**Tasks & Deliverables - Topic 5 / Chapter 6**

**Systems Analysis and Design CIS-2245**

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| **Date:** | October 13, 2014 |
| **Date Due:** | October 13, 2014 |
| **Assignment:** | Assignment 5  Task: 3 |
| **Mark:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. **As stated in case studies section.** \*\****Do not do* the shipping actor Use Cases as part of these questions and omit the sequence diagrams.**
2. **Create an activity diagram for the Customer actor Use Cases as stated in the chapter case studies section.**

**Figure 1- 1 –** Update Order Detailed Use Case Description

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| Use Case | Update Order | |
| Scenario | Update customer’s order | |
| Triggering Event | Customer changes or cancels order | |
| Brief Description | When customer requests to update their order, the system first ensures that the order hasn’t already been fulfilled. Any items to be added to or removed from the order are specified by the customer, and then the order information (address, shipping method, etc.) is verified or modified. Verify any changes in payment, create a new order transaction if necessary and finalize the order. | |
| Actors | Customer | |
| Related Use Cases | Look up item availability  Look up order status  Create customer charge adjustment | |
| Stakeholders | **Sales department:** to accept and review the customer’s update order request  **Shipping department:** to verify that order has not yet been fulfilled, and verify that updated order is acceptable  **Marketing department:** tocollect customer statistics for studies on buying and order adjustment patterns | |
| Preconditions | Customer must exist  Order must exist  The order must be related to the same customer  Order must not have been fulfilled  Catalog, Products and Inventory items must exist for requested items | |
| Postconditions | Order and order line items must be created/removed  New order transaction must be created for the updated order  Inventory items must have quantity on hand updated | |
| Flow of Events | **Actor** | **System** |
| **1.** Customer connects to system  **2.** Customer looks up their existing orders  **3.** Customer specifies which order they would like to change  **4.** Customer selects which items to add or remove from the selected order  **5.** Customer indicates end of order  **6.** Customer verifies order information (shipping address, method) and submits the update order.  **7.** Customer submits payment (if necessary) | **1.1.** System verifies customer information  **2.1.** System displays existing orders  **3.1.** System checks that selected order is eligible for update  **6.1.** System accepts the updated order  **6.2.** Compute totals  **7.1.** Verify payment  **7.2.** Finalize order update. |
| Exception Conditions | **3.2.** If order is not eligible for update, system notifies customer and informs them of return options.  **4.1.** If item is not in stock then customer can  **a.** choose not to add the item to the updated order  **b.** request item be added as a back-order item  **7.1.** If customer payment is rejected then order update is canceled | |

**Figure 1 - 2 –** Update Order Activity Diagram.

**Figure 2 - 1 –** Create Order Return Detailed Use Case Description

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| Use Case | Create Order Return | |
| Scenario | Customer returns an item | |
| Triggering Event | Customer requests to return an item | |
| Brief Description | If a customer is dissatisfied with one or more of their purchased items, they contact RMO’s customer service department to request a refund. The customer service representative (CSR) then creates a new return item and instructs the customer on the return procedures. Customer ships back the item to be returned. Upon receipt, the item is inspected and if the item falls into the return criteria, then the customer is refunded the cost of the item(s) and shipping. | |
| Actors | Customer  Customer Service Representative  Shipping & Receiving  Returns Department  Financials Department | |
| Related Use Cases | Create Customer Charge Adjustment  Update Customer Account | |
| Stakeholders | **Customer Service Department:** to define new return item  **Shipping & Receiving:** to receive the item to be returned and log it into the system  **Returns Department:** to inspect the returned item and verify the conditions of the return  **Financial Department:** to process the refund | |
| Preconditions | Customer must exist  Order must exist  The order must be related to the same customer  Item must be returnable | |
| Postconditions | Changes must be reflected in customer account  Item must be restocked (if possible)  Return item must be created  Return item must be related to an existing order | |
| Flow of Events | **Actor** | **System** |
| **1.** Customer contacts customer service department to request a return  **2.** Customer service representative (CSR) verifies customer information  **3.** CSR looks up the order that corresponds to the item the customer wishes to return  **4.** CSR confirms that the customer would like to return item, as well as asks the reason for the return.  **5.** CSR creates a new return item.  **6.** CSR informs customer of return procedures.  **7.** Customer ships item to the site responsible for handling returns.  **8.** Shipping & Receiving receives the item and transfers it to the Returns department.  **9.** Returns department inspects item condition and verifies reason for return.  **10.** Financial department processes the return and transfers refund to the customer’s account. | **2.1.** System provides customer information for verification.  **3.1.** System returns order details to the CSR.  **5.1.** New return item is entered into the system.  **8.1.** System is updated to show that item has been received.  **9.1.** Return item details are updated.  **10.1.** Updates customer account with return item(s) value. |
| Exception Conditions | **3.2.** If item is a non-returnable item. Return cannot be processed.  **8.1.** If order is not received within a specified amount of time, customer is contacted to ensure item has been shipped back, then  **a.** Customer no longer wishes to return the item then return order is cancelled  **b.** Customer says they have shipped the order then return is processed without the return item and customer account is refunded  **9.1.** Actual reason for return is not valid (e.g. item is damaged) then contact financial to decide whether or not to continue with refund | |

**Figure 2 – 2 –** Create Order Return Activity Diagram



1. **Include a CRUD analysis on the RMO class diagram and discuss what additional Use Cases might be needed, based on your CRUD analysis.**

**Note:** We are making the assumption that web, phone, mail orders will have the same overall functionality within the system as far as the database goes and as such the analysis only references the abstract order class and not the three specific concrete classes.

