FACULTY OF COMPUTING

SECD2613 - SYSTEM ANALYSIS AND DESIGN

SEMESTER 2 2024/2025

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PHASE 2: INFORMATION SYSTEM GATHERING AND REQUIREMENT

TITLE: ONLINE AGRO MARKETPLACE - AGROXPRESS

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1.0 Overview of the Project

This project aims to develop a comprehensive digital platform for AgroXpress that enables seamless interaction among farmers, suppliers, logistic providers, and consumers across Malaysia. The objective is to upgrade the traditional agricultural marketplace by addressing critical inefficiencies and modernizing agricultural commerce. Currently, many small-scale farmers and farming stakeholders rely heavily on conventional methods of transaction, which are often confined to local physical markets.

Farmers, in particular, face numerous challenges due to these limitations. Without access to timely market data and a broader customer base, it becomes difficult for them to price their goods competitively, manage supply chain logistics, and make strategic decisions based on current market trends. Additionally, the lack of incorporation between producers, suppliers, and consumers often results in delays, increased operational costs, and food wastage due to inefficient distribution practices.

To address these issues, the proposed project will create a centralized, web-based platform that facilitates agricultural e-commerce by directly connecting producers with potential buyers, suppliers, and delivery services. The system will include core features such as product listings, order management systems, secure payment options, and delivery tracking capabilities. The platform will be designed with a focus on user-friendliness and accessibility to ensure that even those in rural or remote areas can easily participate and benefit from the system.

One of the primary goals of the project is to empower rural farmers by increasing their visibility in the marketplace and enabling them to obtain fairer prices for their products. By reducing reliance on intermediaries, the platform will help ensure that a larger share of profits returns directly to the producers. Consumers and resellers, on the other hand, will gain easier access to fresh produce and agro-products directly from the source, promoting transparency, freshness, and cost-efficiency.

Furthermore, this digital ecosystem has the potential to foster greater collaboration and trust among stakeholders in the agricultural value chain. By leveraging data analytics and feedback systems, users will be able to monitor market trends, forecast demand, and continuously improve their operations. Ultimately, the AgroXpress platform aims to modernize Malaysia's agricultural sector by enhancing competitiveness, increasing efficiency, and contributing to a more sustainable and inclusive agro-economy.

2.0 Problem Statement

1. Lack of Trust and Transparency

One of the key problems identified is the lack of trust and transparency in online agricultural transactions. Through preliminary analysis, it became evident that users such as farmers and buyers are hesitant to engage with an unfamiliar digital system due to concerns over fraudulent transactions and unreliable partners. This concern requires the gathering of detailed user requirements related to secure authentication, user verification processes, transaction guarantees, and reliable review or rating systems.

To build trust, the requirement analysis should include methods like using secure holding payments, involving third-party verification, and keeping a clear record of all transactions. Users have also expressed a need for clarity in pricing and transaction costs. Therefore, requirements for activities such as interviews, surveys, and focus groups will focus on identifying user expectations for transparent pricing structures, detailed cost breakdowns, and real-time transaction tracking features.

2. Insufficient Customer Support

Another major concern is the inadequate customer support system currently associated with AgroXpress. The requirement gathering will involve identifying the preferred communication channels such as live chat, phone, email, or chatbot support, where the expected response time, and the scope of support services needed for dispute resolution, technical troubleshooting, and payment queries. Gathering system requirements from different user segments, especially farmers and buyers in remote areas, will inform the development of an inclusive and responsive support module within the platform.

3. Insufficient Product Information

Lack of comprehensive and standardized product information has also been recognized as a barrier to successful transactions. Buyers need detailed data to make informed purchasing decisions, particularly for agricultural products like seeds, livestock, or machinery, where quality and specifications vary significantly.

Therefore, the information system gathering phase will prioritize understanding what product details users expect, how this information should be structured, and what media (images,

certifications, descriptions) should accompany listings. Requirements will include fields for product origin, quality grading, harvesting methods, usage guidelines, and warranty details, depending on the item type. The goal is to define a standardized product information framework that promotes clarity, consistency, and confidence in transactions.

3.0 Proposed Solution

The primary goal in this project phase is to define in detail how the platform can deliver a secure, user-friendly, and transparent experience for all involved users like farmers, buyers, suppliers, and logistics providers. Building on the initial findings from Phase 1, this stage emphasizes engaging directly with stakeholders to ensure the platform addresses their real needs. Information will be collected through structured interviews, surveys, observations, and feedback sessions, all of which will inform the platform's design and functionality.

One of the main priorities is establishing a strong foundation of trust and security. To do this, the platform must implement a reliable user authentication and verification system for both buyers and farmers. This feature aims to prevent fraudulent activity and build confidence among users. During this phase, detailed requirements will be gathered regarding the types of identification users are willing to provide, acceptable verification documents, and preferences for manual or automated account approval. By incorporating input directly from the users, AgroXpress can ensure that verification processes are both effective and user-friendly.

Product listing is another critical area of focus. Buyers need access to complete and accurate information to make informed purchasing decisions. To address this, we involve gathering requirements for standardized product information fields, such as product names, descriptions, origin, price, quantity, and images. Understanding how users search for and compare products will help define the structure and categorization of product listings. These insights will guide the development of an intuitive interface that allows users to easily browse, search, and filter products based on location, category, and quality.

Secure and seamless payment functionality is essential to building trust in the platform. Requirement analysis will explore user preferences for payment methods, such as bank transfers, e-wallets, or credit cards, while also identifying expectations for transaction safety. This will also define protocols for handling refunds, disputes, and delivery tracking. Integration with reputable payment gateways and the inclusion of transaction safeguards, such as secure services, will be evaluated based on user needs and financial regulations.

In addition to core functionalities, strong customer support is a key component of user satisfaction. AgroXpress users, particularly those in rural areas, may not be familiar with digital platforms, so timely assistance is crucial. Requirement gathering will determine preferred support channels such as including live chat, phone, email, and chatbots which as well as

expectations for response times and issue resolution. An FAQ database and multilingual support options will also be explored to make the platform more inclusive and accessible.

Finally, the platform must be easy to navigate and usable across various devices. Usability testing and user journey mapping will help define requirements for layout, design preferences, language options, and mobile responsiveness. Special attention will be given to ensuring the interface is intuitive for users with different levels of digital literacy, helping to create a positive experience from the first interaction onward.

4.0 Information Gathering Process

The information gathering process plays a vital role in understanding the current AS-IS system used by stakeholders and uncovering the needs and expectations for the proposed AgroXpress platform. This phase aims to collect both qualitative and quantitative data through interactive and unobtrusive methods involving farmers, breeders, admins, and end consumers. It provides the foundation for performing a requirement analysis in the subsequent phase.

To ensure a complete picture, the AgroXpress team employed three key methods: interviews, questionnaires, and observation using strobe. These methods offered diverse perspectives and contributed to triangulating the data for system design decisions.

4.1 Method Used

4.1.1 Method 1 : Interview (Interactive Method)

The interview method was used to gather qualitative and in-depth data from individual stakeholders, particularly farmers. A structured interview format using the pyramid structure was adopted. This approach began with simple, closed-ended questions to make respondents comfortable and then transitioned into open-ended questions that invited further explanation of opinions and experiences. This technique was particularly effective with users who were less familiar with technology or hesitant to express concerns openly. The interview allowed the team to understand the limitations of current manual systems, attitudes toward digital transformation, and the specific expectations they had for an online platform like AgroXpress.

