

# ANALYSIS AND DESIGN OF SYSTEMS FOR A TOY COMPANY

**BY:**

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# 1. Introduction

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<<Include introduction here>>

Smart Toys is a manufacturing company that sells toys and has substantially grown over the years. Their system is not fully computerized, so it has led to efficiency and quality issues. This document will analyse problems and show potential solutions for the company's problems and improve their system, using analysis, finding the functional requirements from the problems and recommendations, the scope and creating diagrams such as DFDs and Use Cases to show the systems in detail. Each problem is broken down into a category where a possible system can be created to deal with the issues.

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## 2. Initial Analysis

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<<State the purpose of the initial analysis phase in the context of your case study>>

The purpose of the initial analysis phase is to thoroughly examine Smart Toys' existing business processes and identify the root causes of the challenges they are facing. This phase involves collecting and analysing data from key stakeholders, including the sales, accounting, and production departments, to understand their workflows, pain points, and needs. Key issues such as problems caused by the manual processes, delayed information and stock issues will be identified. The functional and non-functional requirements will be determined, feasibility of the solutions and the scope will be determined and risks of the new system. Stakeholders will be taken into consideration so that the system is user-friendly for them to use.

### 2.1. The Current System

<<Describe the current system >>

In the current system customers place orders with the sales team via phone or email. The sales team checks the availability of the requested product and completes the sales order if the item is in stock. A unique order number is assigned, which is shared with the customer for inquiries regarding payment and delivery details. If the product is out of stock, the sales team issues a work order and forwards it to the production team, who are responsible for manufacturing and replenishing the stock. The accounting team receives the order details from sales, processes customer billing, and tracks key expenditures using Office applications like Excel and Word. Additionally, they handle payroll and maintain important tax documents. Most of the system is not automated and requires staff to do all of the work.

### 2.2. Problem Statement

<<Describe the problems with the current system >>

The system is not fully computerized which has led to the following issues:

- Lack of timely, meaningful information on orders, sales, and production
- High stock levels of raw materials and finished items
- Late deliveries to customers
- Cancelled orders from customers

- 
- Quality problems with raw materials

## 2.3. Recommendations

<<Describe the proposed solution and its benefits>>

- Orders are done over phone/email and instead should be done through an online website that handles multiple orders and payments on time. The online website system should handle cancelled orders and update the system so only correct orders are dished out.
- Inventory management control system implementation to make sure there isn't too much or too less inventory and raw materials.
- Delivery system should notify and arrange drivers based on the area the customer lives in, and dispatch orders automatically to them so that time is not wasted.
- Customer management system which will enhance customer satisfaction and will allow communication and feedback from them. This will help keep track of quality and time of deliveries and products.
- Better communication with suppliers so raw materials are delivered on time and with the correct quality standards.
- Accounts and financial management system to handle payroll and expenses etc for increasing efficiency and making sure payments are on time.

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## 3. Scope

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### 3.1. In Scope

<<List all the items that are in scope>>

**Online Ordering System:** Development of an online platform for customers to place orders directly, replacing phone and email orders. This will also handle payment processing and handle multiple orders and allow customers to track them. The sales team will be able to log in and access the system to update it as well.

**Inventory Management System:** Implementation of an automated inventory management system to track stock levels of raw materials and finished products in real-time. The staff will get notifications and can check stock levels. This will work with the production system to automatically generate orders when stock is low. Suppliers will also be notified on time and with feedback of the quality of materials

**Production Management System:** Automation of work order creation and tracking to streamline production processes. Integration of quality control measures will be done to ensure that raw materials meet required standards before being used in production.

**Accounting and Financial Management System:** Integration of order information with the accounting system to automate billing, invoicing, and payment tracking. Implementation of expense tracking and budget management features will also be done. Payroll management system will automate salary calculations, tax deductions etc.

**Delivery and Logistics Management System:** Implementation of a delivery scheduling system that optimizes routes based on customer locations. Integration with the inventory system will be there to ensure products are available and ready for dispatch. There will be real-time tracking and notification system for customers to receive updates on delivery status.

**Sales and Customer Relationship Management (CRM) System:** Centralized management of customer data, order history, and communication logs. Automated follow-up and customer support features to enhance customer satisfaction and retention. Reporting tools for sales analysis and forecasting will be added.

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## 3.2. Out of Scope

<<List all the items that are out scope>>

**Legacy System Upgrades:** No updates or enhancements to any existing legacy systems that are not integrated into the new system such as the existing manual processes not related to sales, inventory, production, or accounting will remain unchanged. For this case it will be processes such as the main production process used to make the toys or the marketing system.

**Manufacturing Equipment Upgrades:** No physical upgrades or replacements of manufacturing equipment or machinery as part of the system implementation.

**Third-Party Supplier Management:** No integration or direct management of third-party suppliers' systems. Only the communication system affecting the quality of raw materials is considered.

**Product Design and Development:** The project will not include any tasks related to the design or development of new products, including the new wooden toys.

**Marketing Campaigns:** The development or execution of marketing campaigns, including those related to the launch of new products, is out of scope.

**Employee Recruitment and HR Management:** Recruitment processes, employee onboarding, and other HR management activities which will help run the new system are not part of the project scope.

**Physical Storefront Operations:** Operations related to physical retail outlets, including in-store sales processes, inventory management specific to physical stores, or point-of-sale (POS) systems, are not included.

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## 4. Functional Requirements

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<<List all the functional requirements here. Functional requirements must be grouped in logical groups (e.g. by function), uniquely numbered (e.g. FR1, FR2....).

The system shall.....">>

### Online Ordering System

- **FR1:** The system shall allow customers to create an account and log in securely.
- **FR2:** The system shall provide a catalogue of products with detailed descriptions, images, and prices.
- **FR3:** The system shall allow customers to place orders online by selecting products from the catalogue.
- **FR4:** The system shall process online payments securely, supporting multiple payment methods (credit card, PayPal, etc.).
- **FR5:** The system shall generate and send order confirmation emails to customers after a successful order.
- **FR6:** The system shall provide order tracking functionality, allowing customers to view the status of their orders in real-time.
- **FR7:** the system shall allow sales staff to log in and manage the orders and the system platform

### Inventory Management System

- **FR8:** The system shall track inventory levels of raw materials and finished products in real-time.
- **FR9:** The system shall automatically generate alerts and orders when inventory levels fall below predefined thresholds.
- **FR10:** The system shall update inventory levels automatically when products are sold, or raw materials are consumed in production.
- **FR11:** The system shall allow manual adjustments to inventory levels by authorized personnel.



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- **FR12:** The system shall generate reports on inventory turnover, stock levels, and reordering requirements.

#### **Production Management System**

- **FR13:** The system shall generate work orders automatically when a product is out of stock and needs to be manufactured.
- **FR14:** The system shall allow production staff to update the status of work orders (e.g., in progress, completed).
- **FR15:** The system shall integrate with inventory management to allocate raw materials to specific work orders.
- **FR16:** The system shall track production schedules and alert managers if there are delays in meeting deadlines.
- **FR17:** The system shall provide quality control checkpoints where raw materials and finished products can be marked as approved or rejected.

#### **Sales and Customer Relationship Management**

- **FR18:** The system shall store and manage customer information, including contact details, order history, and preferences.
- **FR19:** The system shall provide tools for the sales team to follow up on leads, manage customer communications, and schedule follow-up tasks.
- **FR20:** The system shall generate sales reports, including order volumes, customer demographics, and sales trends.
- **FR21:** The system shall allow customers to submit feedback and inquiries through the online platform, which will be logged and tracked by the sales team.

#### **5. Accounting and Financial Management System**

- **FR22:** The system shall record all sales transactions automatically and update the financial records in real-time.
- **FR23:** The system shall generate invoices and send them to customers electronically after an order is placed.
- **FR24:** The system shall track payments received and generate reminders for overdue payments.
- **FR25:** The system shall manage payroll, including calculating wages, taxes, and deductions, and generating payslips for employees.

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- **FR26:** The system shall generate financial reports, including profit and loss statements, balance sheets, and cash flow statements.

## **6. Delivery and Logistics Management System**

- **FR27:** The system shall generate delivery schedules based on order locations and available delivery resources.
- **FR28:** The system shall track the status of deliveries in real-time, allowing customers and staff to view estimated delivery times.
- **FR29:** The system shall send automated notifications to customers when their order is out for delivery or if there are any delays and or cancelled orders.
- **FR30:** The system shall allow delivery drivers to update the status of deliveries through a mobile interface (e.g., delivered, failed attempt).
- **FR31:** The system shall integrate with inventory management to ensure that only available products are scheduled for delivery.

