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*Queensway Website*

Project Documentation Submitted to the Faculty of the

School of Computing and Information Technologies

Asia Pacific College

In Partial Fulfillment of the Requirements for

Systems Analysis & Detailed Design for CS/IT

M/S SSYADD1

By

|  |  |
| --- | --- |
| Ashly Jude Degala | John Rex Merencillo |
| Julian Sebastian Mistica | Kurt Leonard Saquillo |
| Kurt Yuri Fegarido |  |

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# **Introduction**

## **Project Context**

Queensway Builder and Supply Company Inc. is a family-owned Filipino business dedicated to promoting equality among its employees, stakeholders, and partners while delivering high-quality hardware supplies and services to its customers. To align with its mission of reliability and client satisfaction, Queensway aims to create a more efficient operational framework that enables data-driven decision-making and enhances the shopping experience for customers.

Currently, Queensway faces challenges due to the absence of a robust reporting and analytics system within their internal platform, which hinders their ability to generate valuable insights from customer data and business operations. This gap in reporting and analytics limits their capacity to make informed, strategic decisions that could optimize inventory, sales, and customer engagement.

Additionally, customers struggle with accessing comprehensive product information and face a limited online shopping experience on the existing site. This has led to reduced customer engagement and satisfaction, affecting Queensway’s market competitiveness and growth potential.

To address these challenges, the team proposes the development of a dual-solution platform for Queensway Hardware. This includes an integrated reporting and analytics dashboard within the internal system to provide consolidated reports and data insights, along with the creation of a dynamic web application that serves as an enhanced e-commerce site. The proposed platform aims to empower Queensway with a centralized, user-friendly marketplace for hardware supplies, delivering improved data visibility and a seamless shopping experience that aligns with the company's commitment to quality and operational excellence.

## **Statement of the Problem**

Establishing a reliable and accessible digital platform is essential for Queensway Builder and Supply Company Inc., as it is a crucial component of their operational success. However, Queensway is currently facing several industry challenges due to limitations in their existing online system.

These challenges include:

1. Customers having trouble accessing detailed product information and a seamless shopping experience.
2. The client experiences a lack of reports and analytics restricts Queensway’s ability to leverage customer data and make strategic decisions.

## **Objectives**

To fulfill Queensway’s challenges and improve operational efficiency, the team is dedicated to building a high-performance web application that serves as a centralized, user-friendly marketplace for hardware supplies. This platform will grant Queensway full control over their site, improve customer access to product details, and deliver a smooth online shopping experience.

The primary objectives of this project are as follows:

1. To enable a streamlined search and filter system for quick access to detailed product information.
2. To create an e-commerce website for customers to provide a seamless online shopping experience.

## **Significance of the Project**

This project holds significant value for various stakeholders, including the business owner, employees, customers, and the broader hardware supply industry. The development of the Queensway Hardware web application will deliver the following benefits:

**Business Owner:** The owner will benefit from greater operational control and data insights, which will support data-driven decisions. With comprehensive administrative access, the owner can manage product offerings, monitor customer interactions, and optimize vendor relationships, ultimately driving increased profitability and sustainable growth.

**Employees:** Employees will experience an enhanced workflow, as the platform automates routine tasks like inventory updates and order processing. By reducing administrative tasks, employees can focus on improving customer service and supporting vendor coordination, resulting in a more productive, efficient work environment.

**Customers:** Customers will gain access to a seamless online shopping experience with enhanced search and filtering options, ensuring they find products easily. The inclusion of secure payment options and multi-vendor support will lead to a more diverse and reliable shopping experience, enhancing customer satisfaction and loyalty.

**Hardware Supply Industry:** This project contributes to the advancement of e-commerce within the hardware supply sector. By establishing a high-quality digital marketplace, Queensway sets a standard for integrating multi-vendor support, security, and user-centered design in the industry.