4.1.2 Method 2 : Questionnaire (Interactive Method)

A structured questionnaire was designed and distributed digitally via Google Forms, WhatsApp groups. This method targeted a broader population of farmers, breeders, and consumers. The questionnaire featured multiple-choice, Likert-scale, and open-ended questions. Key areas of focus included their current practices for buying and selling agro-products, system expectations, and gathering feedback and suggestions for the proposed system. This method provided quantitative data that was important in identifying usage patterns, common pain points, and high-priority system functionalities for AgroXpress.

4.1.3 Method 3 : Observation (Unobtrusive Method)

Field observations were conducted at local farmers' markets and Pertubuhan Peladang Negeri Johor [PPNJ] office. A **s**tructured observation form based on the STROBE method was used to record real-world interactions and workflows systematically. The observation includes how sellers interact with buyers, how orders are recorded, how payments were handled, order delivery or pick up coordination and issues that rise during peak hours. This method provided valuable real-life insight and helped validate the responses collected from interviews and questionnaires.

4.2 Summary from Method Used

4.2.1 Interview Transcript with Mr. Chong Chee Wei

Type of Questions	Interview Questions	
Introduction	Interviewer:	Good afternoon, Mr. Chong. Thank you so much for taking the time to meet with us today. My name is Betty Olivia, and I'm a first-year student from Universiti Teknologi Malaysia. Together with my teammates, we are working on a course project for System Analysis and Design. As part of the project, we are studying real-life challenges faced by farmers and local producers like yourself. We aim to propose a digital platform that can help improve how agricultural products are marketed, sold, and delivered. We truly appreciate your willingness to be a part of this.
	Interviewee:	Good afternoon. Thank you as well for coming here. I'm happy to share what I know. If my experience can help your study, I'll do my best to answer your questions.
Closed-ended Questions	Interviewer:	Let's start with something simple. **Could you tell me who your usual customers are? And what are they usually buying from you?**
	Interviewee:	Most of my customers are locals—families and small business owners from nearby towns like Batu Pahat, Yong Peng, and even Kluang. They usually buy fresh produce like chilies, bananas, and leafy greens. Some are buying for personal use, but I do have a few who buy in bulk to resell at pasar pagi or restaurants.
	Interviewer:	Thank you. And **how do you currently handle orders and record your sales?**

	Interviewee:	Well, it's very basic, to be honest. Most orders come through WhatsApp. Sometimes they call me directly. I write down the order details in a notebook. Payments are usually cash on delivery, or sometimes they transfer through bank apps like Maybank2u. For receipts, I only give them if they ask, and I write them manually. There's no formal system right now.
	Interviewer:	**Do you feel your sales are increasing over the past year?**
	Interviewee:	It goes up and down. There was a slight increase during the festive season like Hari Raya. But overall, it's hard to grow steadily. I think more people are turning to supermarkets or online shopping, so it's harder for small farmers like me to compete without a proper platform or exposure.
Open-ended Questions	Interviewer:	That's understandable. So, from your experience, **what are some of the challenges you face with your current sales or record-keeping methods?**
	Interviewee:	There are a few major ones. First, everything is manual—so if I misplace my notebook, I lose the whole month's orders. It has happened before. Also, it's hard to track which customer ordered what, especially if they cancel last-minute or change their minds. Sometimes I prepare the stock, and they don't show up. For delivery, I must plan the route myself, and it wastes time and fuel if it's not optimized. There's also no clear way for customers to browse what I have unless I send them photos one by one on WhatsApp.
Open-ended Questions	Interviewer:	That does sound difficult to manage. If we were to propose a new digital system for you. Something like AgroXpress, **what features would you want to see in that system?**

	Interviewee:	Hmm… first, I'd love to have an app or website where I can list my products with prices and availability. Something simple, not complicated. Customers can see what's ready to harvest, place an order, and choose delivery or pickup. It would be helpful if the system could send me order notifications and help me track which orders are pending or completed. I also want to accept payments through e-wallets like Touch 'n Go or Boost, because not everyone uses online banking. And if it could help plan delivery routes based on orders, that would be perfect. I don't expect something high-tech, just something reliable that helps save time and reduce confusion.
	Interviewer:	That's very helpful, Mr. Chong. You've given us a clear picture of your day-to-day challenges and also a solid idea of what kind of system would help. **Before we end, is there anything else you'd like to share or suggest?**
	Interviewee:	Well, I just hope whatever system is built, it can really help people like me who are not very tech-savvy. It should be in either English or Bahasa Malaysia or at least easy to understand. Most farmers here are hardworking, but not many are used to using apps. If the system is simple and supportive, I think many would benefit.
	Interviewer:	Thank you so much, Mr. Chong. Your input has been very valuable to our project. We hope that, with AgroXpress, we can design a system that truly helps small-scale farmers and improves how agricultural products are sold and delivered in Malaysia.
	Interviewee:	You're most welcome. I look forward to seeing what you all come up with. Good luck with your studies and project!

4.2.2 Survey List of Questionnaire

Link to Google Form (https://forms.gle/pLPgTMCtaQA2fpGZ9)

AgroXpress System Survey

Welcome to the AgroXpress User Experience Survey

This survey is part of an academic study conducted by students from Universiti Teknologi Malaysia (UTM) for a course project in **System Analysis and Design**. The purpose of this survey is to collect data on how users currently interact with agricultural products , either as buyers or sellers and to gather insights that will help us propose a more efficient digital platform called **AgroXpress**.

AgroXpress aims to serve as an online marketplace connecting farmers, breeders, and local consumers in Malaysia. Your responses will help us better understand the real-world challenges and expectations from such a system.

This survey consists of 4 sections:

- **Section A:** Demographic Information
- **Section B:** Current Practices
- **Section C:** System Expectations
- **Section D:** Suggestions and Feedback

The survey will take approximately **5 minutes** to complete. Please answer all questions honestly. Your responses are strictly confidential and will only be used for academic research and system development purposes.

Thank you for your time and valuable input. Your participation is greatly appreciated.

