Requirements Engineering

Linen Order SYS

Submitted By: Michael Edgar – T00194492

Computing with Games Development

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# Introduction/overview

# Functional Components

# User Requirements

High level **abstract statements** describing the user requirements.

This should be consistent with the hierarchy chart in section 2.

Requirements to be listed in exactly same order as in section 2.

* **3.1** Manage Linen
  + **3.1.1** The system will add new linen to the table of available linen.
  + **3.1.2** The system will update the details of the linen.
  + **3.1.3** The system will remove linen from the table of available linen.
* **3.2** ManageOrder
  + **3.2.1** The system will log orders from the customer.
  + **3.2.2** The system will cancel an order from the customer.
  + **3.2.3** The system will dispatch the linen for a required order.
  + **3.2.4** The system will collect the laundry the customer wants cleaned.
  + **3.2.5** The system will record the amount owed by the customer and if they have paid.
* **3.3** Manage Customers
  + **3.3.1** The system will add customer details to a table of customers.
  + **3.3.2** The system will update a customer’s information.
  + **3.3.3** The system will remove any obsolete customer.
* **3.4** Perform Admin
  + **3.4.1** The system will calculate the total yearly earnings of the company.
  + **3.4.2** The system will calculate the total earnings per customer.
  + **3.4.3** The system will track the amount of rejects.
  + **3.4.4** The system will track the cost of the rejects in a given time period.

# System Requirements

LinenSYS will manage all linen to be sold by the company. The system will contain functions to add, update and remove linen from the system. The Add Linen function will add a new piece of linen to the system so that the customer may make orders for that piece of Linen. The Update Linen function will allow the manager to modify details in the Linen File for a particular piece of linen. The Remove Linen function will allow the manager to remove a piece of linen from the system, making it unavailable for orders.

LinenSYS will manage all orders coming through the company. Any new order will be logged into the system using the Log Order function. An order may be cancelled by the manager using the Cancel Order function, assuming the order has not been delivered. The details of an order may be sent to the delivery crew using the Dispatch Delivery function. An order to collect Laundry may be logged in the system using the Collect Laundry function. Finally, a record of payment by the customer may be logged in the system using the Record Payment function.

## System Level Use Case Diagram

LinenSYS

Manager

Customer

## Manage Linen

### **Add Linen**

This function adds new linen to the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Add Linen** | |
| **Use Case Id** | 4.2.1 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function adds new linen to the system. | |
| **Preconditions** | None | |
| **Trigger** | None | |
| **Expected Scenario** | **Manager** | **System** |
|  | **Step 1:** The manager invokes the Add Linen function.  **Step 4:** The manager enters the following details:   * Linen\_Name * Hire\_Price * Cleaning\_Price * Pack\_Size | **Step 2:** The system determines the next Linen\_ID.  **Step 3:** Display the UI  **Step 5:** The system validates the data:   * All fields must not be blank. * The Linen Name must only contain letters. * The Hire and Cleaning Prices must be a positive number * Hire Price must be greater than Cleaning price * The Pack Size must be a positive whole number and a multiple of 5   **Step 6:** The system sets the Status to Active (“A”).  **Step 7:** The system saves the following data to the Linen File:   * Linen\_ID * Linen\_Name * Hire\_Price * Cleaning\_Price * Pack\_Size * Status   **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Manager** | **System** |
| **Field Not Entered** |  | **Step 5:** Blank field detected.  **Step 6:** The system displays an error message: “Error, all fields must be entered.”  **Step 7:** Place cursor on first blank field and return to Step 4. |
| **Invalid Linen Name** |  | **Step 5:** Invalid linen name detected (e.g. numbers/symbols).  **Step 6:** The system displays an error message: “Error, invalid linen name, please re-enter.”  **Step 7:** Place cursor on the linen name field and return to Step 4. |
| **Invalid Hire/Cleaning Price** |  | **Step 5:** Invalid hire/cleaning price detected (e.g. not positive numbers with up to two decimal points).  **Step 6:** The system displays an error message: “Error, invalid hire/ cleaning price, please re-enter.”  **Step 7:** Place cursor at the offending field and return to Step 4. |
| **Invalid Pack Size** |  | **Step 5:** Invalid pack size detected (e.g. not positive whole number, and multiple of five).  **Step 6:** The system displays an error message: “Error, invalid pack size, please re-enter.”  **Step 7:** Place cursor at the pack size field and return to Step 4. |
| **Hire Price less than Cleaning Price** |  | **Step 5:** Detected hire price less than cleaning price.  **Step 6:** The system displays an error message: “Error, hire price cannot be less than cleaning price.”  **Step 7:** Place cursor at the hire price field and return to Step 4. |
| **Conclusions** | The linen is added to the system | |
| **Post conditions** | Orders can now be made for the new linen. | |
| **Business Rules** | The pack size must be a multiple of 5.  The hire/cleaning price cannot be a negative number.  The hire price must be greater than the cleaning price. | |
| **Implementation Constraints** | None | |