## **Scope and Limitations**

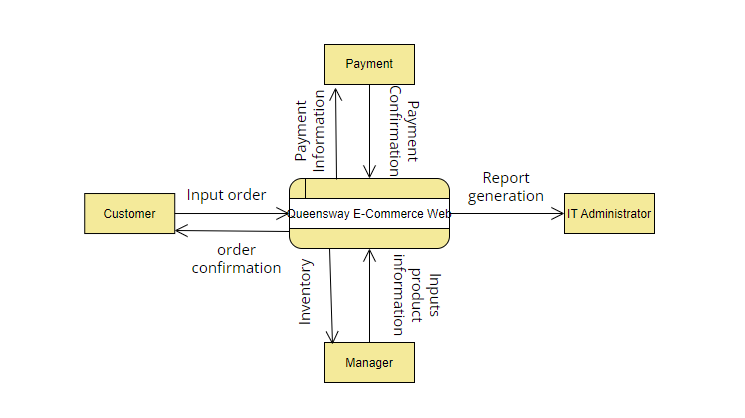
**Scope:**

* **Development of Web Application:** This project includes creating a responsive, high-performing e-commerce platform for Queensway Hardware, featuring product listings, advanced search and filtering tools, secure payment processing, and multi-vendor capabilities to support a wide range of suppliers and enhance customer experience.
* **Integrated Reporting and Analytics Dashboard:** An analytics dashboard will be incorporated into Queensway's internal system, providing in-depth insights into inventory, sales, and customer activity. This feature will enable management to access real-time data to drive informed decisions and optimize operations.
* **Improved User Experience:** Features like personalized accounts, order tracking, and product recommendations will be integrated into the web application, making it easier and more engaging for customers to interact with the platform.