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## 5. Non-Functional Requirements

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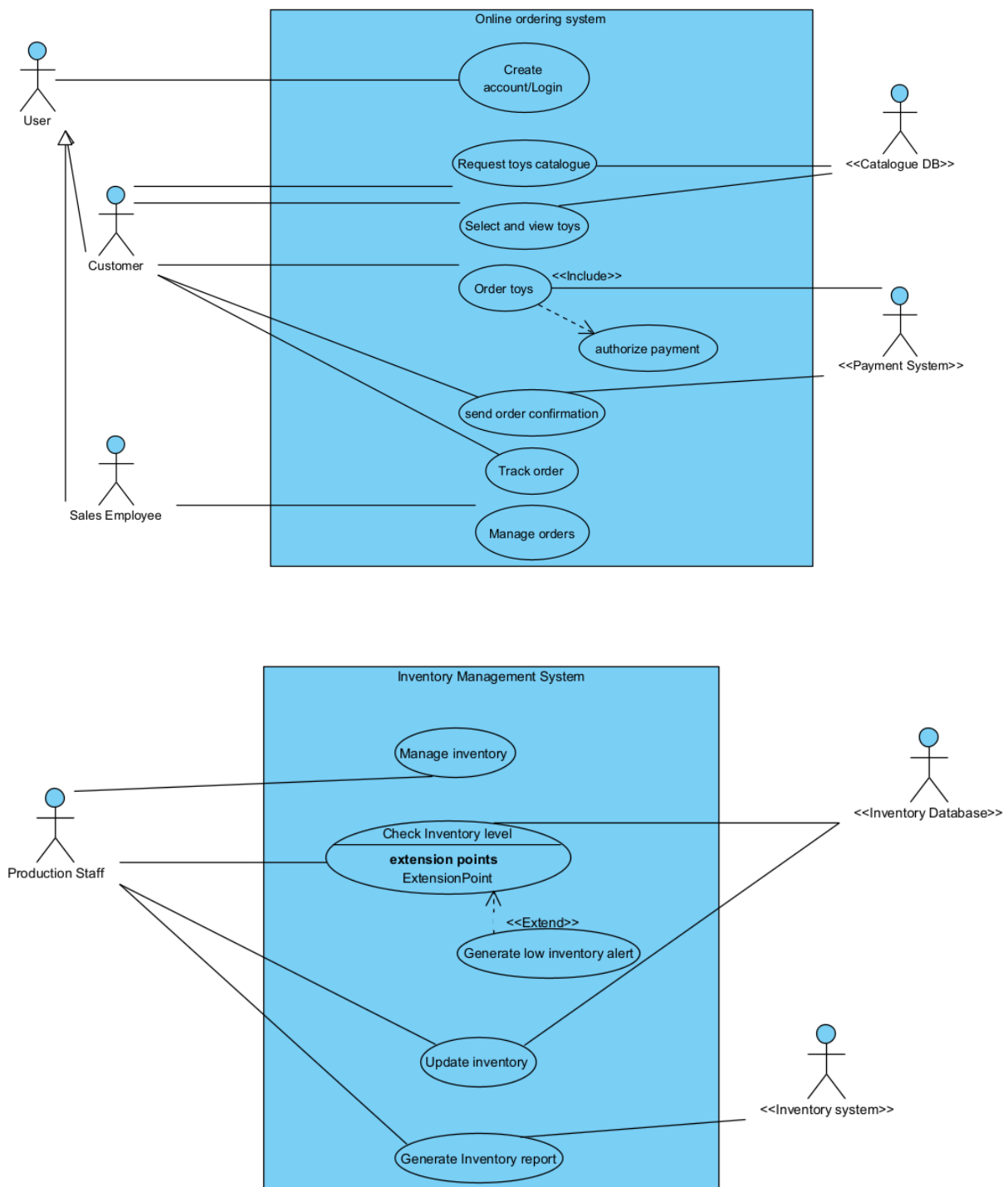
<<List all the non-functional requirements here. Non-functional requirements must be grouped in logical groups (e.g. availability, security...), uniquely numbered (e.g. NFR1, NFR2....).

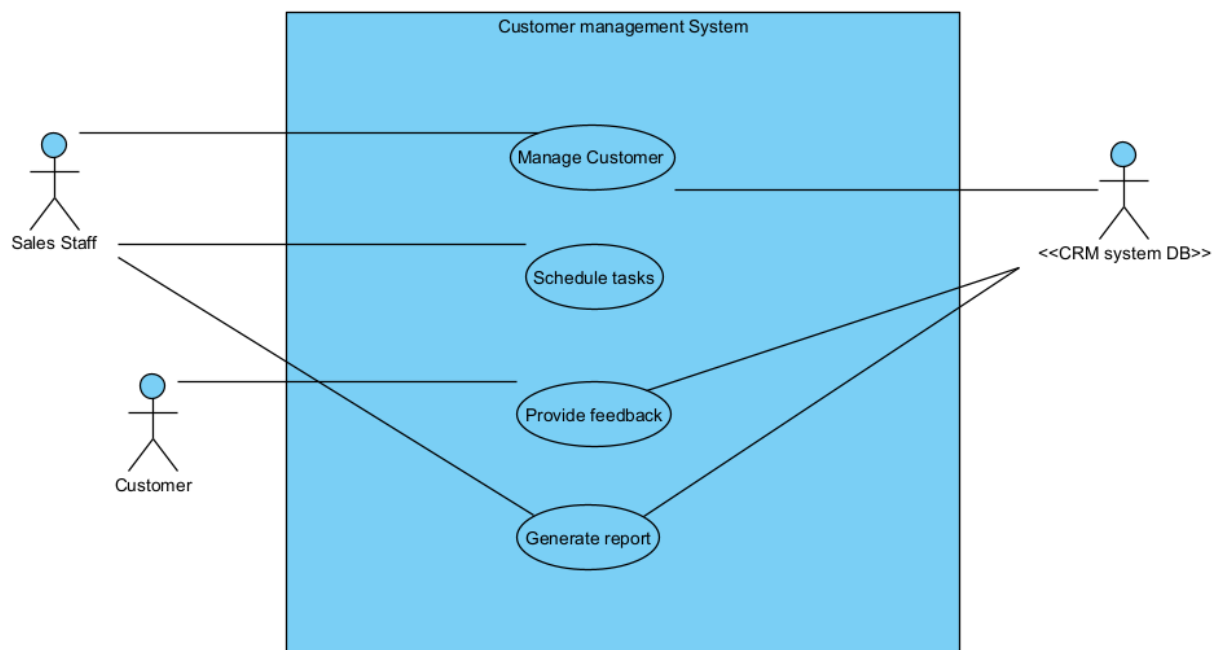
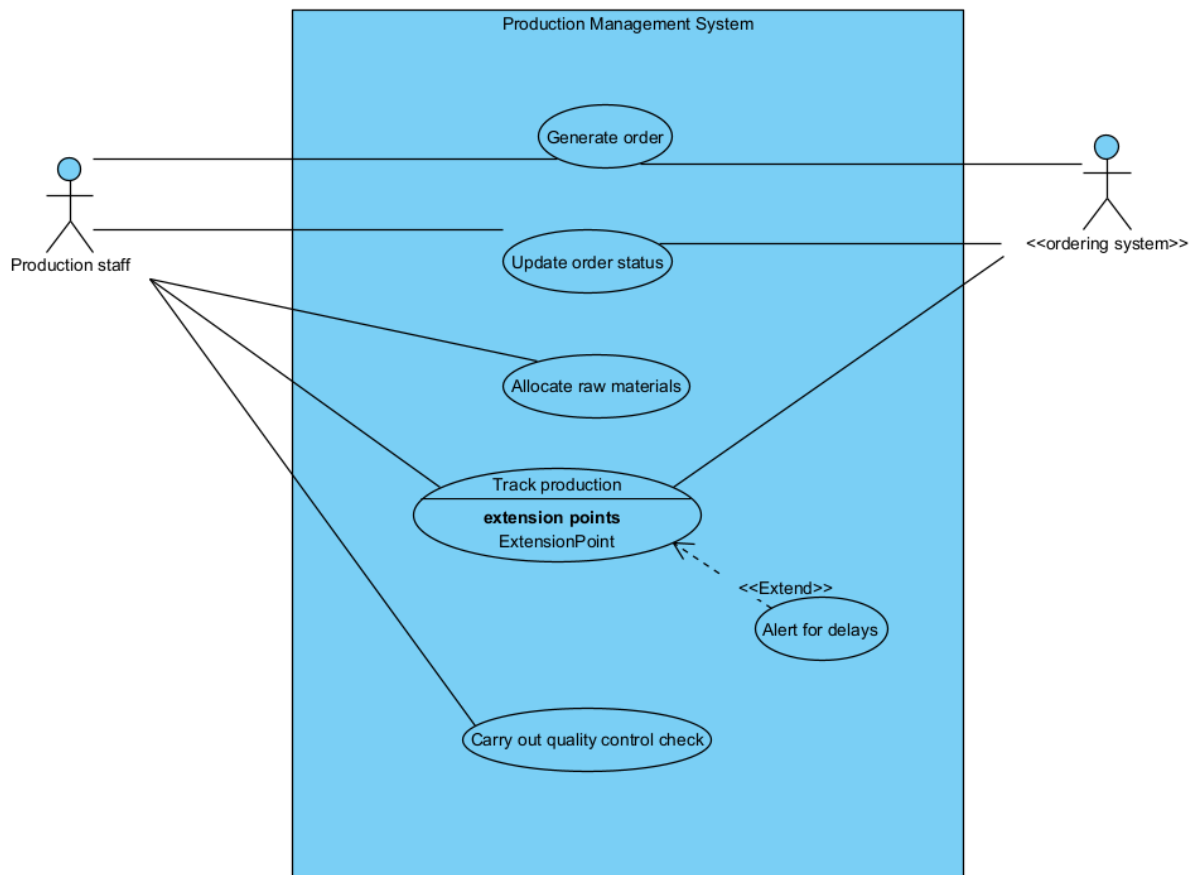
- **NFR1:** The system shall support a minimum of 500 concurrent users without performance degradation.
- **NFR2:** The system shall process and complete any customer order transaction within 3 seconds under normal load conditions.
- **NFR3:** The system shall ensure that inventory updates reflect in real-time within 2 seconds of a transaction occurring.
- **NFR4:** The system shall have an uptime of 99.9%, ensuring it is available to users 24/7 with minimal downtime.
- **NFR5:** The system shall be designed to recover from failures within 15 minutes to minimize service disruption.
- **NFR6:** The system shall support automated backups every 24 hours and allow restoration of data within 30 minutes in the event of data loss.
- **NFR7:** The system shall enforce encryptions for all sensitive data, including customer personal and payment information, both at rest and in transit.
- **NFR8:** The system shall require multi-factor authentication (MFA) for all administrative and financial operations.
- **NFR9:** The system shall automatically lock a user account after 5 failed login attempts and notify the system administrator.
- **NFR10:** The system shall comply with industry security standards and relevant data protection regulations.
- **NFR11:** The system shall provide an intuitive and user-friendly interface, requiring no more than 3 clicks to perform key actions (e.g., placing an order, generating a report).
- **NFR12:** The system shall offer a consistent user experience across different devices (desktop, tablet, and mobile).
- **NFR13:** The system shall include comprehensive user documentation and offer online help features accessible from within the interface.
- **NFR14:** The system shall provide multilingual support, initially offering English with the option to add more languages.
- **NFR15:** The system shall be scalable to handle a 100% increase in user traffic and data volume without requiring major architectural changes.
- **NFR16:** The system shall allow the addition of new modules or features with minimal disruption to existing operations.