### **Update Linen**

This function updates the linen currently in the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Update Linen** | |
| **Use Case Id** | 4.2.2 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function updates linen currently in the system. | |
| **Preconditions** | The Linen is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Update Linen function.  **Step 3:** The manager enters the Linen Name (or part of)  **Step 5:** manager selects the linen to be updated  **Step 7:** The manager updates any of the following fields:   * Hire\_Price * Cleaning\_Price * Pack\_Size | **Step 2:** The system displays the UI and prompts the user for the Linen Name.  **Step 4:** The system retrieves summary details from the Linen File for all items with matching name and display on UI  **Step 6:** The system retrieves all details for the selected linen item from the Linen File and displays on the UI for updating  **Step 8:** The system validates the data:   * All fields must not be blank. * The Linen Name must only contain letters. * The Hire and Cleaning Prices must be a positive number * Hire Price must be greater than Cleaning price * The Pack Size must be a positive whole number and a multiple of 5   **Step 9:**  The system saves the new data to the Linen file.  **Step 10:** The system displays a confirmation message.  **Step 11:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Linen Name Not Found** |  | **Step 4:** Linen name not found in the linen file.  **Step 5:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 6:** Place cursor on linen name field and return to Step 4. |
| **Invalid Hire/Cleaning Price** |  | **Step 8:** Invalid hire/cleaning price detected (e.g. not positive numbers with up to two decimal points).  **Step 9:** The system displays an error message: “Error, invalid sale/ cleaning price, please re-enter.”  **Step 10:** Place cursor at the offending field and return to Step 8. |
| **Invalid Pack Size** |  | **Step 8:** Invalid pack size detected (e.g. not positive whole number and multiple of 5).  **Step 9:** The system displays an error message: “Error, invalid pack size, please re-enter.”  **Step 10:** Place cursor at the pack size and return to Step 8. |
| **Hire Price less than Cleaning Price** |  | **Step 8:** Detected hire price less than cleaning price.  **Step 9:** The system displays an error message: “Error, hire price cannot be less than cleaning price.”  **Step 10:** Place cursor at the hire price field and return to Step 8. |
| **Conclusions** | The linen is updated in the Linen File | |
| **Post conditions** | None | |
| **Business Rules** | The hire/cleaning price cannot be negative.  The hire price must be greater than the cleaning price.  The pack size must be a multiple of 5. | |
| **Implementation Constraints** | None. | |

### **Remove Linen**

This function removes linen from the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Remove Linen** | |
| **Use Case Id** | 4.2.3 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function removes linen currently in the system. | |
| **Preconditions** | The Linen is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Remove Linen function.  **Step 3:** The manager enters the Linen Name (or part of)  **Step 5:** manager selects the linen to be Removed | **Step 2:** The system displays the UI and prompts the user for the Linen Name.  **Step 4:** The system retrieves summary details from the Linen File for all items with matching name and display on UI  **Step 6:** The system sets the status to “I” (Inactive).  **Step 7:**  The system saves the new status of the linen to the Linen File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Linen Name Not Found** |  | **Step 3:** Linen name not found in the linen file.  **Step 4:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 5:** Place cursor on linen name field and return to Step 4. |
| **Conclusions** | The linen is removed from the Linen File. | |
| **Post conditions** | The linen can no longer be ordered. | |
| **Business Rules** | The Linen must remain in the Linen file for referential integrity. | |
| **Implementation Constraints** | None. | |

## Manage Orders

### **Log Order**

This function logs an order in the Order file.