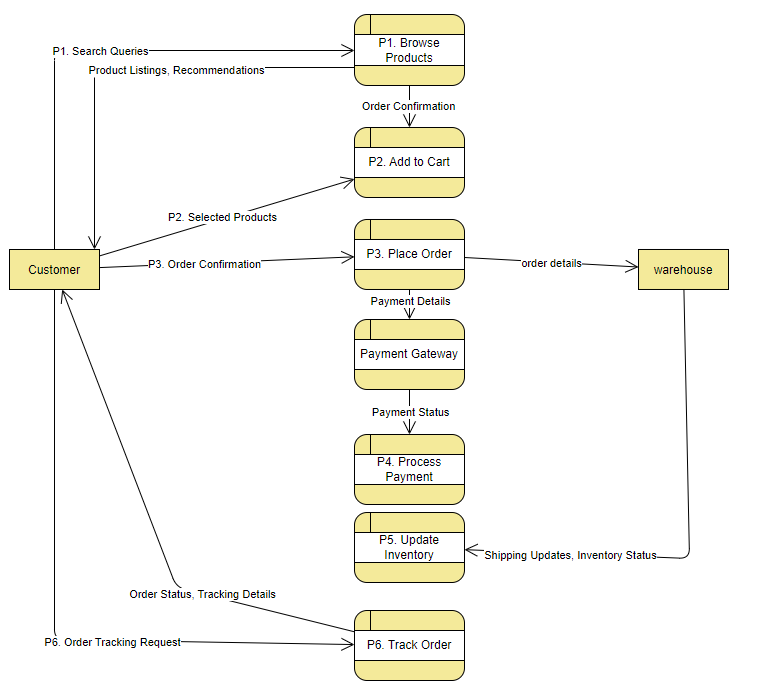
# **Requirements Analysis**

## **Data Flow Diagram**

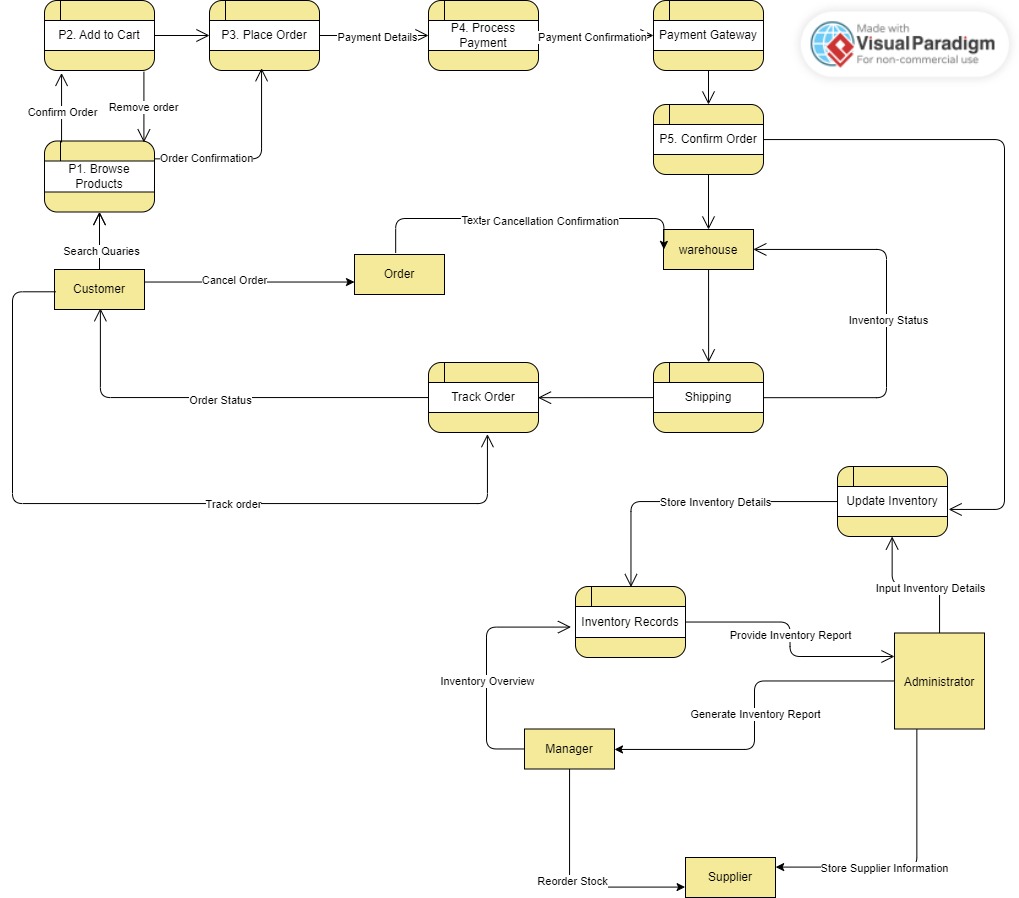
### **DFD Level 0**

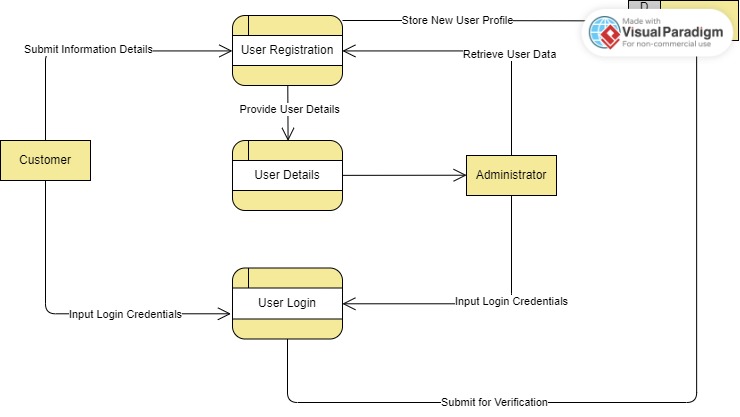


### **DFD Level 1**



### **DFD Level 2**





## **Use Case Diagram**

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## **Fully Dressed Use Cases**

|  |  |
| --- | --- |
| **Use Case ID** | QW\_UC\_1 |
| **Use Case Name** | Sending Inquiries |
| **Description** | This use case allows customers to submit and track inquiries related to product availability, pricing, delivery options, and other services on the Queensway website. |
| **Primary Actor** | Customer |
| **Secondary Actor** | Queensway Staff |
| **Include Use Case** | None |
| **Preconditions** | The user must be logged into the website |
| **Main Flow** | 1. The customer navigates to the "Inquiries" section. 2. The system retrieves and displays a form for submitting an inquiry. 3. The customer selects the inquiry type (e.g., product availability, delivery options, etc.). 4. The customer enters the required details (e.g., product ID, description of inquiry). 5. The customer submits the inquiry form. 6. The system forwards the inquiry to the assigned CSR. 7. The use case ends. |