Section A: Demographic Information

Age *

- ◯ Below 20
- ◯ 21-30
- ◯ 31-40
- ◯ Above 40

Type of Work *

- ◯ Full time Employment
- ◯ Self Employed
- ◯ Student
- ◯ Unemployed

Section B : Current Practices

How do you currently purchase local agricultural products? *

- ◯ Pasar Tani (Local market)
- ◯ Whatssap / Telegram
- ◯ Supermarket
- ◯ I don't buy local products

Do you have any issues with your current buying/selling ? *

- ☐ Late Response
- ☐ No proper payment method
- ☐ No order confirmation
- ☐ Unavailable products

Would you prefer an online platform (app/website) to buy/sell products ? *

- ◯ Yes
- ◯ No

Section C : System Expectations

How important are these features in an online agricultural marketplace? *
(Rate from 1 – Not Important to 5 – Very Important)

	1	2	3	4	5
Easy product search	◯	◯	◯	◯	◯
Multiple payment options	◯	◯	◯	◯	◯
Delivery scheduling	◯	◯	◯	◯	◯
Rating & Reviews	◯	◯	◯	◯	◯
Local seller highlight	◯	◯	◯	◯	◯

Section D: Feedback & Suggestions

What features would you love to see in the proposed system? *

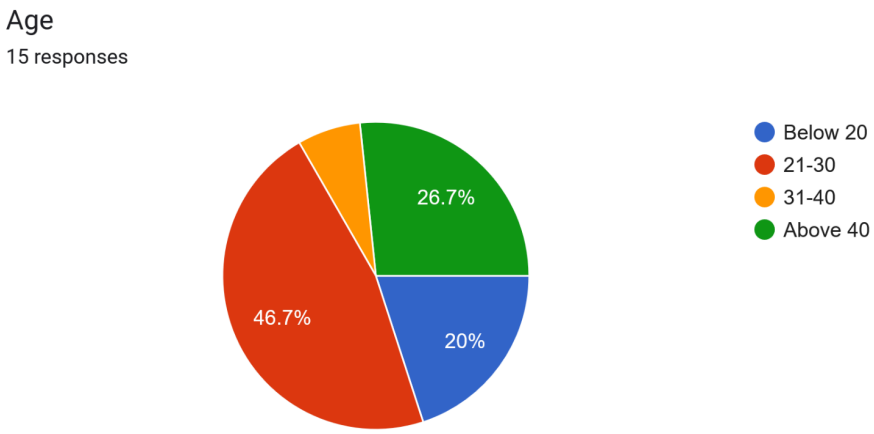
Your answer

In your opinion, what improvements can be made to enhance your online book-shopping experience? *

Your answer

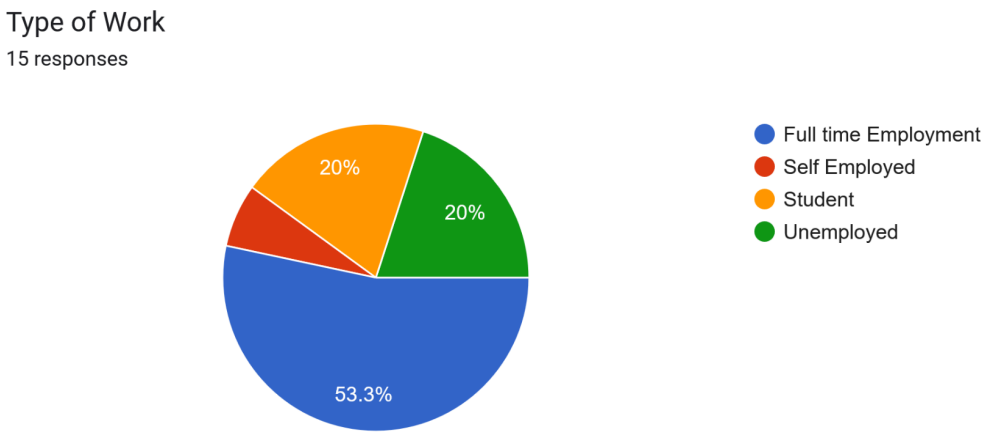
Analysis Of the Questionnaire

Age Distribution



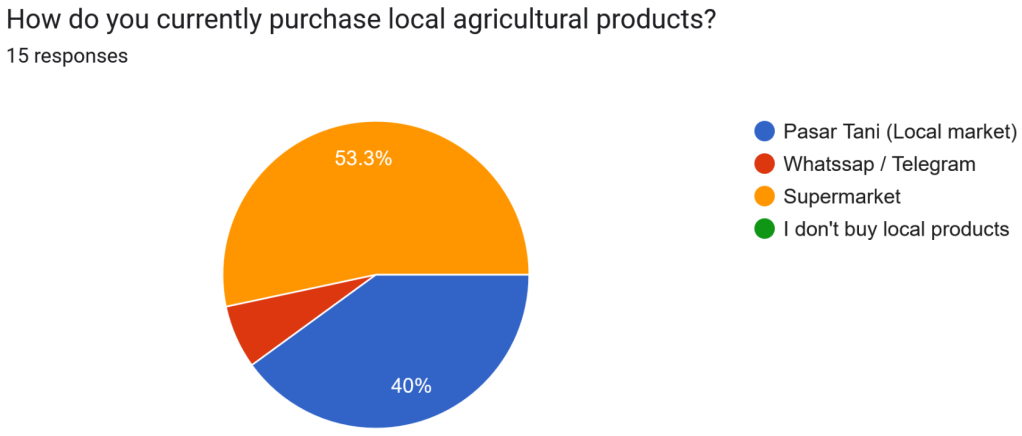
The respondents' ages varied, with the majority falling between 21 to 30 years old, accounting for 46.7% of participants. This indicates a predominantly young adult group engaged in agricultural activities or purchasing. Respondents below 20 years represented 20%, reflecting youth engagement, possibly students or young workers. Those aged 31 to 40 were the smallest group at 6.7%, while individuals above 40 years made up 26.7%, representing more experienced participants who may have traditional agricultural roles. This age diversity highlights the need for AgroXpress to cater to both younger tech-savvy users and older, less digitally experienced users through an accessible platform design.

Type of Work



A majority of the respondents (53.3%) were employed full-time, indicating a stable working population likely to engage in consistent purchasing behavior. Self-employed respondents accounted for 6.7%, students comprised 20%, and the remaining 20% were unemployed. This mix implies a varied economic background among the users, suggesting AgroXpress must offer flexible features catering both to commercial farmers and casual buyers or learners.

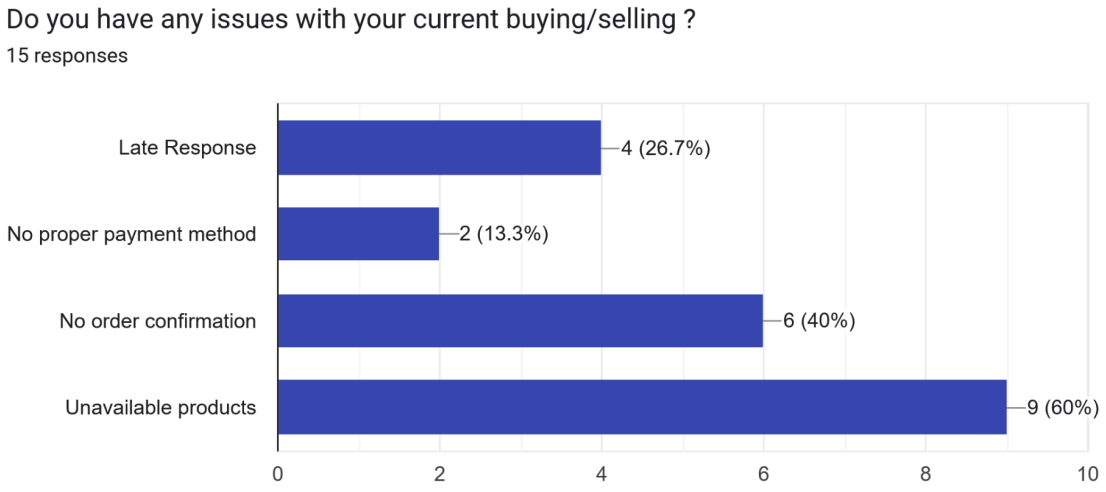
Current Purchasing Channels for Local Agricultural Products