Customer

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Log Order** | |
| **Use Case Id** | 4.3.1 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function logs an order in the Order file. | |
| **Preconditions** | The Customer is already in the system.  The Customer has filled in an Order form | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Log Order function.  **Step 4:** The manager enters the following details:   * Customer\_ID * Linen\_ID(s) * Linen\_Amount * Delivery\_Date | **Step 2:** The system determines the next Order\_ID and sets the Order\_Date to the current date.  **Step 3:** The system displays the UI.  **Step 5:** The system validates the data:   * The Customer\_ID must match a Customer\_ID in the Customer file and must have a status of active (‘A’). * Each Linen\_ID must match a Linen\_ID in the Linen file and must have a status of active (‘A’). * The Linen\_Amount cannot be less than 0 and must be a whole number. * There must be at least one Linen\_ID with a Linen\_Amount greater than 0. * The Delivery\_Date must be at least two working days after the Order\_Date.   **Step 6:** The System sets the Delivery\_Status to “P” (In progress) and the Cancel\_Status to “A” (Active).  **Step 7:**  The system saves the following data to the Order file:   * Order\_ID * Order\_Date * Customer\_ID * Linen\_ID(s) * Linen\_Amount * Delivery\_Date * Delivery\_Status * Cancel\_Status   **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Customer\_ID not matching valid/active customer.** |  | **Step 5:** Invalid/inactive Customer\_ID detected.  **Step 6:** The system displays an error message: “Invalid Customer\_ID detected. Please re-enter”.  **Step 7:** The system places the cursor on the Customer\_ID field and returns to Step 4. |
| **Linen\_ID not matching valid/active customer.** |  | **Step 5:** Invalid/inactive Linen\_ID detected.  **Step 6:** The system displays an error message: “Invalid Linen\_ID detected. Please re-enter”.  **Step 7:** The system places the cursor on the Linen\_ID field and returns to Step 4. |
| **Linen\_Amount less than 0** |  | **Step 5:** Linen\_Amount less than 0 detected.  **Step 6:** The system displays an error message: “Invalid Linen\_Amount detected. Please re-enter”.  **Step 7:** The system places the cursor on the Linen\_Amount field and returns to Step 4. |
| **No Linen\_Amount greater than 0** |  | **Step 5:** No Linen amount greater than 0 detected.  **Step 6:** The system displays an error message: “Error, there must be at least one Linen\_Amount greater than 0”.  **Step 7:** The system places the cursor on the Linen\_Amount field and returns to Step 4. |
| **Invalid Delivery\_Date** |  | **Step 5:** Invalid Delivery\_Date detected (e.g. less than two working days after the Order\_Date).  **Step 6:** The system displays an error message: “Error, the Delivery\_Date must be at least two working days after the Order\_Date”.  **Step 7:** The system places the cursor on the Linen\_Amount field and returns to Step 4. |
| **Conclusions** | The order is Logged in the Order file. | |
| **Post conditions** | None. | |
| **Business Rules** | The order cannot be made by a customer who is not active.  The customer cannot make an order for linen that is not active.  The Delivery\_Date must be at least two working days after the Order\_Date. | |
| **Implementation Constraints** | None. | |

### **Cancel Order**

This function cancels an order in the Order file.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Cancel Order** | |
| **Use Case Id** | 4.3.2. | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function cancels an order in the Order file. | |
| **Preconditions** | The Order is already in the system.  The Delivery status is “P” (In progress). | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Cancel Order function.  **Step 3:** The manager enters the Order\_ID or Order\_Date  **Step 5:** manager selects the order to be cancelled | **Step 2:** The system displays the UI and prompts the user for the Order\_ID or Order\_Date.  **Step 4:** The system retrieves summary details from the Order file for all items with matching Order\_ID or Order\_Date and display on UI.  **Step 6:** The system sets the Cancel\_Status to “C” (Cancelled).  **Step 7:**  The system saves the new status of the order to the Order File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Order\_ID and Order\_Date not found** |  | **Step 4:** Order\_ID and Order\_Date not found in the Order file.  **Step 5:** Display an error message: “Error, no matching orders, please re-enter.”  **Step 5:** Place cursor on Order\_ID field and return to Step 4. |
| **Conclusions** | The order is cancelled and will not be delivered. | |
| **Post conditions** | None. | |
| **Business Rules** | An order cannot be cancelled if it has already been delivered. | |
| **Implementation Constraints** | None. | |