|  |  |
| --- | --- |
| **Use Case ID** | QW\_UC\_2 |
| **Use Case Name** | Manage Product |
| **Description** | This use case allows Queensway staff to manage product information on the website, including adding, updating, and removing products. Customers can also browse, search, and filter products as part of this use case. |
| **Primary Actor** | Queensway Staff |
| **Secondary Actor** | Customer |
| **Include Use Case** | Browse Products |
| **Preconditions** | The staff must log into the website with valid credentials. |
| **Main Flow** | 1. Staff navigates to the Products section. 2. The system displays the list of products with options to add, edit, or remove products. 3. The staff selects an option:  * Add Product: Enters product details (e.g., name, description, price, stock availability) and submits. * Update Product: Searches for a product, modifies details, and submits the changes. * Remove Product: Searches for a product and deletes it from the system.  1. The system validates the entered details and updates the database accordingly. 2. The use case ends. |
|  |  |
| **Use Case ID** | QW\_UC\_3 |
| **Use Case Name** | Manage Cart |
| **Description** | This use case allows customers to add, update, and remove products from their shopping cart. It also enables customers to view their cart's contents and proceed to checkout. |
| **Primary Actor** | Customer |
| **Secondary Actor** | Queensway Staff |
| **Include Use Case** | View Cart |
| **Preconditions** | The customer must be logged into the Queensway website.  The customer plans to select products to add to their cart products during this session. |
| **Main Flow** | 1. The customer navigates to the **Products** section and browses available items. 2. The customer selects a product to add to their cart. 3. The system validates the stock availability and updates the cart. 4. The customer navigates to their **Cart** to view its contents. 5. The system displays the cart details, including:  * Product names, images, and descriptions * Prices (unit price and total) * Selected quantities  1. The customer can perform any of the following actions:  * Update Product Quantity * Remove a product from the cart. * Returns to the product browsing page to add more items.  1. The customer proceeds to checkout if satisfied with the cart contents. 2. The system saves the cart’s current state for future sessions if the checkout is not completed. |

|  |  |
| --- | --- |
| **Use Case ID** | QW\_UC\_4 |
| **Use Case Name** | Make Purchase |
| **Description** | This use case allows customers to purchase items by completing the checkout process, selecting a payment method, and optionally scheduling an appointment for delivery and installation or in-store pick-up. |
| **Primary Actor** | Customer |
| **Secondary Actor** | Queensway Staff |
| **Include Use Case** | Select Payment Method Complete Checkout  Schedule Appointment |
| **Preconditions** | The customer must be logged into the Queensway website.  The customer must have at least one item in their shopping cart. |
| **Main Flow** | 1. The customer navigates to their **Cart** and reviews the items. 2. The customer clicks on **Proceed to Checkout.** 3. The system displays the checkout form, including:  * Shipping or pick-up options * Payment methods * Contact details  1. The customer selects a shipping or pick-up option:  * Shipping: The customer enters their delivery address. * Pick-Up: The customer selects the nearest Queensway store.  1. The customer confirms the payment and order details. 2. The system processes the payment and generates a unique order ID. 3. The system allows the customer to schedule an appointment. 4. The system confirms the order and sends a confirmation email or notification to the customer with order details 5. The use case ends. |

|  |  |
| --- | --- |
| **Use Case ID** | QW\_UC\_5 |
| **Use Case Name** | Generate Report |
| **Description** | This use case allows Queensway staff to generate reports based on sales, customer activity, inventory, or other business metrics. These reports help staff analyze trends and make data-driven decisions. |
| **Primary Actor** | Queensway Staff |
| **Secondary Actor** | None |
| **Include Use Case** | None |
| **Preconditions** | The staff must log into the website with valid credentials. |
| **Main Flow** | 1. The staff navigates to the **Reports** section. 2. The system displays available report for sales, inventory, customer activity. 3. The staff selects a report type and specifies additional filters or parameters. 4. The system validates the input parameters. 5. The system retrieves the relevant data from the database. 6. The system generates the report in the specified format. 7. The staff can view the report. 8. The use case ends. |

## **Test Cases for Fully Dressed Use Case**

1. **Sending Inquiries**

* **Priority:** High
* **Description:** This use case allows customers to submit and track inquiries related to product availability, pricing, delivery options, and other services on the Queensway website.
* **Prerequisites:**
  + The user is logged in.
* **Test Data Requirement:**
  + Email address: [test@example.com](mailto:test@example.com)
  + Password: StrongPassword123!

|  |  |  |
| --- | --- | --- |
| **Step #** | **Step Details** | **Expected Results** |
| 1 | The customer navigates to the "Inquiries" section. | The inquiries page loads successfully. |
| 2 | The customer selects the inquiry type (e.g., product availability, delivery options, etc.). | The customer successfully selected the inquiry type |
| 3 | The customer enters the required details (e.g., product ID, description of inquiry). | The customer correctly enters required details. |
| 4 | The customer submits the inquiry form. | System validates the data and systems sends the inquiry to the Queensway staff. |