When asked about where they currently purchase local agricultural products, 53.3% of respondents indicated supermarkets as their primary source, reflecting the convenience and availability of these venues. Pasar Tani or farmers' markets were the choice for

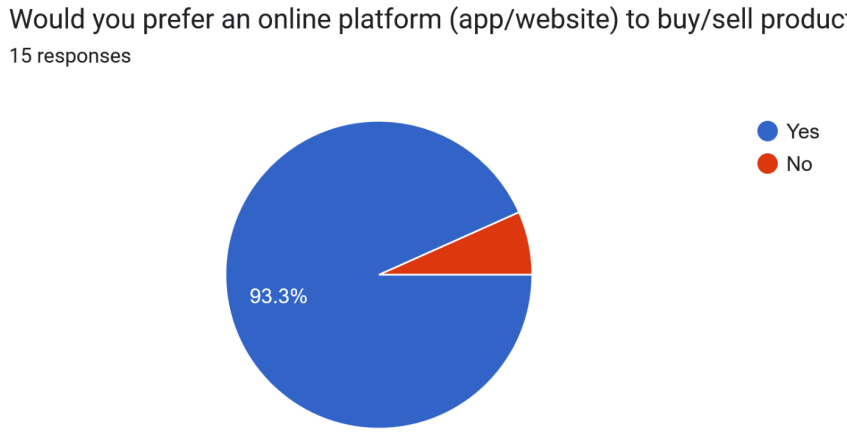
40%, showing that traditional marketplaces still play a significant role. A small proportion, 6.7%, used WhatsApp groups for transactions, suggesting initial steps towards digital communication but highlighting a gap for a more formalized and scalable online platform.

Current Issues in Buying/Selling



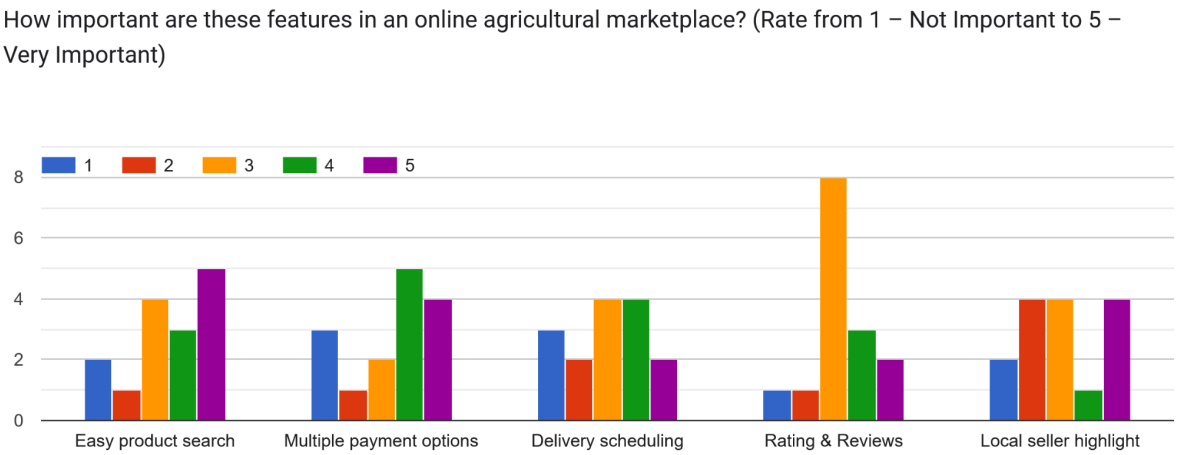
Several key problems were identified by respondents in their current buying and selling experiences. Late responses from sellers or buyers affected 26.7%, causing frustration and missed opportunities. Improper or inconsistent payment methods were reported by 13.3%, pointing to the risks of manual cash transactions. A significant 40% experienced lack of order confirmation, leading to confusion and mistrust. The most common issue was the unavailability of desired products, reported by 60% of respondents, indicating supply chain inefficiencies and poor inventory management. These findings emphasize the need for AgroXpress to provide reliable, transparent, and efficient transaction processes with clear communication channels and real-time inventory updates.

Preference for Online Platform



An overwhelming 93.3% of respondents expressed willingness to use an online platform like AgroXpress for their agricultural buying and selling needs. Only 6.7% were not interested, likely due to lack of digital literacy or trust in technology. This strong positive response suggests a market readiness for digital transformation in local agricultural trade, reinforcing the justification for AgroXpress's development.

Feature Importance



When looking at how important different features are in an online agricultural marketplace, most

people said that “easy product search” and “multiple payment options” are very important, with many giving them a high rating of 4 or 5. “Delivery scheduling” was seen as somewhat important. For “rating & reviews,” many gave it a middle score of 3, which may mean they are unsure how useful it is. “Highlighting local sellers” was also seen as important because it helps support local communities and builds trust.

Feedback and Suggestions

The responses in Section D highlight key features and improvements users would like to see in the proposed system. Many users emphasized the importance of direct communication with sellers through chat or messaging functions, reflecting a need for real-time interaction. There was also a strong interest in better product information, such as greater variety, real (non-stock) images, and details about product origin and source tracking, indicating the need for transparency and trust. In terms of system improvements, users suggested a simpler, more user-friendly interface and clear payment summaries, particularly for e-wallet transactions. Suggestions like fast feedback, smooth operations, and live chat indicate that users value responsiveness and efficiency. Additionally, flexible delivery options like free delivery and self-pickup were mentioned, along with features such as customer reviews and promotions. Overall, users expect a system that is easy to use, transparent, and interactive, with reliable support for communication, transactions, and product browsing.

4.2.3 Observation - Strobe

Observations:

1. Website Functionality is Basic and Limited
   The PPNJ website primarily serves as an informational portal, providing details about the organization, member registration, and event announcements. It lacks integrated e-commerce features such as online product catalogs, order placement, or real-time inventory management. This restricts its use as a transactional platform for buyers and sellers.

2. Manual Processes Still Dominate Behind the Scenes
   Although members can register online, order processing, sales tracking, and payment collection are managed manually offline or through separate communication channels like phone calls or WhatsApp messages. This hybrid system creates delays and

increases the risk of errors in order fulfillment and record-keeping.

3. No Centralized Data Management or Buyer Tracking
   The website does not offer a centralized database for tracking orders, inventory, or customer data. As a result, farmers and PPNJ staff rely on manual spreadsheets or physical records, which are prone to data loss and inconsistencies. This lack of integration also limits data-driven decision-making and targeted marketing.

4. Inefficient Communication and Coordination
   Coordination between PPNJ, farmers, and buyers is fragmented. Announcements and updates are posted on the website but often supplemented by manual phone calls and physical meetings. This leads to communication delays, missed opportunities, and difficulty managing logistics such as delivery scheduling or event coordination.

