the creation of a robust customer service system. The goal is to ensure that users receive timely assistance for inquiries, complaints, or technical issues, ultimately improving the level of customer support provided on the platform.

A critical part of the project will also be the development of a customer feedback and review system. Customers will be able to submit product reviews and ratings based on their experiences, making the platform more transparent and credible. This feedback mechanism will help build trust between customers and suppliers, as future buyers will have access to real user experiences to guide their purchasing decisions.

Overall, this project will deliver a more user-friendly, transparent, and service-oriented marketplace that meets the needs of both farmers and consumers. By focusing on improving product information, customer support, and customer trust, AgroXpress will strengthen its position as a leading agro E-commerce platform across Malaysia, fostering greater customer loyalty and driving long-term growth.

7.0 PROJECT PLANNING

Project planning establishes the structured framework necessary for systematic execution. This phase involves the structured assignment of human resources, the hierarchical organization of tasks through the Work Breakdown Structure (WBS), and the application of PERT and Gantt charts for timeline estimation and task tracking. Together, these components provide a comprehensive framework for resource management, task sequencing, critical path analysis, and project monitoring.

7.1 HUMAN RESOURCE

This section defines the human resources required for AgroXpress system development, specifying the roles, technical skills, and task assignments needed across each development phase. Responsibilities are allocated to ensure effective execution of requirements analysis, system design, coding, integration, testing, and deployment activities

Phase	Role	Responsibilities
Planning	Project Manager	Scope definition, resource planning, timeline setup.
	System Analyst	Gather requirements for the system.
Analysis	System Analyst	Analyze business requirements and convert into system specifications.
Design	UI/UX Designer	Create user interface (UI) and experience designs (UX).
	Database Developer	Database and architecture design.
Implementation	Backend Developer	API creation and function integration
	Frontend Developer	Mobile app development
	Database Developer	Database creation
Testing	QA Tester	Conduct System Integration Testing (SIT),

Phase	Role	Responsibilities
		User Acceptance Testing (UAT) and Final Acceptance Testing (FAT)
Deployment	DevOps Engineer	CI/CD setup and deployment.
Support	IT Support	Bug fixing, system monitoring, updates

Table 7.1.1 Human Resource of AgroXpress

7.2 WORK BREAKDOWN STRUCTURE (WBS)

The AgroXpress system development uses a top-down Work Breakdown Structure (WBS) approach to divide the overall goal into clear, manageable tasks. This approach ensures organized planning, resource alignment, and smooth project execution.