1. **Manage Product**
   * **Priority:** High
   * **Description:** This use case allows Queensway staff to manage product information on the website, including adding, updating, and removing products. Customers can also browse, search, and filter products as part of this use case.
   * **Prerequisites:**
     + Staff is logged in with valid credentials
   * **Test Data Requirement:**
     + Email address: test@example.com
     + Password: StrongPassword123!

|  |  |  |
| --- | --- | --- |
| **Step #** | **Step Details** | **Expected Results** |
| 1 | Staff navigates to the Products section. | The system displays the list of products with options to add, edit, or remove products. |
| 2 | The staff selects an option:   * Add Product: Enters product details (e.g., name, description, price, stock availability) and submits. * Update Product: Searches for a product, modifies details, and submits the changes. * Remove Product: Searches for a product and deletes it from the system. | The system validates the entered details and updates the database accordingly. |

1. **Manage Cart**
   * **Priority:** High
   * **Description:** This use case allows customers to add, update, and remove products from their shopping cart. It also enables customers to view their cart's contents and proceed to checkout.
   * **Prerequisites:**
     + Customer is logged in
     + Customer plans to select product/products to add to their cart
   * **Test Data Requirement:**
     + Email address: [test@example.com](mailto:test@example.com)
     + Password: StrongPassword123!
     + Product added/updated/removed

|  |  |  |
| --- | --- | --- |
| **Step #** | **Step Details** | **Expected Results** |
| 1 | The customer navigates to the Products section and browses available items. | The system displays the list of products with options to add, edit, or remove products. |
| 2 | The customer selects a product to add to their cart. | The system validates the stock availability and updates the cart. |
| 3 | The customer navigates to their Cart to view its contents. | The system displays the cart details, including:   * Product names, images, and descriptions * Prices (unit price and total) * Selected quantities |
| 4 | The customer can perform any of the following actions:   * Update Product Quantity * Remove a product from the cart. * Returns to the product browsing page to add more items. | The system validates the entered details and updates the database accordingly. |
| 5 | The customer proceeds to checkout if satisfied with the cart contents. | The system saves the cart’s current state for future sessions if the checkout is not completed. |

1. **Make Purchase** 
   * **Priority:** High
   * **Description:** This use case allows customers to purchase items by completing the checkout process, selecting a payment method, and optionally scheduling an appointment for delivery and installation or in-store pick-up.
   * **Prerequisites:**
     + Customer is logged in
     + Customer has at least one item in their shopping cart
   * **Test Data Requirement:**
     + Email address: [test@example.com](mailto:test@example.com)
     + Password: StrongPassword123!
     + Shopping cart item: 1, Oak Wood Door

|  |  |  |
| --- | --- | --- |
| **Step #** | **Step Details** | **Expected Results** |
| 1 | The customer navigates to their Cart and reviews the items. | The system displays the list of products with options to add, edit, or remove products. |
| 2 | The customer clicks on Proceed to Checkout. | The system displays the checkout form, including:   * Shipping or pick-up options * Payment methods * Contact details |
| 3 | The customer selects a shipping or pick-up option:   * Shipping: The customer enters their delivery address. * Pick-Up: The customer selects the nearest Queensway store. | The system confirms the shipping option selected by the customer and displays the shipping option selected by the customer. |
| 4 | The customer confirms the payment and order details | The system processes the payment and generates a unique order ID. |
| 5 | The customer proceeds to checkout if satisfied with the cart contents. | The system processes the payment and generates a unique order ID. |
| 6 | The customer requests an appointment. | The system allows the customer to schedule an appointment. The system confirms the order and sends a confirmation email or notification to the customer with order details |

1. **Generate Report**
   * **Priority:** High
   * **Description:** This use case allows Queensway staff to generate reports based on sales, customer activity, inventory, or other business metrics. These reports help staff analyze trends and make data-driven decisions.
   * **Prerequisites:**
     + Staff is logged in with valid credentials
   * **Test Data Requirement:**
     + Email address: [test@example.com](mailto:test@example.com)
     + Password: StrongPassword123!

|  |  |  |
| --- | --- | --- |
| **Step #** | **Step Details** | **Expected Results** |
| 1 | The staff navigates to the Reports section. | The system displays available report for sales, inventory, customer activity. |
| 2 | The staff selects a report type and specifies additional filters or parameters. | * The system validates the input parameters. * The system retrieves the relevant data from the database. * The system generates the report in the specified format. |
| 3 | The staff views the report | The system successfully displays the report. |