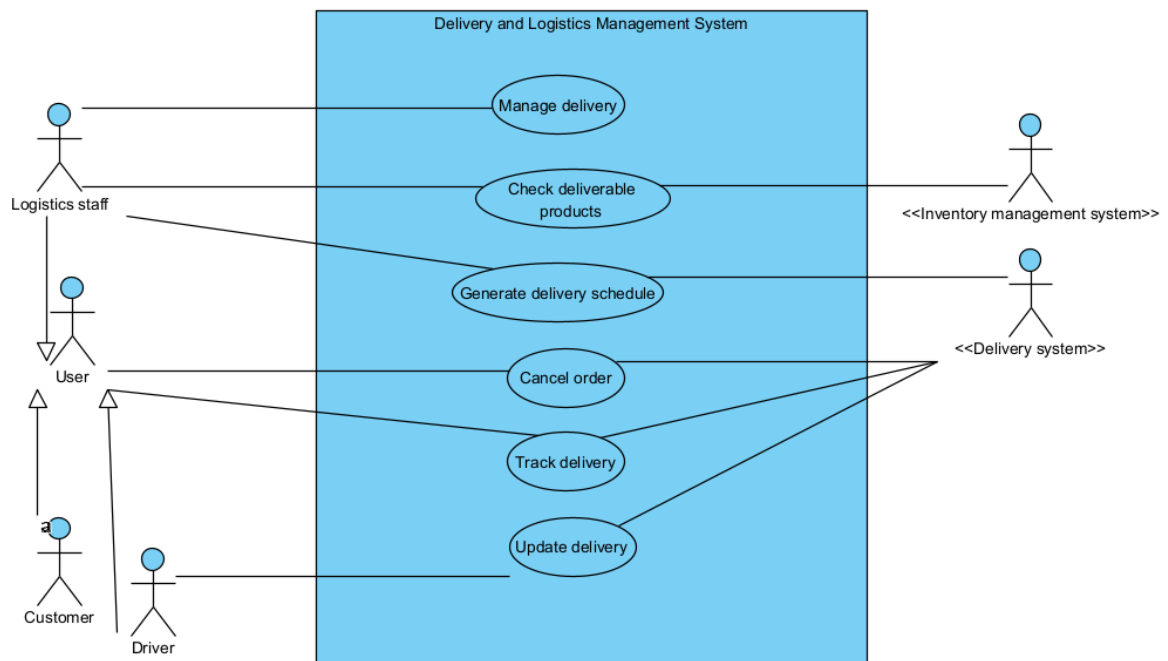
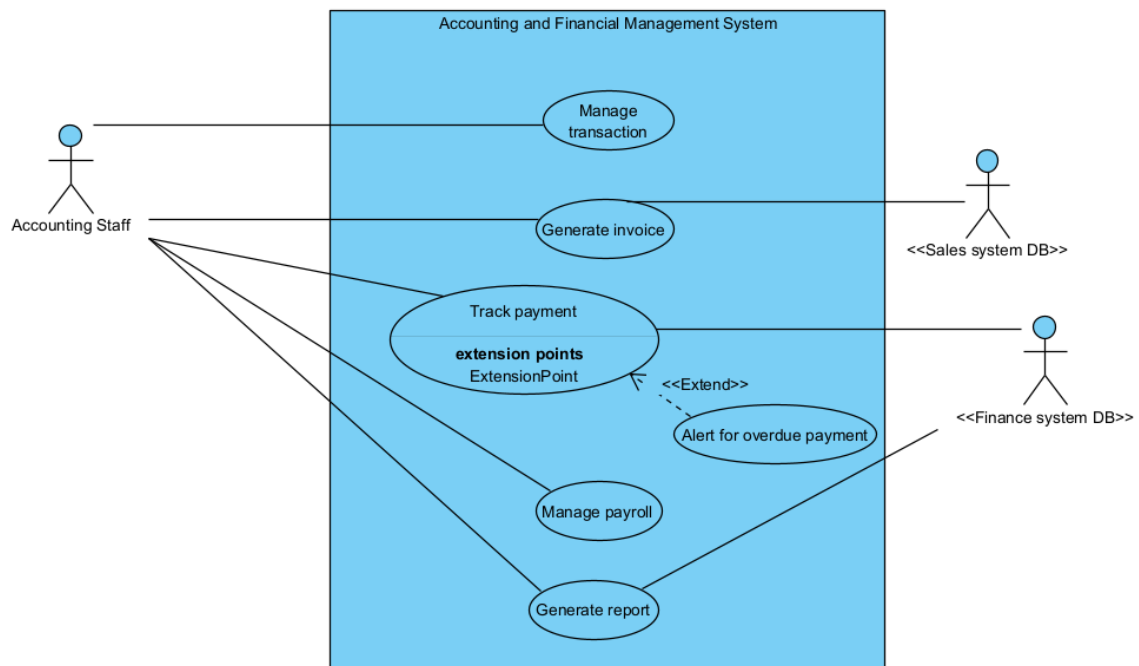
## 6. Requirements Modelling

### 6.1. Use Cases

<<Include the use cases here>>







## 6.2. Use Case Descriptions

<<Include the use case descriptions here>>

|                           |   |
|---------------------------|---|
| <b>Name</b>               | Create Account/Login  |
| <b>Identifier</b>         | UC 01 (Online ordering system)  |
| <b>Description</b>        | This use case describes how a user creates an account and logs in   |
| <b>Goal</b>               | Allow the user access to the online ordering system   |
| <b>Preconditions</b>      | User must have a mobile/computer device to access the system  |
| <b>Assumptions</b>        |   |
| <b>Frequency</b>          | 500 times per day   |
| <b>Basic Flow</b>         | <p>1.1 The use case begins when the user wishes to create an account by clicking the register button.</p> <p>1.2 The system requests the user to input a name, email and password at the register page.</p> <p>1.3 The user enters their details as requested.</p> <p>1.4 The system validates the details and creates an account.</p> <p>1.5 The system auto logs in the user once the account is created.</p> |
| <b>Alternative Flow</b>   | <p>A1 User details are invalid</p> <p>A1.1 The user enters invalid details for their account</p> <p>A1.2 The system gives an error message to provide valid details</p> <p>A1.3 The use case ends when the user returns to the beginning of the basic flow or provides valid details and goes ahead with step 1.4</p>   |
| <b>Post conditions</b>    | The user is logged in and can access the online ordering system   |
| <b>Actors</b>             | User  |
| <b>Included Use Cases</b> |   |