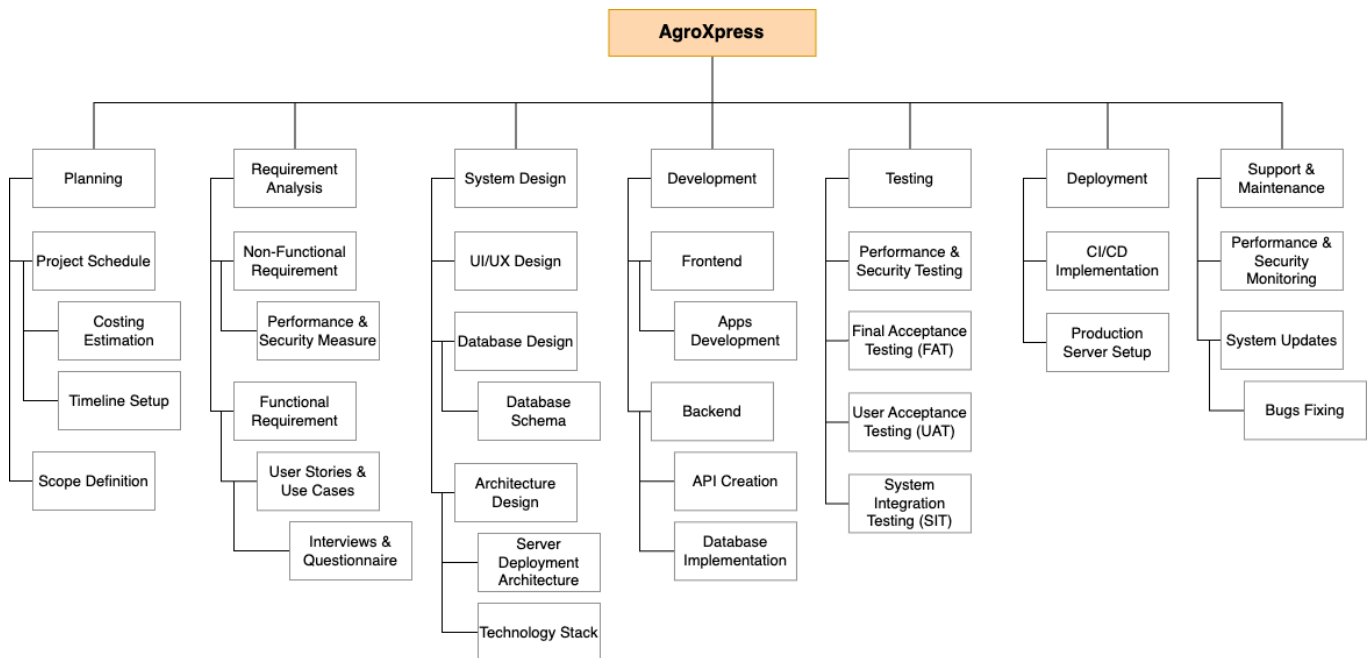


Diagram 7.2.1 WBS Chart of AgroXpress

7.3 PERT CHART

The PERT chart is derived from the Work Breakdown Structure (WBS) of AgroXpress. It illustrates the sequence, dependencies, and estimated durations of project activities. It supports effective planning, highlights the critical path, and aids in resource and timeline management.

Activity		Predecessor	Duration (Days)
A	Scope Definition	None	5
B	Timeline Setup	A	2
C	Costing Estimation	B	2
D	Interview & Questionnaire	C	5
E	User Stories & Use Cases	D	5
F	Performance & Security Measure	E	2
G	Technology Stack	E	3
H	Server Deployment Architecture	G	4
I	Database Schema	H	5
J	UI/UX Design	G	10
K	Database Implementation	I	5
L	API Creation	K	25
M	Apps Development	J	30
N	System Integration Testing (SIT)	L,M	14
O	User Acceptance Testing (UAT)	N	10
P	Final Acceptance Testing (FAT)	O	5
Q	Performance & Security Testing	P	5
R	Production Server Setup	P	5
S	CI/CD Implementation	R	2
T	Bugs Fixing	O	14
U	Performance & Security Monitoring	R	5