5.0 Requirement Analysis (based on AS-IS Analysis)

This section presents the requirement analysis derived from the existing (AS-IS) PPNJ online shop system. The analysis aims to identify how the current system operates, including the current business processes, system workflow, functional and non-functional requirements, and logical data flow diagram (DFD). By examining the current system, we can better understand its limitations and strengths, which will serve as a foundation for proposing improvements in our TO-BE system (AgroXpress). The findings in this section will also guide the design and development of a more efficient and user-friendly solution tailored to the needs of customers, administrators, and vendors.

5.1 Current Business Process (Scenarios/Workflow)

The current business process of the PPNJ online shop system involves three main stakeholders which are customers, administrators, and vendors. The platform is primarily used to facilitate the processes that support online purchasing, order management, and product fulfillment.

5.1.1 Customer

The process begins with accessing the PPNJ online shop website. Customers can search for products using the search bar or browse by category. Upon selecting a product, they are able to view relevant information such as product details, pricing, and availability. Customers then proceed to add products to the shopping cart and can initiate to continue searching for products or proceed with the checkout process. During checkout, customers provide delivery information and make payments through the online payment gateway. Once payment is successful, an order confirmation is issued, and the customer awaits delivery of the purchased items. However, if the payment is unsuccessful, the customer will receive payment error notification.

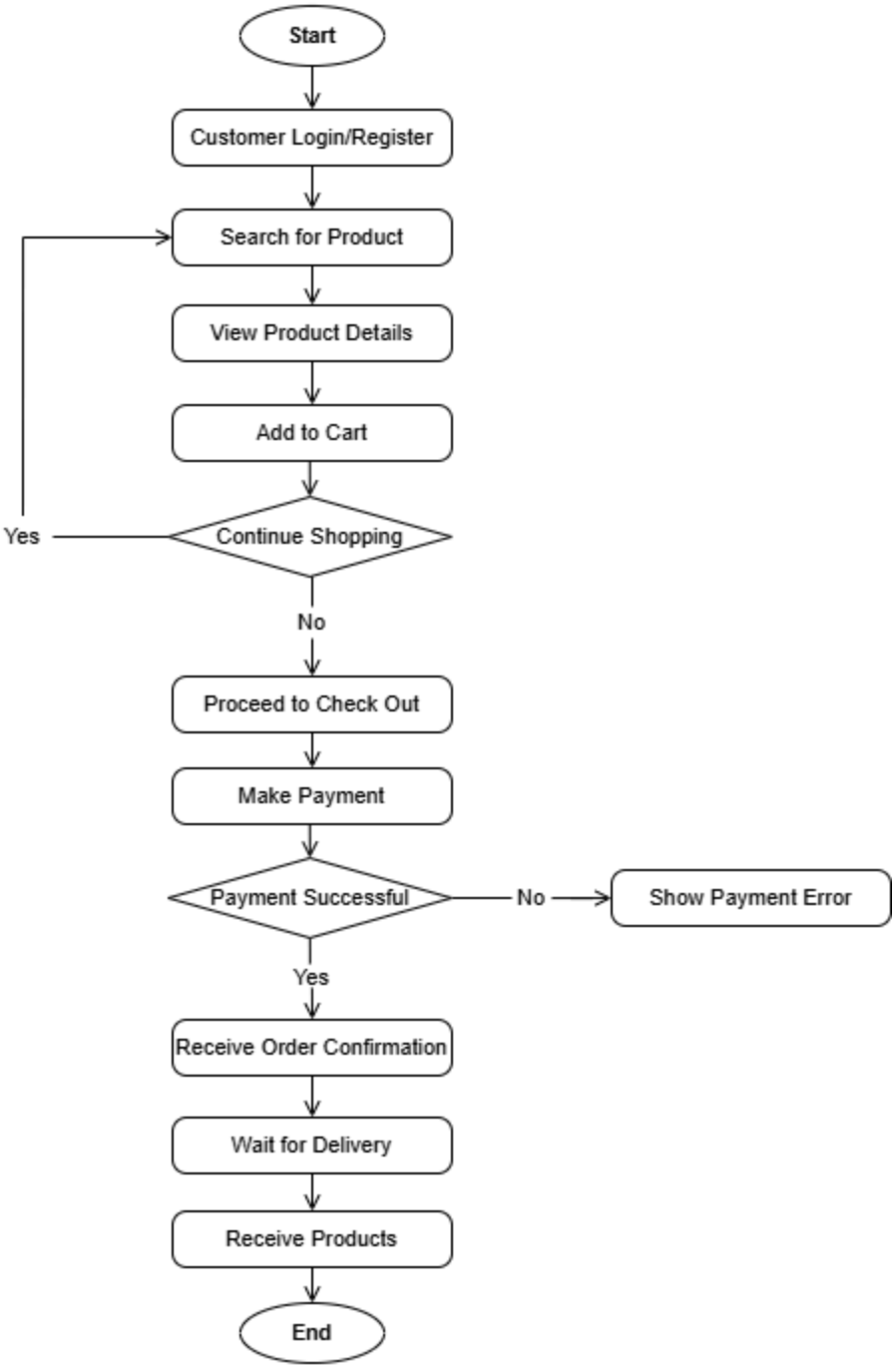


Diagram 5.1.1 Customer Workflow for based on AS-IS System

5.1.2 Vendor

The process for vendors starts with logging into the vendor dashboard, where the vendors are responsible for managing their product listings, including uploading new products, updating stock levels, and modifying prices. When notified of a new order, vendors prepare the ordered items, ensuring proper handling, especially for temperature-sensitive items, particularly frozen and marinated food products. They coordinate the delivery process and confirm with the admin once the order has been dispatched or delivered to the customers. Vendors rely on the admin for payment settlement based on completed and confirmed deliveries.

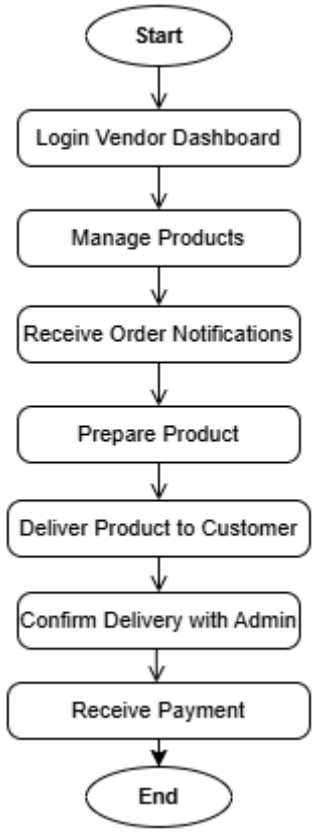


Diagram 5.1.2 Vendor Workflow based on AS-IS System

5.1.3 Admin

The admin is responsible for managing the overall operations of the PPNJ online shop, including reviewing product listings from vendors and approving the product lists. If the product list is not approved, the admin will notify the vendors. The admin notifies the vendor to fulfill the order and monitors the process to ensure timely and quality delivery. Once delivery is confirmed, the admin updates the order status and releases payment to the vendor. The admin also prepares regular sales and payment reports to track performance and support management decisions.