|                          |  |
|--------------------------|--|
| <b>Extended Use Case</b> |  |
| <b>Notes</b>             | User can log in multiple times or create multiple accounts |

|                         |   |
|-------------------------|---|
| <b>Name</b>             | Check Inventory Level   |
| <b>Identifier</b>       | UC 02 (Inventory Management System)   |
| <b>Description</b>      | This use case describes how a production staff member checks the inventory levels of the toys and raw materials   |
| <b>Goal</b>             | Allow the staff member to check and monitor the inventory   |
| <b>Preconditions</b>    | Production staff member is connected to the system already  |
| <b>Assumptions</b>      |   |
| <b>Frequency</b>        | 2 times per day   |
| <b>Basic Flow</b>       | <p>2.1 The use case begins when the production staff member requests an inventory check.</p> <p>2.2 The system takes the request and gives the user the general data of the inventory levels with detailed options available.</p> <p>2.3 The staff member clicks on individual options to see the detailed statistics of the current inventory.</p> <p>2.4 If there are no issues, the staff member logs off the system.</p>    |
| <b>Alternative Flow</b> | <p><b>A2 Low inventory level</b></p> <p><b>A2.1</b> After the user requests an inventory check, if the inventory level is low.</p> <p><b>A2.2</b> The system gives an alert message of the low inventory levels</p> <p><b>A2.3</b> The system automatically generates an order for the supplier and asks the staff to confirm it</p> <p><b>A2.4</b> The use case ends when the user confirms the order and goes to step 2.4</p> |



|                           |  |
|---------------------------|--|
|                           |  |
| <b>Post conditions</b>    | The user has access to all the inventory data    |
| <b>Actors</b>             | Production Staff                                 |
| <b>Included Use Cases</b> |  |
| <b>Extended Use Case</b>  | <i>Generate low inventory level alert</i>        |
| <b>Notes</b>              | Staff can check the inventory levels at any time |

|                      |   |
|----------------------|---|
| <b>Name</b>          | Generate Order  |
| <b>Identifier</b>    | UC 01 (Production Management System)  |
| <b>Description</b>   | This use case describes how a production staff member generates an order for toys   |
| <b>Goal</b>          | Allow a staff member to successfully place an order for a toy   |
| <b>Preconditions</b> | Production staff member is connected to the system already  |
| <b>Assumptions</b>   |   |
| <b>Frequency</b>     | 2 times per week  |
| <b>Basic Flow</b>    | 1.1 The use case begins when the production staff member wishes to create an order.<br>1.2 The system asks the staff to enter the information of the toy.<br>1.3 The staff member enters any specific details for the order such as the toy, materials or quantity and clicks "Place Order".<br>1.4 The system checks the availability of the materials.<br>1.5 The system validates and sends the order to be completed. |

|                           |  |
|---------------------------|--|
| <b>Alternative Flow</b>   | <p><b>A1 Not enough materials</b></p> <p><b>A1.1</b> After the system checks for the availability of required materials.</p> <p><b>A1.2</b> The materials are insufficient, the system notifies the staff member that there are not enough materials available to complete the order.</p> <p><b>A1.3</b> The system suggests placing the order on hold or reducing the quantity of the toy to match the available materials. The staff member can either: Cancel the order or adjust the order (quantity or materials)</p> <p><b>A1.4</b> Once the issue is resolved, the staff member can proceed with placing the order, and the system continues as in the basic flow from step 1.4</p> |
| <b>Post conditions</b>    | The staff has placed an order for a toy  |
| <b>Actors</b>             | Production Staff   |
| <b>Included Use Cases</b> |  |
| <b>Extended Use Case</b>  |  |
| <b>Notes</b>              | Staff can generate multiple orders   |

|                      |   |
|----------------------|---|
| <b>Name</b>          | Provide Feedback  |
| <b>Identifier</b>    | UC 03 (Customer Management System)  |
| <b>Description</b>   | This use case describes how a customer gives feedback to the sales team               |
| <b>Goal</b>          | Allow a customer to give their feedback on services and products                      |
| <b>Preconditions</b> | The customer has purchased a toy and received it, and logged into the online platform |

|                           |  |
|---------------------------|--|
| <b>Assumptions</b>        |  |
| <b>Frequency</b>          | 50 times per day   |
| <b>Basic Flow</b>         | <p>3.1The use case begins when a feedback pop up is shown on the screen for the customer after their order is complete.</p> <p>3.2The customer selects to give their feedback.</p> <p>3.3The system asks the user to give a rating out of 5 stars for the toy and the delivery service.</p> <p>3.4The user inputs their rating.</p> <p>3.5The system then asks to provide any extra feedback with an optional textbox and the submit button.</p> <p>3.6The customer decides to provide/not provide the extra feedback and presses submit.</p> <p>3.7The data of the customer is automatically stored by the system and the feedback screen disappears.</p> |
| <b>Alternative Flow</b>   | <p>A3 Customer does not provide feedback</p> <p>A3.1 The customer presses cancel on the feedback screen.</p> <p>A3.2 The use case returns to normal flow to step 3.7 and stores only the customer order history.</p>   |
| <b>Post conditions</b>    | The system updates the data of customers   |
| <b>Actors</b>             | Customer   |
| <b>Included Use Cases</b> |  |
| <b>Extended Use Case</b>  |  |
| <b>Notes</b>              | Customers can submit multiple feedbacks.   |

|                   |  |
|-------------------|--|
| <b>Name</b>       | Track Payment                                      |
| <b>Identifier</b> | UC 03 (Accounting and Financial Management System) |

|                           |   |
|---------------------------|---|
| <b>Description</b>        | <b>This use case describes how an accounting staff member keeps track of customer payments.</b>   |
| <b>Goal</b>               | <b>Allow the accounting staff to keep updated with the payments</b>   |
| <b>Preconditions</b>      | The accounting staff is logged into the system and has access to the data   |
| <b>Assumptions</b>        |   |
| <b>Frequency</b>          | <b>2 times per week</b>   |
| <b>Basic Flow</b>         | <b>3.1</b> The use case begins when the accounting staff requests payment data<br><b>3.8</b> The system displays the lists of invoices of customers and their details<br><b>3.9</b> The accounting staff organizes or updates the data if manual changes are is needed.<br><b>3.10</b> The system updates the invoices and saves it.  |
| <b>Alternative Flow</b>   | <b>A3 Overdue payments</b><br><b>A3.1</b> The system displays an alert alongside the details of payments for overdue payments.<br><b>A3.2</b> The accounting staff member clicks on the alert.<br><b>A3.3</b> The system shows the list of overdue payments and prompts the staff to send an automated reminder for payment.<br><b>A3.4</b> The staff member yes on the prompt.<br><b>A3.5</b> The system sends the reminders, and the use case goes back to basic flow to step 3.4 |
| <b>Post conditions</b>    | The accounting staff member is up to date with the payments   |
| <b>Actors</b>             | Accounting Staff  |
| <b>Included Use Cases</b> |   |

|                          |   |
|--------------------------|---|
| <b>Extended Use Case</b> | <i>Alert for Overdue payment</i>  |
| <b>Notes</b>             | There can be multiple overdue payments and multiple reminders can be sent |
|                          |   |

|                         |   |
|-------------------------|---|
| <b>Name</b>             | <b>Track Delivery</b>   |
| <b>Identifier</b>       | UC 05 (Delivery and Logistics Management System)  |
| <b>Description</b>      | This use case describes how a user keeps track of the toy delivery order  |
| <b>Goal</b>             | Allow a user of the system to track the deliveries  |
| <b>Preconditions</b>    | The user is logged into the system and a delivery is underway   |
| <b>Assumptions</b>      |   |
| <b>Frequency</b>        | 50 times a day  |
| <b>Basic Flow</b>       | <p>5.1The use case begins when a user clicks on the track delivery option.</p> <p>5.2 The system fetches the order data and displays any ongoing deliveries.</p> <p>5.3The user selects an available delivery to track.</p> <p>5.4The system opens up the delivery schedule with the map, live locations of the driver and destination as well as an estimated time.</p> <p>5.5The use case ends when the user checks the delivery and closes the tab</p> |
| <b>Alternative Flow</b> | <p><b>A5 Ask for help</b></p> <p>A5.1 The system also displays an option for support as there is an issue with the delivery</p> <p>A3.2 The user selects the support option</p> <p>A3.3 The system shows a list of options for support</p>  |