Table 7.3.1 PERT table of AgroXpress

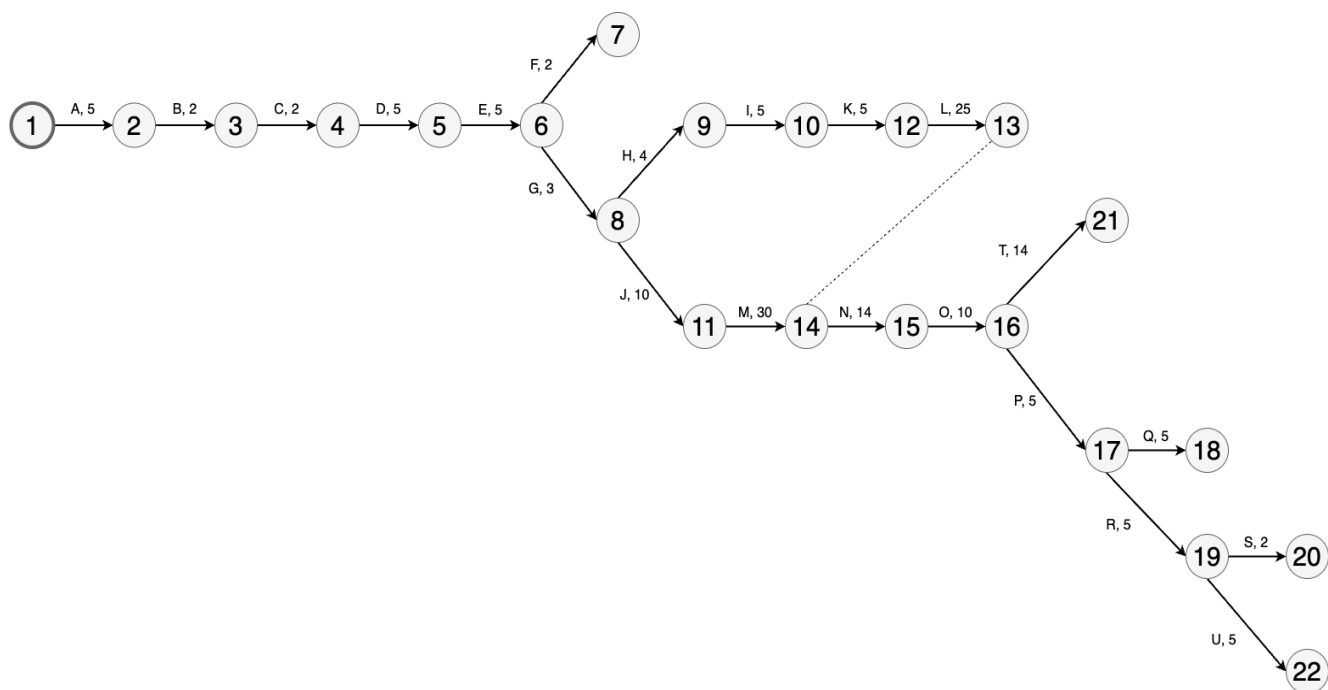


Diagram 7.3.1 PERT Chart (based on WBS) of AgroXpress

Potential Critical Path

No.	Path	Length (Days)	Total Length (Days)
1	A-B-C-D-E-G-H-I-K-L-N-O-P-R-U	5+2+2+5+5+3+4+5+5+25+14+10+5+5+5	100
2	A-B-C-D-E-G-J-M-O-P-R-U	5+2+2+5+5+3+10+30+14+10+5+5+5	101

Table 7.3.2 Potential Critical Path of AgroXpress

Table 7.3.2 shows that Critical Path Method (CPM) for AgroXpress is 101 days.

7.4 GANTT CHART

This Gantt chart outlines the AgroXpress project timeline, detailing tasks and responsibilities from **April 21, 2025** to **September 8, 2025**. It provides a clear view of each phase to ensure efficient coordination and timely execution across all teams.