### **Dispatch Delivery**

This function removes linen from the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Dispatch Delivery** | |
| **Use Case Id** | 4.3.3 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function dispatches a delivery currently in the system. | |
| **Preconditions** | The delivery is already in the system and ready to be delivered. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Dispatch Delivery function.  **Step 3:** The manager enters the Order Name (or part of)  **Step 5:** Manager selects the delivery to be dispatched. | **Step 2:** The system displays the UI and prompts the user for the Order Name.  **Step 4:** The system retrieves summary details from the Order File for all items with matching name and display on UI  **Step 6:**  **Step 7:**  The system saves the new status of the linen to the Linen File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Linen Name Not Found** |  | **Step 3:** Linen name not found in the linen file.  **Step 4:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 5:** Place cursor on linen name field and return to Step 4. |
| **Conclusions** | The linen is removed from the Linen File. | |
| **Post conditions** | The linen can no longer be ordered. | |
| **Business Rules** | The Linen must remain in the Linen file for referential integrity. | |
| **Implementation Constraints** | None. | |

### **Collect Laundry**

This function removes linen from the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Remove Linen** | |
| **Use Case Id** | 4.2.3 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function removes linen currently in the system. | |
| **Preconditions** | The Linen is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Update Linen function.  **Step 3:** The manager enters the Linen Name (or part of)  **Step 5:** manager selects the linen to be Removed | **Step 2:** The system displays the UI and prompts the user for the Linen Name.  **Step 4:** The system retrieves summary details from the Linen File for all items with matching name and display on UI  **Step 6:** The system sets the status to “I” (Inactive).  **Step 7:**  The system saves the new status of the linen to the Linen File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Linen Name Not Found** |  | **Step 3:** Linen name not found in the linen file.  **Step 4:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 5:** Place cursor on linen name field and return to Step 4. |
| **Conclusions** | The linen is removed from the Linen File. | |
| **Post conditions** | The linen can no longer be ordered. | |
| **Business Rules** | The Linen must remain in the Linen file for referential integrity. | |
| **Implementation Constraints** | None. | |

### **Record Payment**

This function removes linen from the system.

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Remove Linen** | |
| **Use Case Id** | 4.2.3 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function removes linen currently in the system. | |
| **Preconditions** | The Linen is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Update Linen function.  **Step 3:** The manager enters the Linen Name (or part of)  **Step 5:** manager selects the linen to be Removed | **Step 2:** The system displays the UI and prompts the user for the Linen Name.  **Step 4:** The system retrieves summary details from the Linen File for all items with matching name and display on UI  **Step 6:** The system sets the status to “I” (Inactive).  **Step 7:**  The system saves the new status of the linen to the Linen File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Linen Name Not Found** |  | **Step 3:** Linen name not found in the linen file.  **Step 4:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 5:** Place cursor on linen name field and return to Step 4. |
| **Conclusions** | The linen is removed from the Linen File. | |
| **Post conditions** | The linen can no longer be ordered. | |
| **Business Rules** | The Linen must remain in the Linen file for referential integrity. | |
| **Implementation Constraints** | None. | |

## Manage Customers

### **Add Customer**

This function adds a new customer to the system.