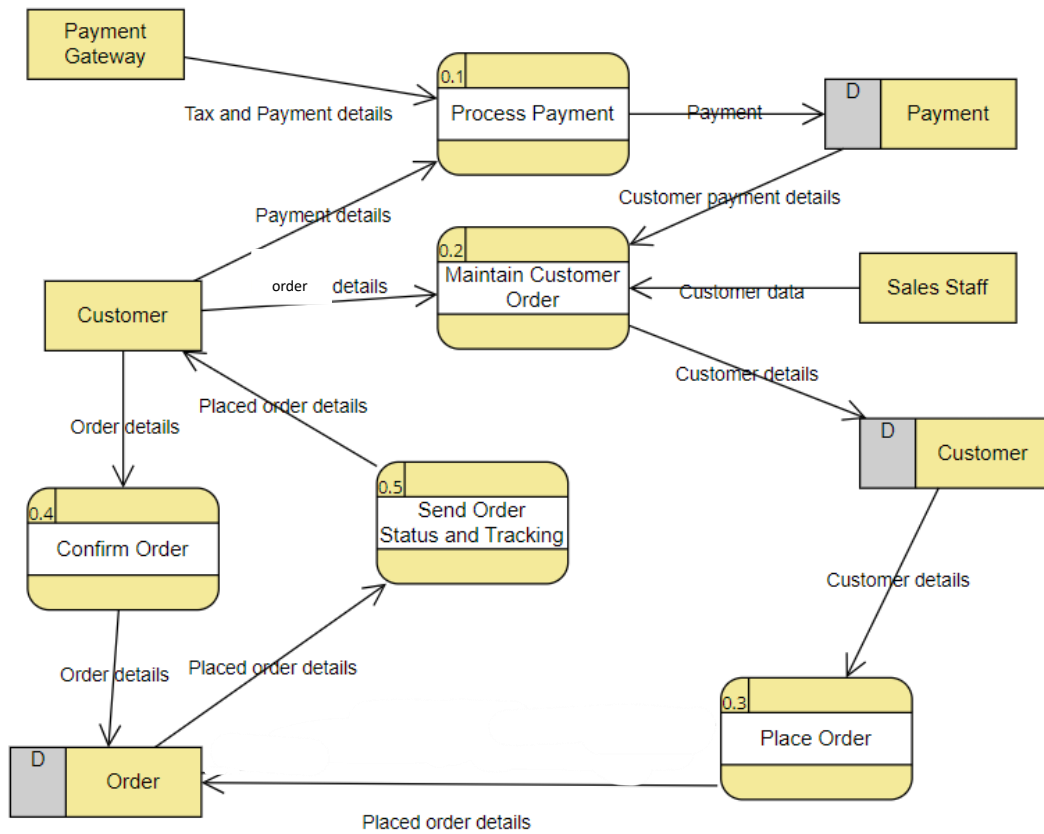
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|                           |  |
|---------------------------|--|
|                           | <b>A3.4</b> The user selects an option suited for them<br><b>A3.5</b> The user's information is then sent and updated/stored by the system and the use case goes back to normal flow to step 5.5 |
| <b>Post conditions</b>    | The user is up to date with the delivery status  |
| <b>Actors</b>             | Customer, Logistics staff, Driver  |
| <b>Included Use Cases</b> |  |
| <b>Extended Use Case</b>  |  |
| <b>Notes</b>              | Delivery status can be checked at any time   |
|                           |  |

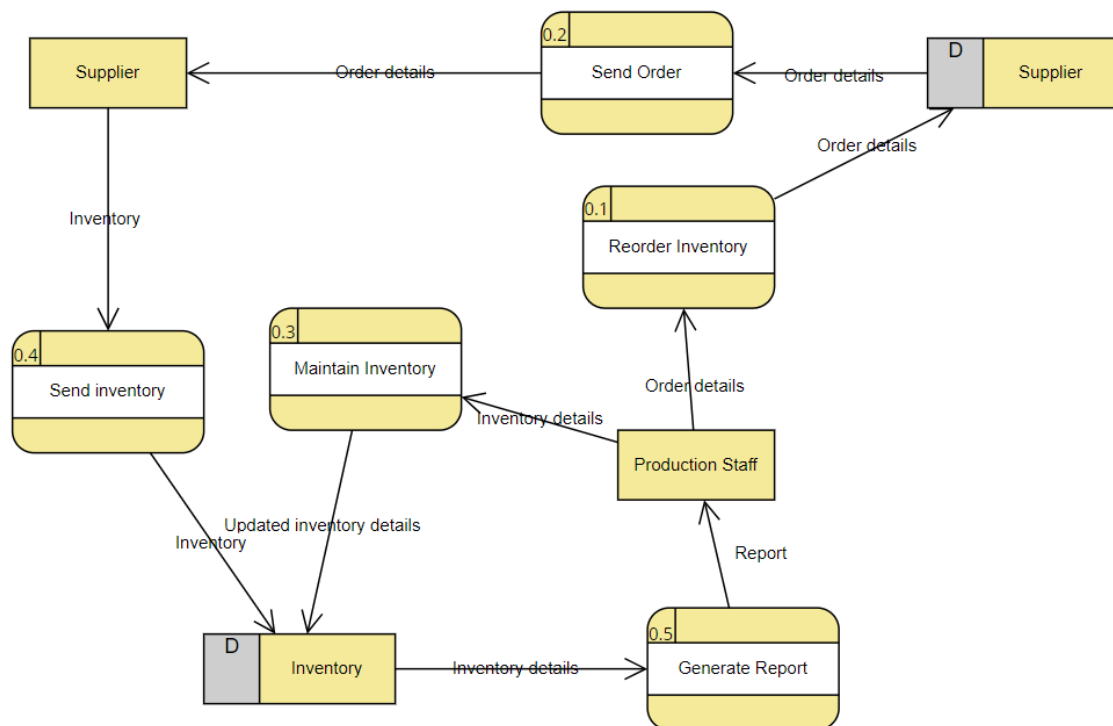
### 6.3. Data Flow Diagram(s) (Level 1 only)