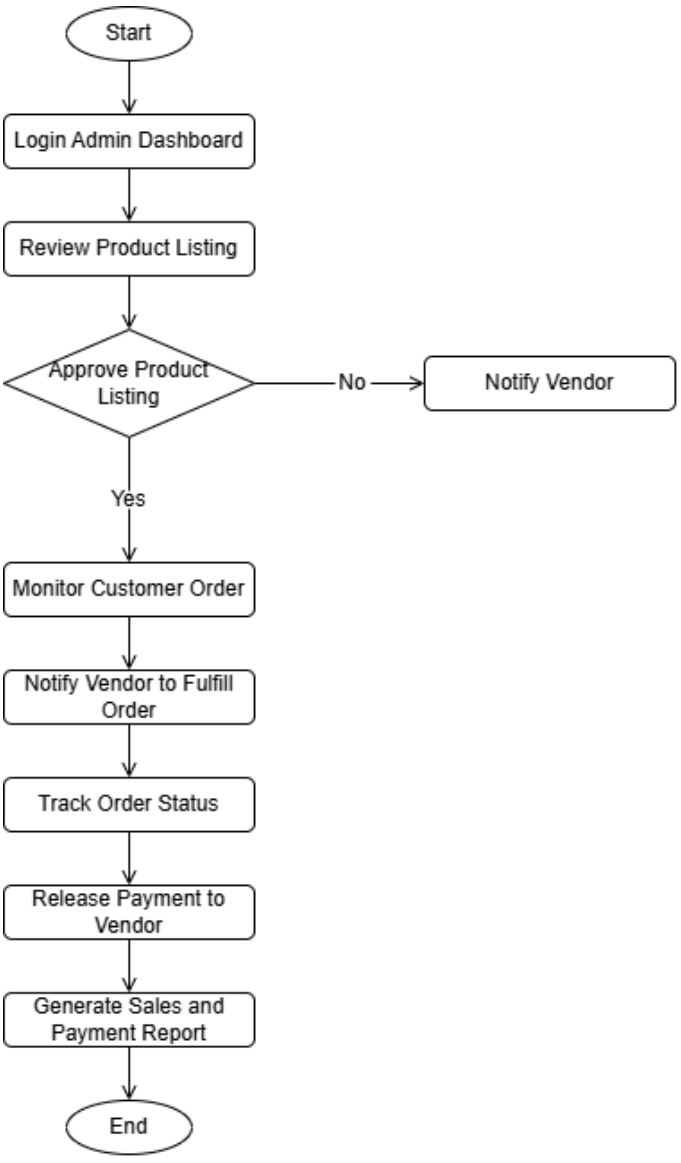


Diagram 5.1.3 Admin Workflow based on AS-IS System

5.2 Functional Requirements

The functional requirements describe the key operations of the AS-IS system based on existing business rules and user interactions that focus on what the system currently does to support the stakeholders. Each function is presented using the Input-Process-Output (IPO) model to illustrate how user input is handled, the process involved and what outcomes are produced.

5.2.1 Customer

The table below shows the functional requirement for the customer, who is the end user that interacts with the system to browse products, place orders, and track deliveries.

Function	Input	Process	Output
User Registration	Name, email, phone number, password	Validate data, create account, email verification	Account created, email verified
Product Browsing	Search product name, category filter	Query product list, apply filter	Display product list
Product Selection	Product ID, selected option (size, colour, quantity)	Retrieve product details, check availability	Display product details
Add to Cart	Product ID, quantity	Store item in cart, calculate total	Updated shopping cart
Check Out	Shipping details (address, contact number), payment method	Validate details, calculate total, initiate payment	Order placed, payment processed
Order Tracking	Order ID	Retrieve order status	Display current status (Shipped, Delivered)

Table 5.2.1.1 Functional Requirement for Customer

5.2.2 Vendor

Table 5.2.3.2 outlines vendor functions such as managing inventory, processing orders, updating product details, and tracking sales.

Function	Input	Process	Output
Vendor Login	Vendor ID, password	Verify login information	Access to vendor dashboard
Product Listing	Product details	Submit for approval	Product listed under vendor store
Order Fulfillment	Order ID, delivery status, tracking number	Update shipping status	Order status updated
Product Update	Product ID	Update product quantity, product status	Product status updated
Profile Management	Vendor details	Update profile information	Vendor profile updated

Table 5.2.2.1 Functional Requirement for Vendor

5.2.3 Admin

Table 5.2.3.1 shows the admin functions that includes managing product listings, user accounts, and order status within the e-commerce system.

Function	Input	Process	Output
Admin Login	Admin ID, password	Verify login information	Access to admin dashboard
Product Management	Product details	Approve or reject product	Product approved or rejected
Order Management	Order ID, order status	Retrieve order, update status	Order status updated
User Management	User ID	Edit, delete, Update details	User record updated
Generate Report	Date range, product ID or vendor ID, report type	Query database, calculate totals	Sales or performance report generated

Table 5.2.3.1 Functional Requirement for Admin

5.3 Non-functional Requirement

Non-functional requirements analyses the performance and control aspects of the current AS-IS system. The evaluation focuses on response time, scalability, access control, data integrity, and session management based on the website's current behaviour and user experience.

5.3.1 Performance Requirement

Based on the current as-is system, it works well for basic online shopping activities under normal conditions. It can show product information and process orders when there are not too many users at the same time. However, the system becomes slow when there is a lot of traffic such as during festive sales or promotions. Pages take a long time to load, and the checkout process can lag, which may cause customers to leave the site without buying anything. There have also been times when the website goes offline, making it unavailable for customers. This affects customer trust and sales. The system also cannot easily handle more users or more products as the business grows. In addition, order and stock updates are not done in real-time, where the admin will contact the customer manually to inform them of any unavailability of products.This will result in delays in order and product updates, which can lead to errors like overselling.

5.3.2 Control Requirement

The current PPNJ e-commerce system allows customers to register and log in, but it has several security and usability issues. Customers do not create a password during registration, which weakens account security. Although the system allows users to request a password reset, there is a recurring issue where the system confirms that a reset email has been sent, yet users do not actually receive the email. This indicates a failure in the password recovery process, which can impact both user experience and account security. There is also no email verification during registration, increasing the risk of fake or incorrect accounts. Passwords may not be securely stored, and there are no extra protections like two-factor authentication, making accounts vulnerable to unauthorized access. Sensitive data, such as payment details, may not be fully protected during transmission. The system also does not clearly explain how customer data is used or obtain their consent, which may result in non-compliance with Malaysia's Personal Data Protection Act (PDPA). Additionally, customer activity is not monitored effectively, making it harder to detect fraud or suspicious behavior.

5.4 Logical DFD AS-IS System

This section presents the Logical Data Flow Diagram (DFD) for the AS-IS system. The Logical DFD illustrates the flow of data between key processes, external entities, and data stores without focusing on the physical implementation of the system. It helps to identify how information is currently processed, which functions interact with users, and how data is stored or retrieved. Understanding this structure is essential for analyzing system weaknesses, improving efficiency, and designing an improved TO-BE system in later phases.

5.4.1 Context Diagram

This section shows the Context Diagram for the current AS-IS system. It provides a high-level overview of the system's interactions with external entities and outlines the main data flows in and out of the system.