Customer

Manager

<<includes>>

<<extends>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Add Customer** | |
| **Use Case Id** | 4.4.1 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function adds a new customer to the system. | |
| **Preconditions** | Customer must fill in a Register Customer form. | |
| **Trigger** | None | |
| **Expected Scenario** | **Manager** | **System** |
|  | **Step 1:** The manager invokes the Add Customer function.  **Step 4:** The manager enters the following details:   * Company\_Name * Contact\_Number * Customer\_Name * Email * Street * Town * County * Eircode | **Step 2:** The system determines the next Customer\_ID.  **Step 3:** Display the UI.  **Step 5:** The system validates the data:   * All fields must not be blank. * The Company Name, Customer Name, Town and County must only contain letters. * The Contact Number must be a valid phone number. * The Email Address must be a valid email address. * The Eircode must be a valid Eircode. * The Street, Town and County must all be a valid address. * The Street, Town and County address must match the Eircode address.   **Step 6:** The system sets the Status to Active (“A”).  **Step 7:** The system sets the Balance and Rejects to 0.  **Step 8:** The system saves the following data to the Linen File:   * Customer\_ID * Company\_Name * Contact\_Number * Customer\_Name * Email * Street * Town * County * Eircode * Status * Balance * Rejects   **Step 9:** The system displays a confirmation message.  **Step 10:** The system clears the UI. |
| **Alternate Scenarios** | **Manager** | **System** |
| **Field Not Entered** |  | **Step 5:** Blank field detected.  **Step 6:** The system displays an error message: “Error, all fields must be entered.”  **Step 7:** Place cursor on first blank field and return to Step 4. |
| **Invalid Company Name/ Customer Name/ Town/ County** |  | **Step 5:** Invalid Company name/ Customer Name/ Town/ County detected (e.g. numbers/symbols).  **Step 6:** The system displays an error message: “Error, invalid field detected, please re-enter.”  **Step 7:** Place cursor on the offending field and return to Step 4. |
| **Invalid Contact Number** |  | **Step 5:** Invalid contact number detected (e.g. not a valid phone number).  **Step 6:** The system displays an error message: “Error, invalid contact number, please re-enter.”  **Step 7:** Place cursor at the contact number field and return to Step 4. |
| **Invalid Email** |  | **Step 5:** Invalid email detected.  **Step 6:** The system displays an error message: “Error, invalid email, please re-enter.”  **Step 7:** Place cursor at the email and return to Step 4. |
| **Invalid Eircode** |  | **Step 5:** Invalid Eircode detected (e.g. not in the format “x99 xx9x”).  **Step 6:** The system displays an error message: “Error, invalid Eircode, please re-enter.”  **Step 7:** Place the cursor on the Eircode field and return to Step 4. |
| **Invalid Address** |  | **Step 5:** Invalid address detected (e.g. address does not match a real address).  **Step 6:** The system displays an error message: “Error, not an address, please re-enter.”  **Step 7:** Place the cursor on the street field and return to Step 4. |
| **Address Not Matching Eircode** |  | **Step 5:** Eircode not matching address detected.  **Step 6:** The system displays an error message: “Error, Eircode and address do not match, please re-enter.”  **Step 7:** Place the cursor on the street field and return to Step 4. |
| **Conclusions** | The customer is added to the system | |
| **Post conditions** | Orders can now be made for the new linen by the customer. | |
| **Business Rules** | None | |
| **Implementation Constraints** | None | |

### **Update Customer**

This function updates a customer currently in the system.

Manager

Manager

<<extends>>

<<includes>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Update Customer** | |
| **Use Case Id** | 4.4.2 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function updates a customer currently in the system. | |
| **Preconditions** | The Customer is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Update Customer function.  **Step 3:** The manager enters the Customer Name (or part of).  **Step 5:** manager selects the linen to be updated.  **Step 7:** The manager updates any of the following fields:   * Company\_Name * Contact\_Number * Customer\_Name * Email * Street * Town * County * Eircode | **Step 2:** The system displays the UI and prompts the user for the Customer Name.  **Step 4:** The system retrieves summary details from the Customer File for all items with matching name and display on UI.  **Step 6:** The system retrieves all details for the selected customer from the Customer File and displays on the UI for updating  **Step 8:** The system validates the data:   * All fields must not be blank. * The Company Name, Customer Name, Town and County must only contain letters. * The Contact Number must be a valid phone number. * The Email Address must be a valid email address. * The Eircode must be a valid Eircode. * The Street, Town and County must all be a valid address. * The Street, Town and County address must match the Eircode address.   **Step 9:**  The system saves the new data to the Customer file.  **Step 10:** The system displays a confirmation message.  **Step 11:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Field Not Entered** |  | **Step 5:** Blank field detected.  **Step 6:** The system displays an error message: “Error, all fields must be entered.”  **Step 7:** Place cursor on first blank field and return to Step 4. |
| **Invalid Company Name/ Customer Name/ Town/ County** |  | **Step 5:** Invalid Company name/ Customer Name/ Town/ County detected (e.g. numbers/symbols).  **Step 6:** The system displays an error message: “Error, invalid field detected, please re-enter.”  **Step 7:** Place cursor on the offending field and return to Step 4. |
| **Invalid Contact Number** |  | **Step 5: Invalid contact number detected (e.g. not a valid phone number).**  **Step 6: The system displays an error message: “Error, invalid contact number, please re-enter.”**  **Step 7: Place cursor at the contact number field and return to Step 4.** |
| **Invalid Email** |  | **Step 5:** Invalid email detected.  **Step 6:** The system displays an error message: “Error, invalid email, please re-enter.”  **Step 7:** Place cursor at the email and return to Step 4. |
| **Invalid Eircode** |  | **Step 5:** Invalid Eircode detected (e.g. not in the format “x99 xx9x”).  **Step 6:** The system displays an error message: “Error, invalid Eircode, please re-enter.”  **Step 7:** Place the cursor on the Eircode field and return to Step 4. |
| **Invalid Address** |  | **Step 5:** Invalid address detected (e.g. address does not match a real address).  **Step 6:** The system displays an error message: “Error, not an address, please re-enter.”  **Step 7:** Place the cursor on the street field and return to Step 4. |
| **Address Not Matching Eircode** |  | **Step 5:** Eircode not matching address detected.    **Step 6:** The system displays an error message: “Error, Eircode and address do not match, please re-enter.”    **Step 7:** Place the cursor on the street field and return to Step 4. |
| **Conclusions** | The customer is updated in the Customer File | |
| **Post conditions** | None | |
| **Business Rules** | None | |
| **Implementation Constraints** | None | |