<<Include your level 1 DFDs here>>

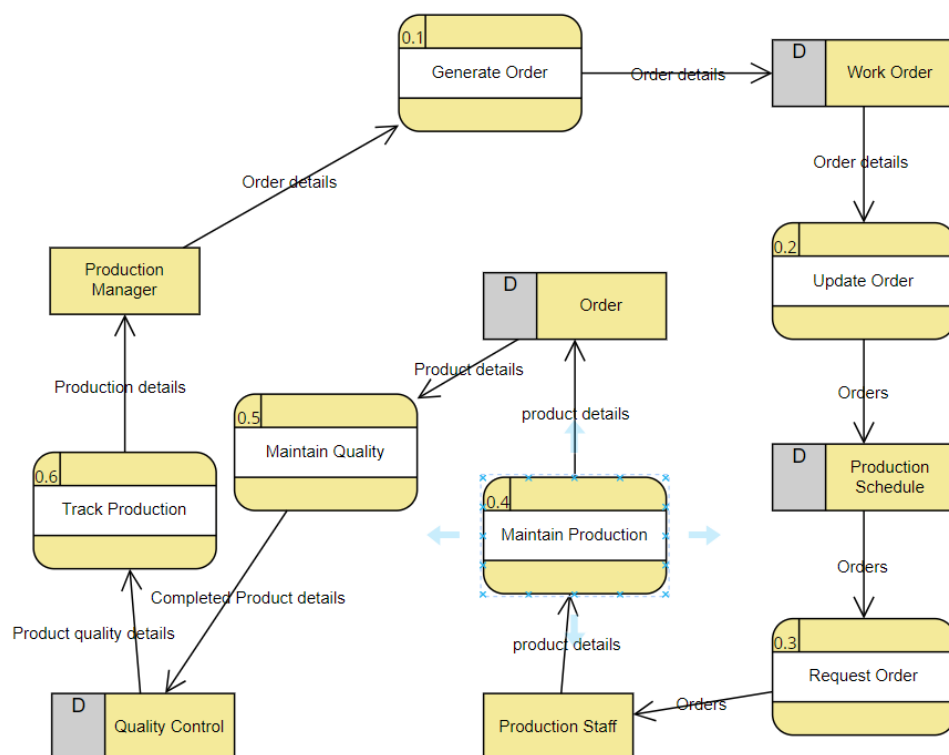
#### Online Ordering System



## **Inventory Management System**

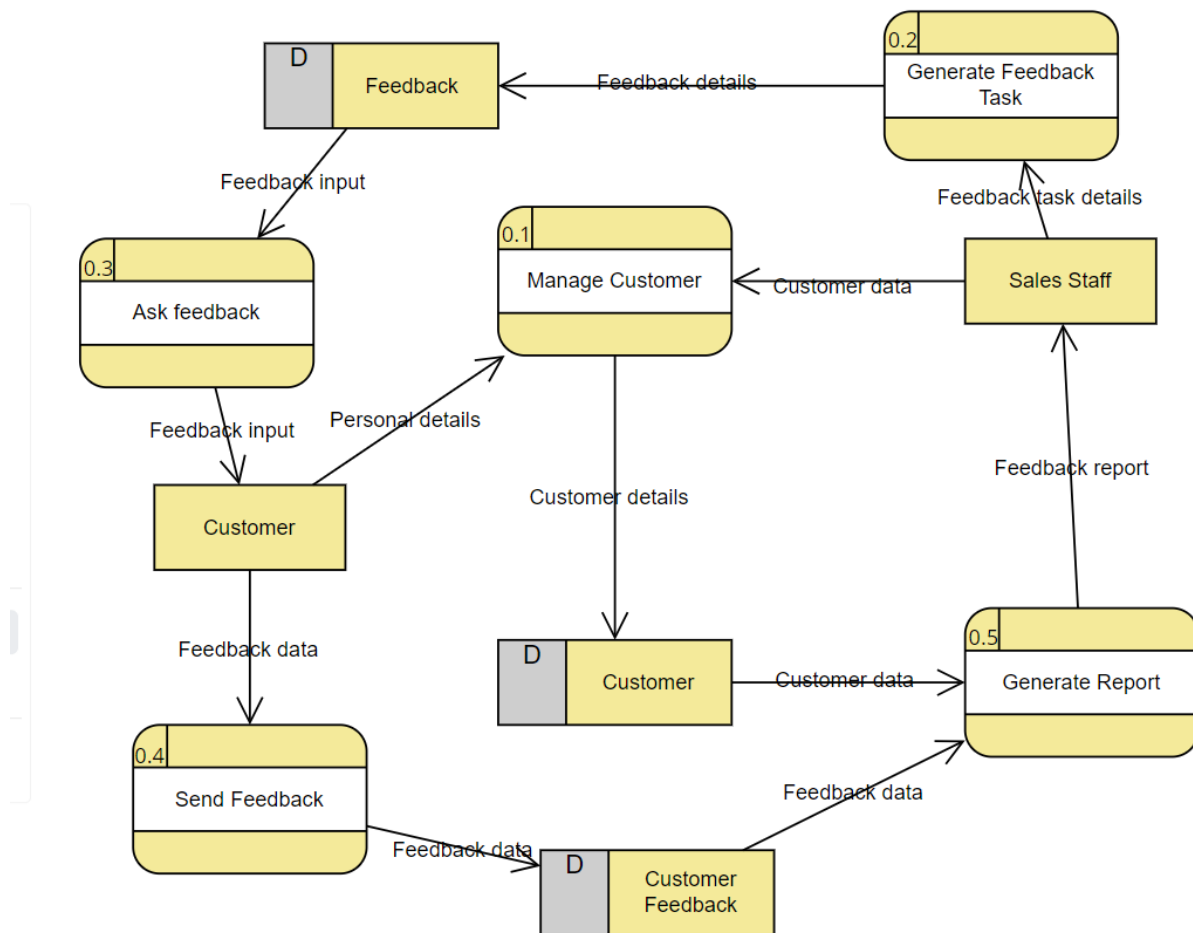


## Production Management System

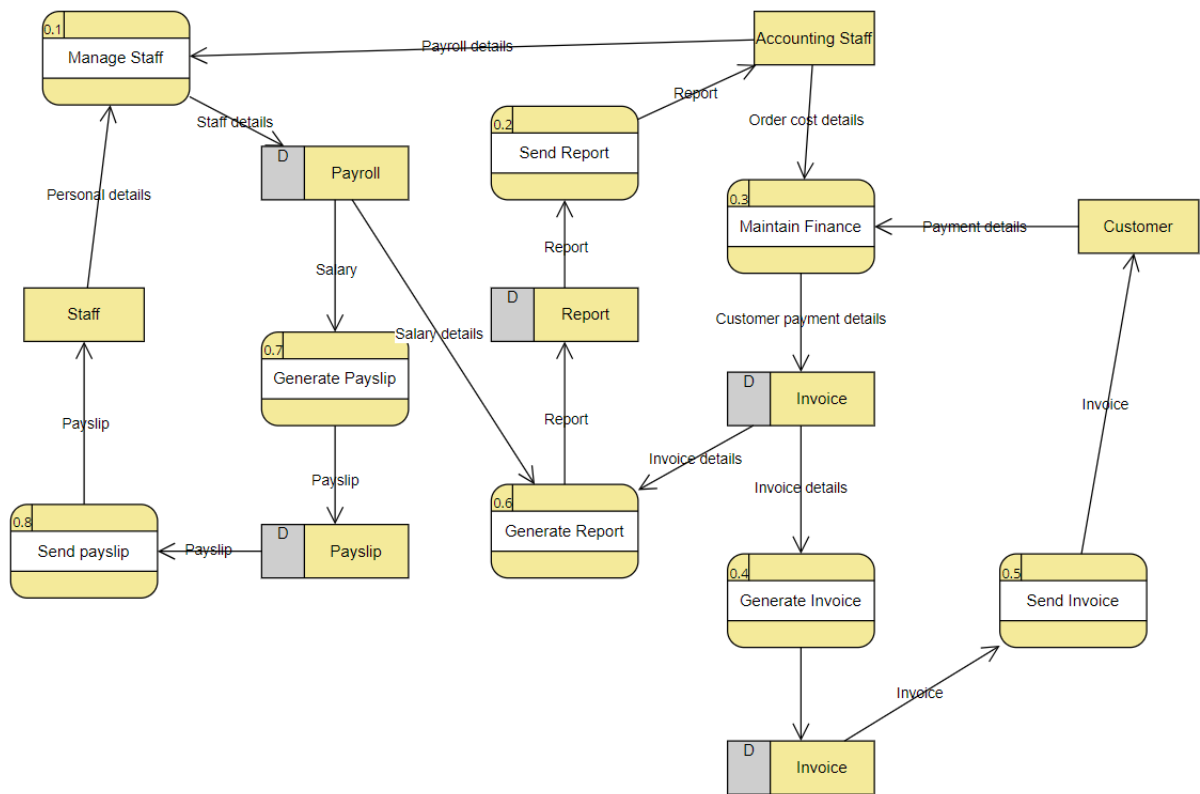




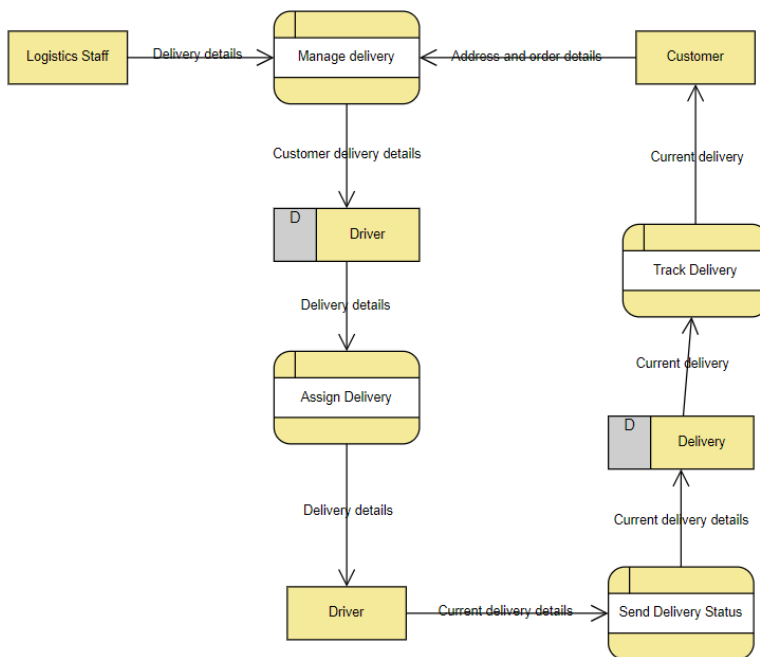
## Customer Management System



## Accounting and Financial Management System



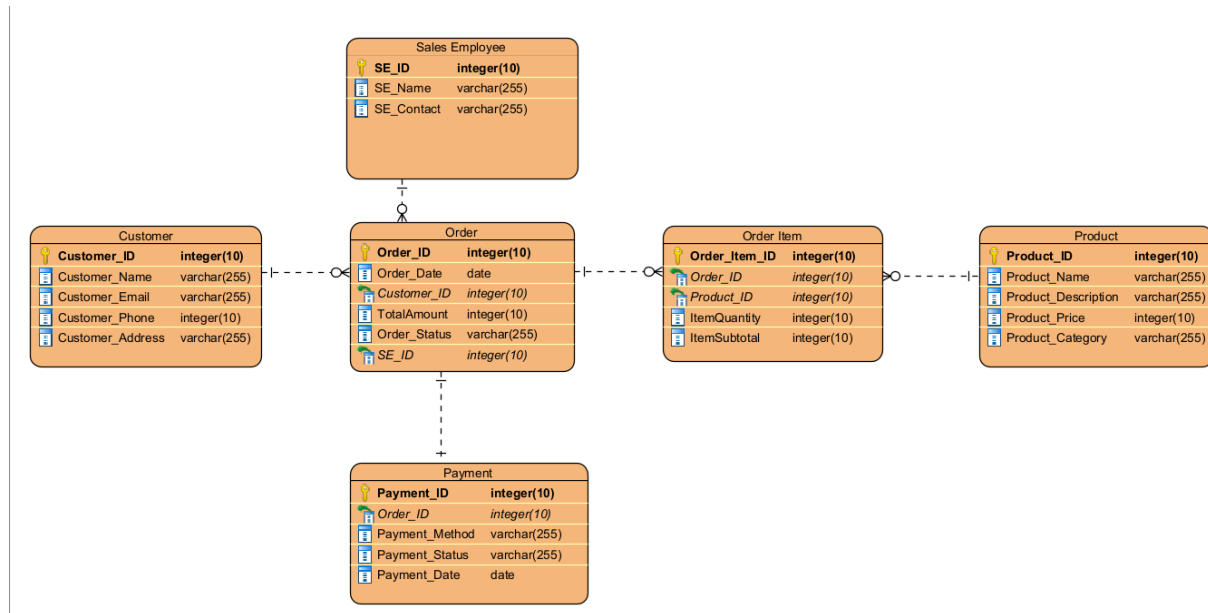
## Delivery and Logistics Management System



## 6.4. Entity Relationship Diagram(s)

<<Include ERDs here>>

### Online Ordering System



Customer to Order: One-to-Many. A customer can place multiple orders, but an order is placed by only one customer.