**Figure 3 – 1 – CRUD Analysis**

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| **Data Entry/Class** | **CRUD** | **Resulting Use Case** |
| **Customer** | **Create** | Add New Customer |
|  | **Read/Report** | Look Up Customer  Display Customer Information  Generate Customer List  List Customer Orders  List Customer Returns  List Customer Balance |
|  | **Update** | Update Customer Profile |
|  | **Delete** | Remove Customer |
| **Order** | **Create** | Create New Order |
|  | **Read/Report** | Look Up Order  Display Order Details  Display Backorder  Display Order History  Display Order Status  Track Regional Distribution |
|  | **Update** | Update Order  Update Backorder |
|  | **Delete** | Delete Order |
| **Order transaction** | **Create** | Create New Order Transaction |
|  | **Read/Report** | Look Up Order Transaction  Display Order Transaction Details  Display All Order Transactions |
|  | **Update** | Update Order Transaction |
|  | **Delete** | Delete Order Transaction |
| **Return Item** | **Create** | Create Return Item |
|  | **Read/Report** | Look Up Return Item  Display Return Item Details  Display Return Details  Display All Returns  Display Return Count  Display Return Status |
|  | **Update** | Update Return Status |
|  | **Delete** | Delete Return Item |
| **Order Item** | **Create** | Add Order Item |
|  | **Read/Report** | Display Order Item Details  Display Backorder Status  Display Total Sold |
|  | **Update** | Update Order Item |
|  | **Delete** | Cancel Order Item |
| **Shipment** | **Create** | Create New Shipment |
|  | **Read/Report** | Look Up Shipment  Display Shipping Details  Display Shipped Orders  Display Unshipped Orders  Display Common Shipping Choices  Display Total Shipments |
|  | **Update** | Update Shipment |
|  | **Delete** | Cancel Shipment Request |
| **Shipper** | **Create** | Add Shipper |
|  | **Read/Report** | Look Up Shipper  Display Shipper Details  Display Shipper Reliability  Display Average Delivery Times |
|  | **Update** | Update Shipper |
|  | **Delete** | Remove Shipper |
| **Inventory Item** | **Create** | Add Inventory Item |
|  | **Read/Report** | Look Up Inventory Item  Display Inventory Item Details  List Inventory Items  Display Sales Numbers  Display Disposal Process  Display Sale Frequency  Display Backorder Frequency |
|  | **Update** | Update Inventory Item |
|  | **Delete** | Remove Inventory Item |
| **Product Item** | **Create** | Add Product Item |
|  | **Read/Report** | Look Up Product Item  Display Product Item Details  Display Resupply Time |
|  | **Update** | Update Product Item |
|  | **Delete** | Remove Product Item |
| **Catalogue Product** | **Create** | Add Catalogue Product |
|  | **Read/Report** | Look Up Catalogue Product  Display Catalogue Product Details  Display Catalogue Reference |
|  | **Update** | Update Catalogue Product |
|  | **Delete** | Remove Catalogue Product |
| **Catalogue** | **Create** | Create Catalogue |
|  | **Read/Report** | Look Up Catalogue  Display Catalogue Products  Display Catalogue Details  Display Catalogue Distribution |
|  | **Update** | Update Catalogue |
|  | **Delete** | Delete Catalogue |

There are a few additional use cases that might be required for RMO in their daily operations that were not included in the initial case study. Many of these additional use cases are related to the system’s record keeping and usage statistics. While these types of tasks are not highly contributory to RMO’s regular operations, they would still prove highly useful for data analysis and ultimately to end up assisting in the decision making process. The ability to track and report on the overall reliability of the shipper being used would be important especially if the products are not reaching their destination or are taking to long to arrive. This also applies when getting supplies from the vendors. This would encompass both the shipping times and reliability of a particular shipper.

Another use case is related to returns. Being able to effectively track the number of returns related to a specific item would allow RMO to determine if a product is substandard or it it simply does not meet the customer’s needs. This might require a change in marketing of the product.

A pair of use cases related to the inventory would be the ability to track the frequency of sales for an item and the frequency the item is sold out. In the first case knowing whether an item is popular or whether it will just sit on the shelves is vital for effective inventory management. RMO can’t afford to tie up capital in items that don’t sell. The second case shows a potential need for additional vendors if an items is very popular and the vendor cannot keep up with demand.

Related to the previous two cases would be the resupply time of the vendors. A potential change in vendor might be needed if the re-supply times are longer than would be expected due to a vendors change in focus or the vendor supplying to many other companies.

Finally if they are not already doing so, RMO should be tracking the distribution of products by region. This could have some major advantages. The first would be a focus on warehouses in areas where products are commonly sold. The second would be potential discounts to areas that have a market but where other companies are dominant. Finally RMO could focus on areas that might be rapidly growing but that have not already been a focus.