### **Remove Customer**

This function removes a customer from the system.

Manager

<<extends>>

<<includes>>

|  |  |  |
| --- | --- | --- |
| **Use Case Name** | **Remove Customer** | |
| **Use Case Id** | 4.4.3 | |
| **Priority** | High | |
| **Source** | Manager | |
| **Primary Business Actor** | Manager | |
| **Other Participating Actors** | None | |
| **Description** | This function removes a customer currently in the system. | |
| **Preconditions** | The Customer is already in the system. | |
| **Trigger** | No | |
| **Expected Scenario** | **Actor Action** | **System Response** |
|  | **Step 1:** The manager invokes the Remove Customer function.  **Step 3:** The manager enters the Customer Name (or part of).  **Step 5:** The manager selects the customer to be Removed. | **Step 2:** The system displays the UI and prompts the user for the Customer Name.  **Step 4:** The system retrieves summary details from the Linen File for all items with matching name and display on UI.  **Step 6:** The system sets the status to “I” (Inactive).  **Step 7:**  The system saves the new status of the customer to the Customer File.  **Step 8:** The system displays a confirmation message.  **Step 9:** The system clears the UI. |
| **Alternate Scenarios** | **Actor Action** | **System Response** |
| **Customer Name Not Found** |  | **Step 5:** Linen name not found in the linen file.  **Step 6:** Display an error message: “Error, linen name not found in file, please re-enter.”  **Step 7:** Place cursor on linen name field and return to Step 4. |
| **Conclusions** | The customer is removed from the Customer File. | |
| **Post conditions** | The customer can no longer make an order. | |
| **Business Rules** | The customer must remain in the Customer file for referential integrity. | |
| **Implementation Constraints** | None. | |

## Perform Admin

### **4.5.1 Calculate Yearly Earnings**

### **4.5.2 Calculate Earnings per Customer**

### **4.5.3 Track Rejects**

### **4.5.4 Track Reject Cost**

# System Model

The following dataflow diagrams have been produced for the system:

## Level-0 DFD

## Level-1 DFD

## Level-2 DFD (Process P1: Title)

## Level-2 DFD (Process P2: Title)

## Level-2 DFD (Process P3: Title)

# Data Model (Class Diagram)

Brief introduction……

## Class Diagram

Object Model – UML Class Diagram

Class diagram shows objects & attributes

## Relational Schema

Relational schema for the data requirements - Using ***bracket notation***

## Database Schema

A definition of the database to be implemented.

This includes primary key, foreign key and other constraints to be implemented.

# Conclusion

# Appendices

## Appendix A – Title

## Appendix B – Title

Might include:

* **Lookup / Reference tables**
* **Sample reports / Listings**