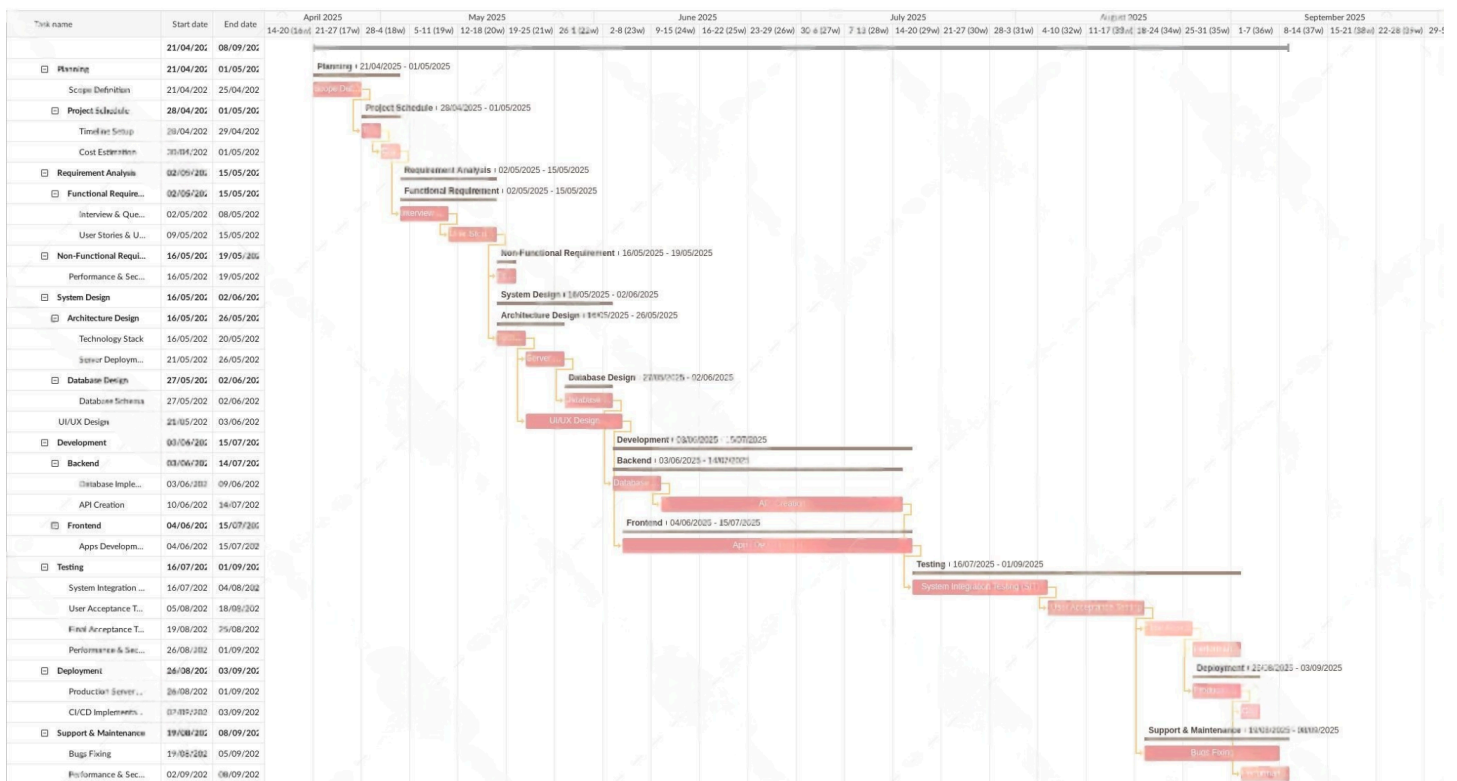


Diagram 7.4.1 Gantt Chart of AgroXpress

8.0 BENEFIT AND OVERALL SUMMARY OF PROPOSED SYSTEM

AgroXpress is an innovative E-commerce platform aimed at transforming Malaysia's agricultural industry by offering a direct sales channel for farmers and breeders. This platform will empower local farmers by connecting them directly with consumers, eliminating middlemen, and ensuring fair pricing for both parties. The user-friendly interface will help farmers manage inventory and orders efficiently, reducing operational burdens.

One of the platform's core strengths is promoting transparency and trust. By providing real-time pricing information, product reviews, and ratings, AgroXpress ensures both buyers and sellers have access to the information needed for informed decisions, fostering confidence in the marketplace.

AgroXpress will also increase market access for rural farmers, enabling them to reach urban consumers nationwide. This will help bridge the gap between rural and urban markets, improving economic opportunities for farmers in remote areas. Additionally, the platform addresses the challenge of post-harvest losses by offering better inventory management and more efficient order fulfillment, reducing waste and extending the shelf life of produce.

The system is designed to enhance customer support, providing quick resolution of issues related to orders and product concerns. AgroXpress also focuses on building digital literacy among rural communities by offering training and support to farmers, helping them adapt to the digital marketplace.

By promoting sustainable farming practices, AgroXpress encourages consumers to make informed choices based on environmental considerations, helping to create a more eco-friendly agricultural supply chain. The platform's data analytics will also help farmers optimize production and sales strategies, improving operational efficiency and reducing inefficiencies.

Overall, AgroXpress offers a comprehensive solution that empowers farmers, boosts market access, reduces waste, and supports sustainable practices. With a strong emphasis on transparency, digital inclusion, and operational support, the platform is poised to drive the future of Malaysia's agro-commerce sector.

9.0 REFERENCES

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