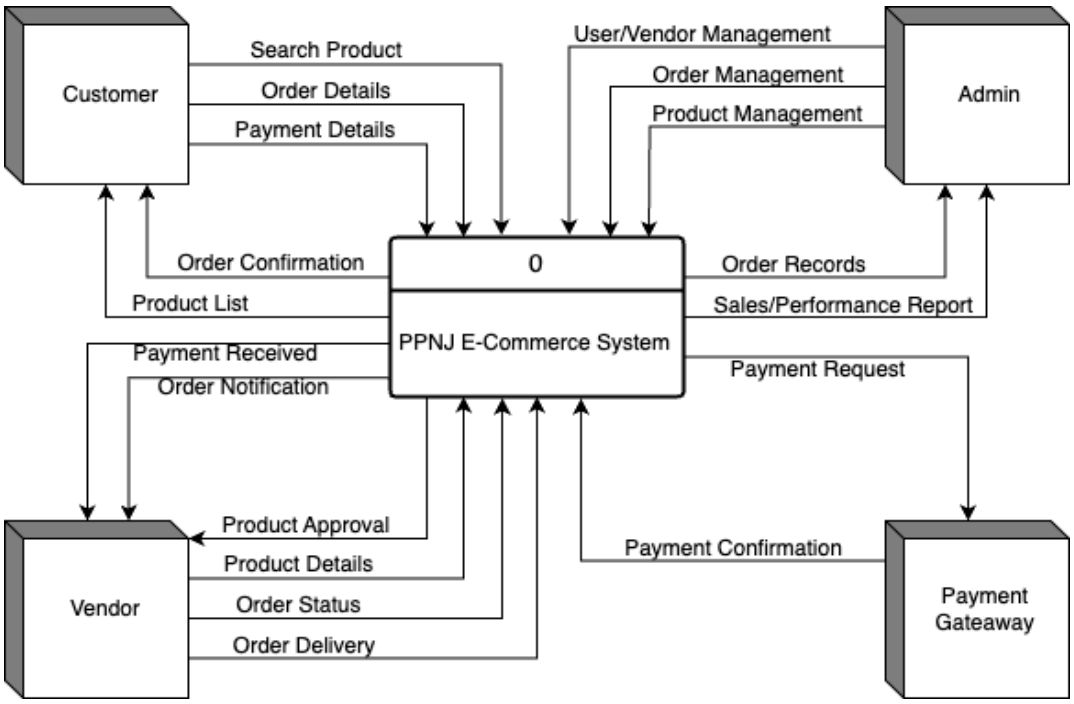


Diagram 5.4.1.1 Context Diagram for AS-IS System

5.4.2 Diagram 0

The following diagram illustrates the Diagram 0 for the AS-IS system. Diagram 0 provides a more detailed view of the system, breaking down the main system process into its key processes. It shows how data flows between internal processes, data stores, and external entities, offering a clearer picture of how the system currently operates.

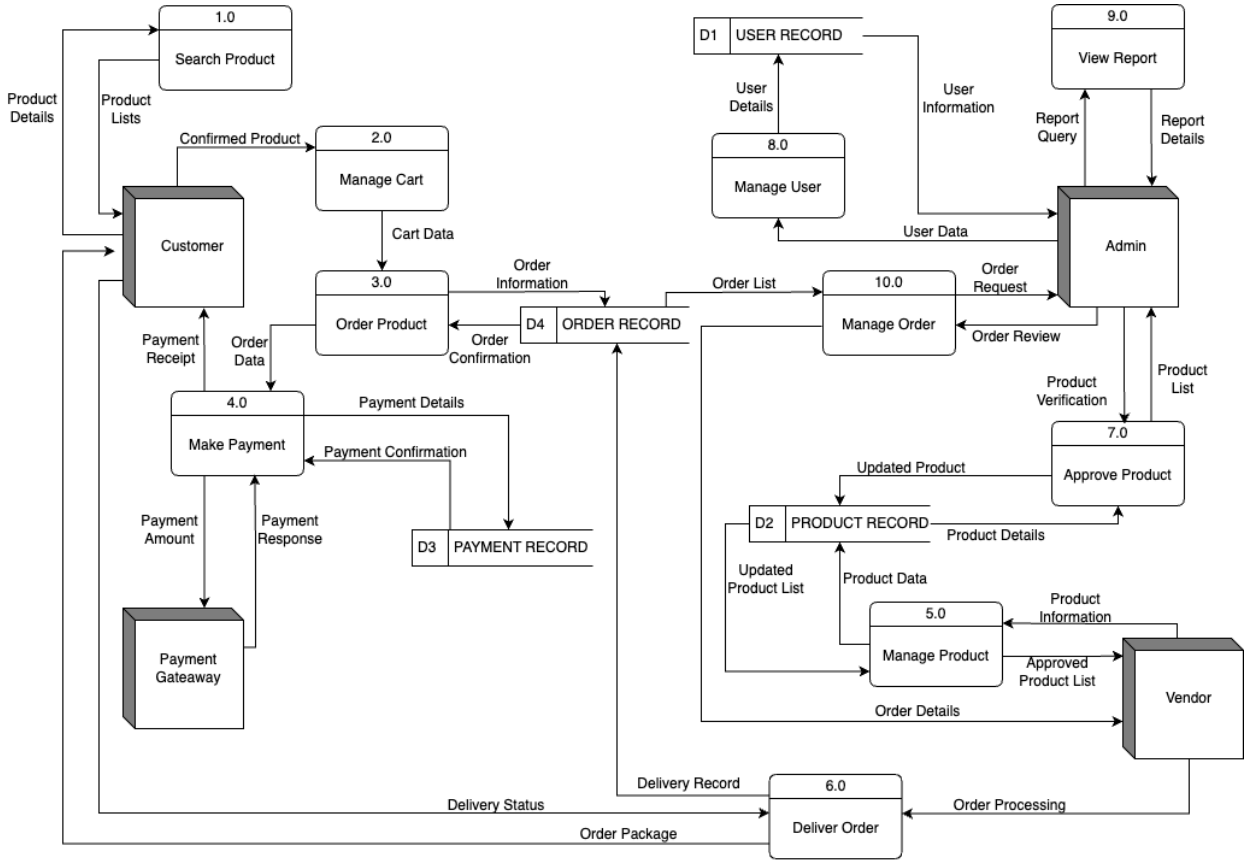


Diagram 5.4.2.1 Level 1 (Diagram 0) of AS-IS System

5.4.3 Child Diagram

To further understand the AS-IS system, the Child Diagram (Level 1 DFD) expands a main process from Diagram 0 into its sub-processes. It provides a detailed view of how data flows within that process, showing interactions with data stores and external entities. This helps to better understand the internal workings of the selected function and identify any potential issues or inefficiencies.