## **Product Backlog / User Stories**

Table I

PRODUCT BACKLOG

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **As a…** | **I want to be able to…** | **So that…** | **Priority** |
|  | Customer | View business information | I can view what products are the best to buy | Must |
|  | Customer | Check the prices | I can manage what’s fit in my budget | Must |
|  | Customer | View the materials | I can know what the products are made of | Must |
|  | Customer | Send Inquiries | I can get more information about products or services I'm interested in | Must |
|  | Customer | Make a purchase | I can conveniently buy products directly from the website | Must |
|  | Customer | Complete the checkout process | I can finalize my purchases and receive a confirmation | Must |
|  | Customer | Schedule an Appointment | I can complete my purchase quickly and conveniently without needing to handle cash or visit the store in person. | Must |
|  | Manager | Overview of total sales | I can assess what product is doing well | Must |
|  | Manager | Receive inventory updates | I can identify what materials are running low | Must |
|  | Manager | Manage inventory | I can keep the product stock updated and ensure items are available for users. | Must |
|  | Manager | Manage sales and reports | I can monitor the business's performance and make informed decisions. | Must |
|  | Manager | Manage the checkout process | I can assist users with their purchases and ensure smooth transactions. | Must |
|  | Manager | Manage inquiries | I can respond to user questions and provide excellent customer service. | Must |
|  | IT Administrator | Ensure secure data handling | Customer and payment data are protected | Must |
|  | IT Administrator | Implement error tracking | I can identify and fix issues that impacts the customers | Must |
|  | IT Administrator | Manage the website | I can oversee all functionalities and ensure the site runs efficiently and securely. | Must |