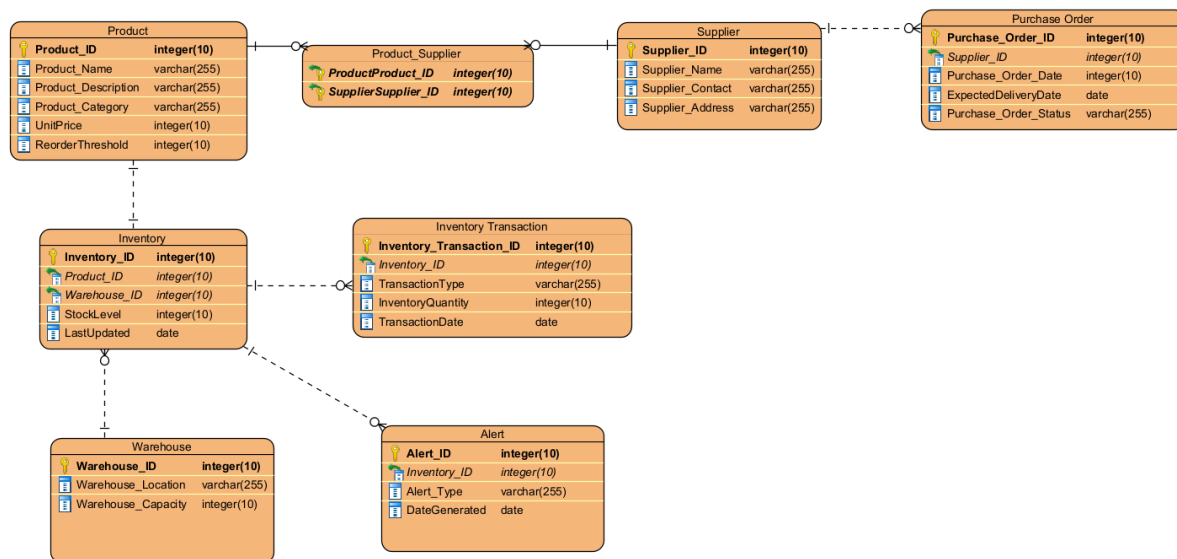
Order to Order Item: One-to-Many. An order can have multiple order items (products), and each order item belongs to a specific order.

Product to Order Item: One-to-Many. An order item references a product, and a product can be part of many order items.

Order to Payment: One-to-One. An order is associated with a single payment and a payment can belong to only one order.

Sales Employee to Order: One-to-Many. An employee can manage one or more orders.

### Inventory Management System



Product to Inventory: One-to-one. A product has one inventory record.

Product to Supplier: Many-to-many. A product can have multiple suppliers, and a supplier can provide many products.

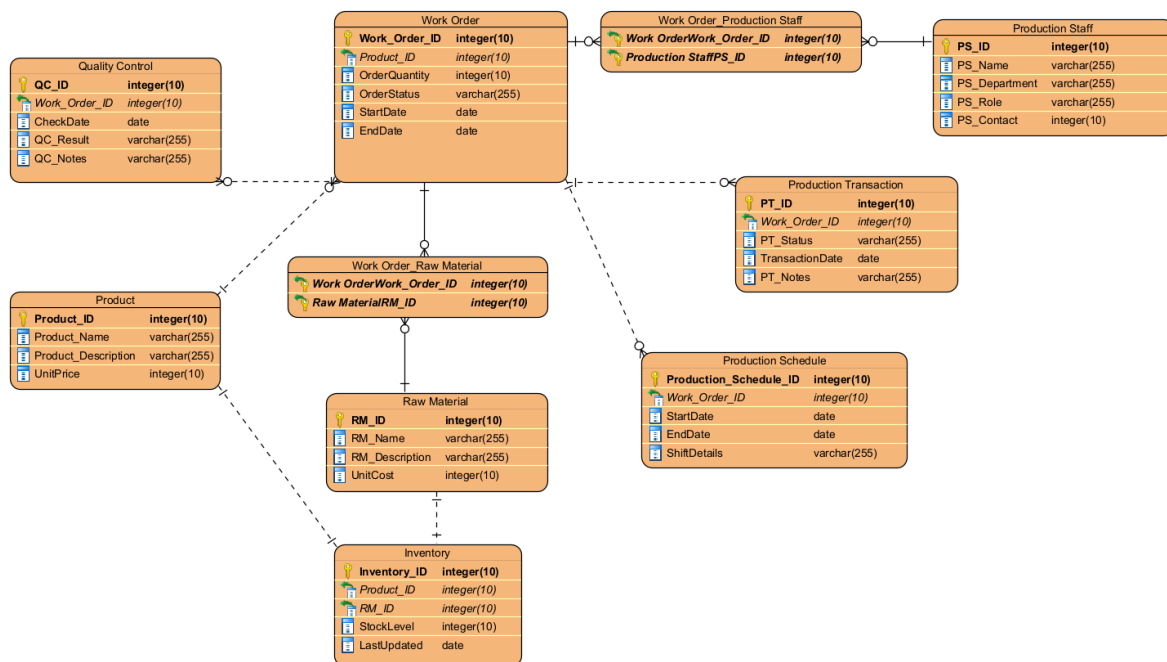
Inventory to Inventory Transaction: One-to-many. Each inventory record can have many associated transactions.

Supplier to Purchase Order: One-to-many. A supplier can be associated with multiple purchase orders.

Warehouse to Inventory: One-to-many. A warehouse holds multiple inventory records.

Inventory to Alert: One-to-many. An inventory record can trigger multiple alerts.

## **Production Management System**



Product to Work Order: One-to-Many. A product can have multiple work orders.

Work Order to Production Staff: Many-to-Many. Multiple employees can work on a work order, and each employee can work on multiple work orders.

Work Order to Raw Material: Many-to-Many. A work order uses various raw materials, and raw materials can be used in many work orders.

Work Order to Production Transaction: One-to-Many. A work order can have many status updates as it progresses through production.

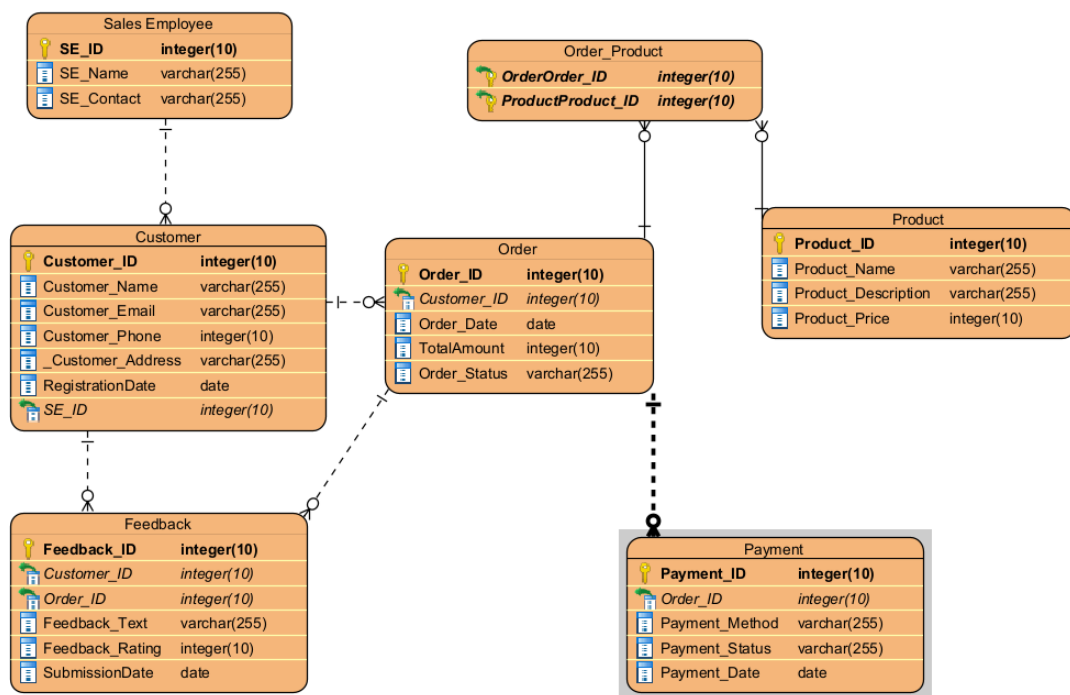
Work Order to Quality Control: One-to-Many. Each work order has one or more quality control checks for raw materials or finished products.