5.4.3.1 Child Diagram 2.0 Manage Cart

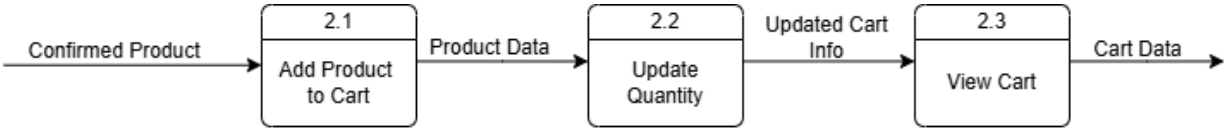


Diagram 5.4.3.1.1 Child Diagram 2.0 Manage Cart

5.4.3.3 Child Diagram 5.0 Manage Product

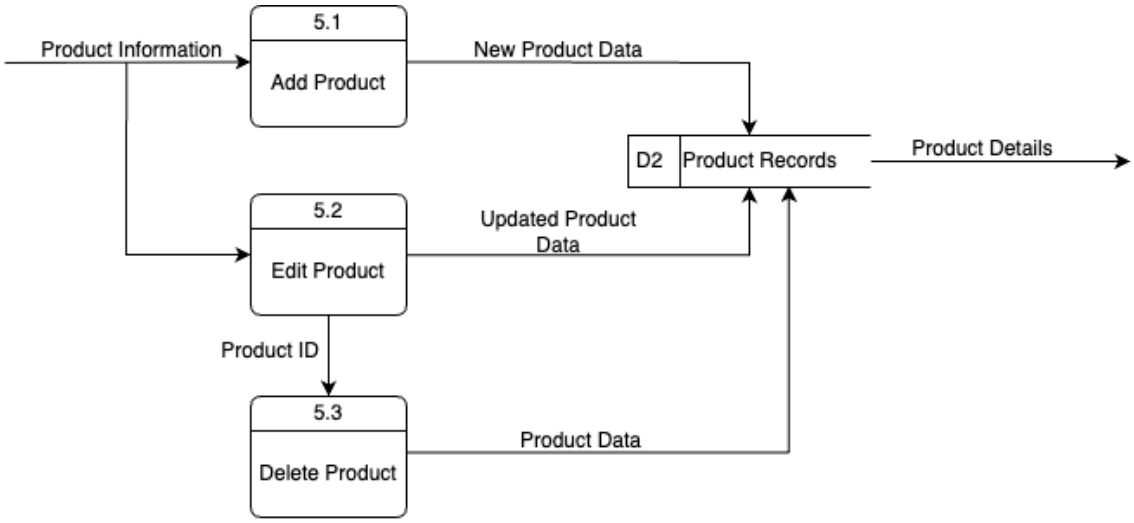


Diagram 5.4.3.3.1 Child Diagram 5.0 Manage Product

5.4.3.4 Child Diagram 7.0 Approve Product

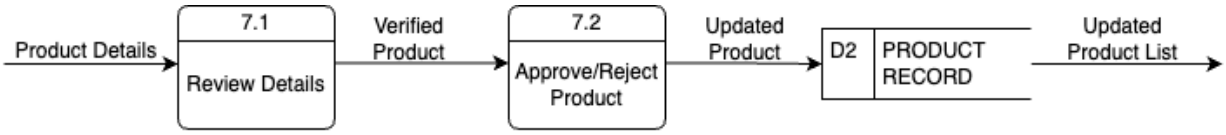


Diagram 5.4.3.4.1 Child Diagram 7.0 Approve Product

5.4.3.5 Child Diagram 8.0 Manage User

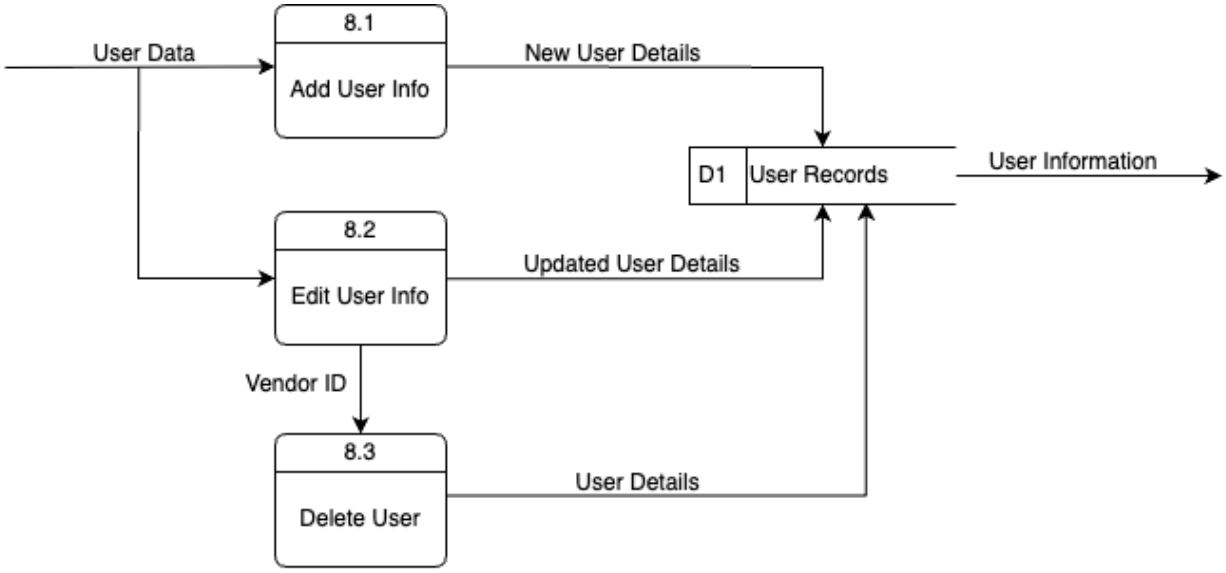


Diagram 5.4.3.5.1 Child Diagram 8.0 Manage User

6.0 Summary of Requirement Analysis Process

In this second phase of the AgroXpress project, the focus shifted toward gaining a deeper understanding of the existing conditions within Malaysia's agricultural marketplace and identifying the specific needs of potential platform users. This was achieved through a comprehensive *Information Gathering Process*, which involved several qualitative and quantitative methods. Our team employed interviews, surveys, observations, and document analysis to collect data directly from key stakeholders, including farmers, buyers, and potential users of the system. These techniques were chosen to ensure that the development of the AgroXpress platform would be rooted in actual user experiences, behaviours, and expectations rather than assumptions.

Interviews provided rich, detailed feedback from individuals who are currently active in agricultural trade, allowing our team to capture personal insights and challenges encountered in day-to-day operations. Surveys offered a broader overview, helping the team quantify user preferences and pain points across a wider sample. Meanwhile, direct observations allowed our team to witness existing workflows in real time, revealing inefficiencies that users may not have explicitly mentioned. Document analysis helped validate the findings by comparing them with existing literature, government data, and trends in the e-commerce and agriculture sectors. Collectively, these information-gathering methods ensured a well-rounded understanding of the current system and user expectations for a digital solution.

Following the collection of user data, the project moved on to a detailed AS-IS Analysis. This analysis focused on examining the current state of operations before the AgroXpress platform is implemented. Several core issues were identified during this evaluation. For instance, many farmers face difficulties accessing broader markets and are limited to selling within their local communities. Buyers struggle with limited product information and face challenges in identifying trustworthy sellers. Additionally, the lack of secure, structured transaction processes leads to widespread concerns about fraud and payment reliability.

By aligning the platform's design with actual user needs gathered during this phase, AgroXpress aims to build a system that is not only technologically sound but also practical, inclusive, and capable of transforming how agricultural commerce is conducted in Malaysia.