## **Prototype**

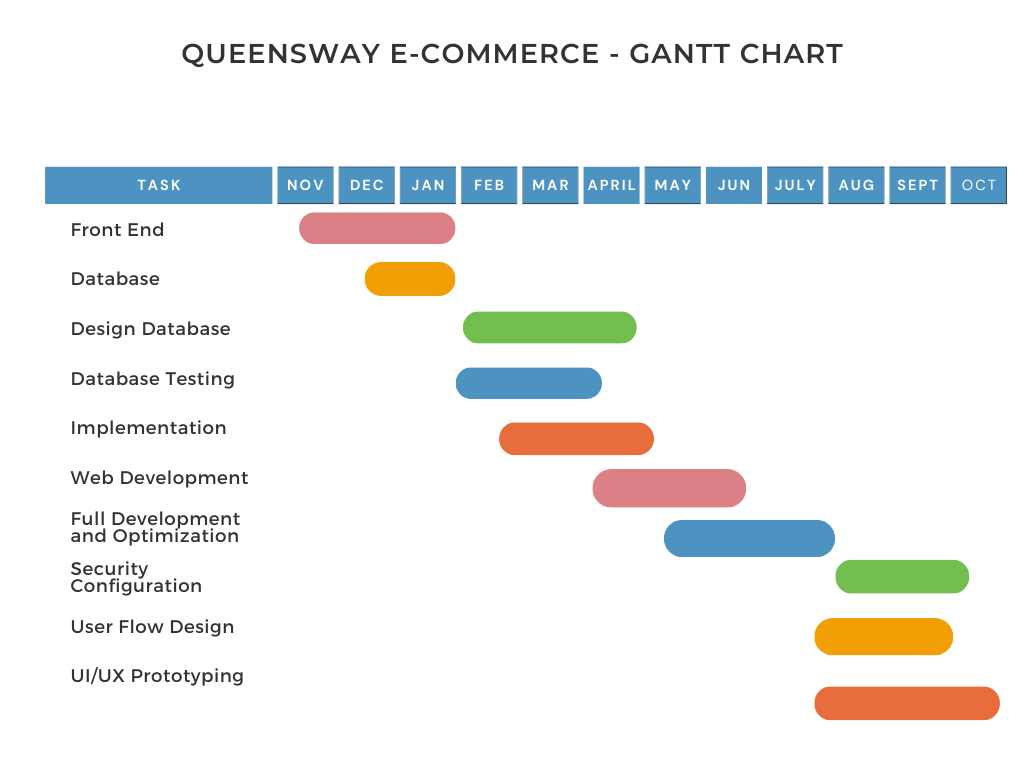
# **Appendices**

## **Appendix A: Project Vision**

PRODUCT VISION

|  |  |
| --- | --- |
| For | The Queensway customers and staff |
| Who | Need a unified platform that provides centralized operations, consolidates reports, and offers a seamless, data-driven shopping experience. |
| The | E-commerce platform is a solution |
| That | Empowers internal teams with comprehensive data insights on consumer behavior, sales, and inventory, while offering an enhanced and intuitive shopping experience for customers. It consolidates reporting, streamlines operations, and improves resource allocation efficiency across the organization. |
| Unlike | The current system with limited accessibility, manual data handling, and disjointed reporting across departments |
| Our Product | Will provide a centralized platform that automates reporting, integrates real-time data across functions, and enhances the online shopping experience with detailed product information, high-quality visuals, and an easy-to-use interface. This will allow Queensway to uphold its commitment to quality, customer care, and sustainability. |

## **Appendix B: Schedule**



## **Appendix C: Release Plan**

The project will be broken down into 3 terms of the Project Based Learning series, to see the product roadmap refer to appendix B. For a more detailed view of the timeline of the release plan, refer to appendix B for the Gantt chart of the project.

**Target Group:** Queensway Builder & Supply

**Goal:** Implement an E-commerce platform for the Queensway Supply Company for business operations, improving customer service and satisfaction.

**Needs:**

* Payment Gateway integration
* User Friendly Interface
* Mobile Responsiveness
* Order tracking and fulfillment

**Value:**

* Allow secure user transactions.
* Makes users navigate easy
* Ensures accessibility on any devices
* Smooth order processing and reduces delays

**Key Features:**

**Release 1**

* Use Case Diagram
  + - Users:
      * User
      * Queensway Staff
* Data Flow Diagrams:
  + - Level 0
    - Level 1
    - Level 2
  + Activity Diagrams:
    - Processes in the Fully Dressed Use Case
  + Entity-Relationship Diagram
    - Included entities:
      * Payment Information
      * User Details
      * Inventory Information
      * Order Information

**Release 2**

* Advanced Search and Filter System
* Simplifies product search for customers, enhancing shopping experience
* Secure User Authentication
* Strengthens platform security, safeguarding user data and transactions
* Customer Dashboard
* Increases customer engagement by offering a personalized and convenient space for managing purchases and orders.
* Vendor Management Portal
* Improves vendor communication, helping prevent stockouts and ensuring smooth supply chain operations.
* vendor operations with dashboards for inventory management and low-stock alerts.
* Payment Gateway Integration
* Expansion of payment options, such as digital wallets, installment plans, etc.
* Interactive Product Pages
* Enhances product engagement with detailed and interactive visuals
* Admin Analytics Dashboard
* Admins can analyze key performance metrics, improving the overall platform experience and ensuring customer satisfaction

**Release 3**

* AI-Driven Product Recommendations
* Boosts sales by offering personalized suggestions based on customer behavior.
* Increases user engagement by presenting relevant products to customers
* Mobile Application Launch
* Expands reach with a mobile app for iOS and Android.
* Appointment and Delivery Scheduling
* Adds flexibility by allowing customers to schedule deliveries or pick-ups.
* Improves operational efficiency with automated reminders via SMS/email.
* Customer Feedback System
* Provides valuable insights into customer satisfaction and areas for improvement.
* Enhances product and service quality based on user feedback.
* System Scalability Enhancements
* Improves user experience with a faster, more reliable system.
* Increases platform capacity to handle more traffic
* Enhanced AR Integration
* Differentiates the platform with augmented reality features
* Comprehensive Report Generation
* Allows customized reports for performance metrics and sales data.
* Provides export options in PDF, Excel, and other formats for easy analysis.

## **Appendix D: Product Roadmap**

TABLE

PRODUCT ROADMAP

**SNTDEV**   **SSYADD1**   **SCSPROJ**

|  |  |  |
| --- | --- | --- |
| **Finding a Client**   * Interview * Collect general information * Identify pain points | **Design and Documentation Artifacts**   * Data flow diagrams * Fully dressed use case diagrams * Test cases * Activity diagrams   **Website/Portal**   * Website design * Customer order * Payment process | **webapp Integration**   * Designing * Developing * Testing |
| **Project Proposal**   * Documentation * Prototype | **Functionalities**   * Account creation * Customer process * System administration | **Portal Finalization**   * Payments processing * Appointment booking system * Website testing and debugging |