Work order to Production Schedule: One-to-Many. A production schedule can include multiple work orders.

Raw Material to Inventory: One-to-One. Each raw material is tracked in the inventory.

Product to Inventory: One-to-One. Finished products are also tracked in the inventory once produced.

## Sales and Customer Relationship Management



Customer to Order: One-to-Many. Each customer can place many orders.

Order to Product: Many-to-Many. An order can contain multiple products, and each product can be included in many orders.

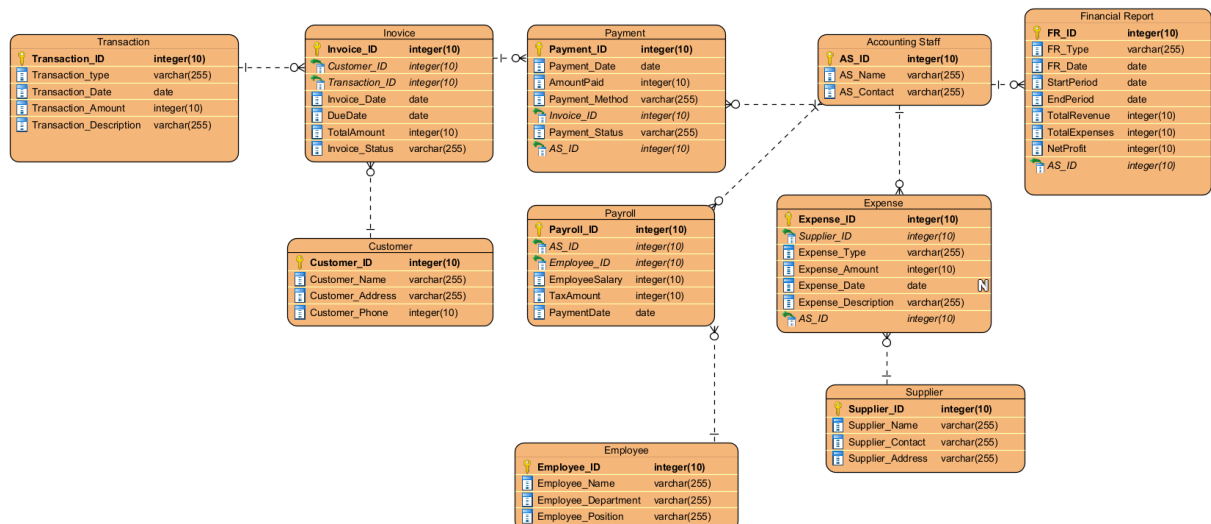
Customer to Feedback: One-to-Many. A customer can submit feedback for each order.

Sales Employee to Customer: One-to-Many. Each sales employee manages multiple interactions with customers.

Order to Payment: One-to-Many. Each order can have one or more payments.

Order to Feedback: One-to-Many. Each order can have one or more feedback.

### **Accounting and Financial Management System**



Transaction to Invoice: One-to-Many. Each transaction can generate one or more invoices.

Invoice to Payment: One-to-Many. Each invoice can be paid in instalments or all at once, so there can be multiple payments associated with one invoice.

Customer to Invoice: One-to-Many. A customer can receive many invoices for different orders or services.

Employee to Payroll: One-to-Many. Each employee has a payroll record.

Supplier to Expense: One-to-Many. Suppliers provide materials or services that result in company expenses.

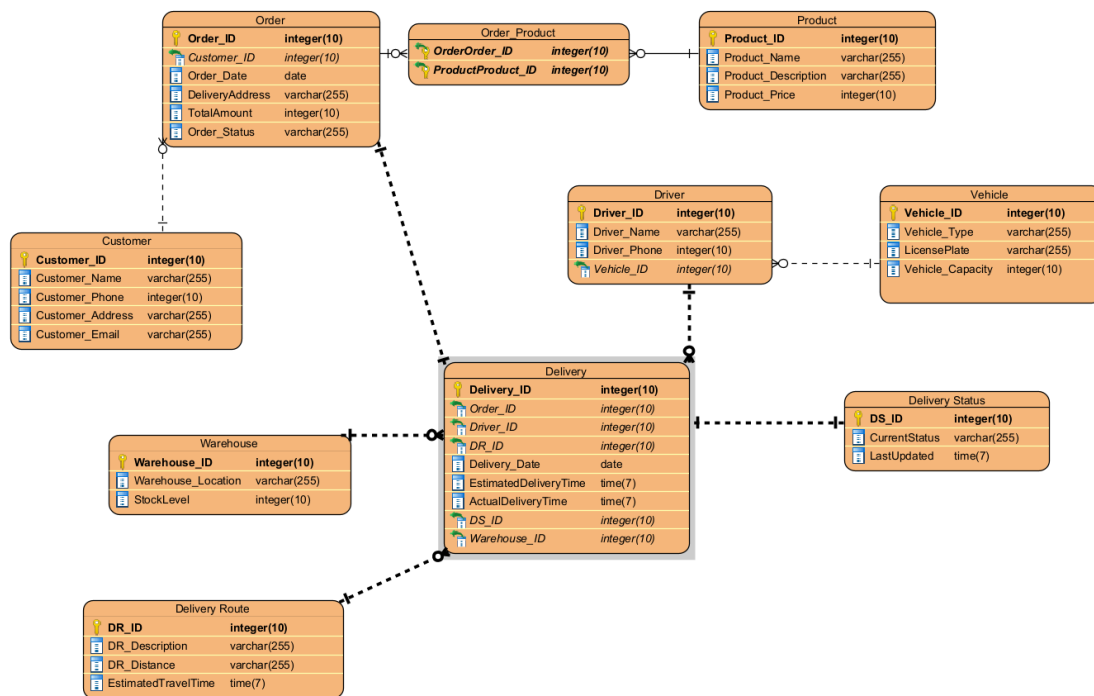
Accounting Staff to Payment: An accounting staff member can handle one or more payments.

Accounting Staff to Expense: An accounting staff member can handle one or more Expenses.

Accounting Staff to Payroll: An accounting staff member can handle one or more employee payrolls.

Accounting Staff to Financial Report: An accounting staff member can generate one or more Reports.

## **Delivery and Logistics Management System**



Order to Delivery: One-to-One. Each order has a corresponding delivery instance.

Customer to Order: One-to-Many. A customer can place many orders, and each order is associated with a specific customer.

Vehicle to Driver: One-to-Many. A vehicle can be assigned to multiple drivers, since they can have shifts.

Driver to Delivery: One-to-Many. A driver can manage multiple deliveries.

Delivery Route to Delivery: One-to-Many. A delivery follows one specific route, and a route can cover multiple deliveries.

Delivery to Delivery Status: One-to-One. Each delivery is tracked by its status.

Warehouse to Delivery: One-to-Many. A delivery originates from a specific warehouse, where products are stocked.

Product to Order: Many-to-Many. Each order can include multiple products, and each product can be ordered multiple times.



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## 7. Additional Information

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<<List any other information here, for example, any constraints or assumptions>>

### Constraints:

1. **Budget Limitations:** The project will be limited by the budget allocated for system development, software procurement, hardware upgrades, and staff training.
2. **Timeline Restrictions:** The system must be developed and fully operational within a specific time frame to meet expansion goals, such as launching the wooden toys collection and the franchise in Australia.
3. **Integration with Legacy Systems:** The new system must integrate with existing Office tools like Word and Excel, which the accounting team uses for payroll and tax tracking.
4. **Data Migration:** Existing manual records (sales orders, customer information, inventory data) need to be accurately migrated to the new system without loss or corruption of data.
5. **System Scalability:** The system should be scalable to accommodate future expansions, including international franchises, additional product lines, and increased customer demand.

### Assumptions:

1. **Availability of Technology:** It is assumed that the technology required (e.g., servers, network infrastructure, software) will be readily available for system implementation.
2. **Stable Business Processes:** The core business processes (sales, production, inventory management) will remain stable during the project development, without any drastic changes in operations.
3. **Willingness to Adopt:** It is assumed that staff across all departments will be cooperative and willing to adapt to the new system without resistance.
4. **Adequate Data for Migration:** The company's existing data (orders, inventory, customer details) is sufficiently accurate and complete for migration to the new system without requiring significant clean-up.