SYS466 Winter 2017
Lab 3
Due: February 10, 2017 (at the end of class)
Using Composition and Inheritance for Structural Model Analysis

Objective: To create class diagrams for models that include the notions of composition and inheritance

Instructions:

1. With your assigned group, find all conceptual entities and related attributes for the given case study. Create a class diagram which is a structural model of the system described. All associations *must be labeled and include multiplicities*. You must include *at least one example of composition and inheritance* in your model.
2. Ensure that the names of the students who have worked on the project are explicitly on the diagram. Use the annotation tool to do this.
3. Upload your .uml file **and include your group number in the file name** (for example: *Group##Lab4.uml*).

Case Study: Key North Cottage Supply (KNCS)

Key North Cottage Supply (KNCS) is a Hardware Super Store that caters to cottager's needs. KNCS sells building supplies, decorating needs, build solutions, rental equipment and servicing.

The following scenarios are processes conducted by the Equipment Rental and Servicing Department.

Scenario 1: Create a Service Estimate for a new Customer
Precondition: Equipment Manager is logged in and at the main screen.

Actor (Equipment Manager)	System	Data Used
Requests to create an estimate	Displays a list of all current Customers including their name and telephone numbers.	
Chooses to create a new Customer	System displays Customer Entry Screen including Customer Name, Address, and contact phone numbers	
Enters Customer Information and choose to proceed with estimate	Customer Number is generated and Estimate screen including Estimate date which is defaulted to the system date, Customer Name and Number, description for the tool that the customer needs to be repaired is displayed along with the date that the item is required back by and an estimated price to fix that time.	
Enters the first Item that the Customer has	System assigns a line number to the detail and prompts for the next item.	

brought in for repair and the price to repair the item.		
Equipment Manager has entered all estimated items for the customer	System displays the Customer's number, Customer's name and a total estimated price for all items included on this estimate	

Scenario 2: Assign Repair Items to a technician
Precondition: Equipment Manager is logged in and at the main screen.

Actor (Equipment Manager)	System	Data Used
Requests a list of all unassigned estimated items	Displays a list of unassigned estimated items including description and date required.	
Chooses an item to assign	System displays item details and a list of technicians.	
Chooses a technician and adds that technician	Technician added to that estimated item.	

Scenario 3: Switch a tool from being a Sales Item to a Rentable Item
Precondition: Equipment Manager is logged in and at the main screen.

Actor (Equipment Manager)	System	Data Used
Sales Categories	Displays a list of all Sales Categories and their Descriptions	
Chooses Circular Saws	Displays a list of all types of circular saws in stock	
Chooses RIDGID 6-1/2 In. Framing Saw	Displays a list of all RIDGID 6-1/2 In. Framing Saws in stock including their serial numbers and their sale price.	
Chooses the saw that will not be moved into rentable inventory	System prompts for the daily rental rate, weekly rental rate and monthly rental rate.	
Enters the rental rate	System removes the sale price and saves the rental price.	

Scenario 4: Customer Pays for Products Purchased, Repairs Completed and Equipment Rental
Precondition: Sales Associate is logged in and at the main screen. Customer would like to purchase 5 sheets of dry wall, pay for his Circular Saw repair and rent a Nail Gun.

Actor (Sales Associate)	System	Data Used
Requests a list of customers	List of Customers displayed including customer name, number and telephone number.	
Correct Customer is selected	Displays a list of the customers unpaid estimate items and rented items	
Chooses the item that was repaired	Displays Customer Name and Number and Sale Information including Sale Date, Sale Item	

	number which the system generates and sales total including taxes. Item repair description is listed, along with the cost of the repair and applicable taxes.	
Adds a rental to the sale	List of Rentable Items is displayed including Rental Prices, Description and Serial Numbers.	
Selects a rentable Item	Rent Item screen is displayed including the item's description and rental prices	
A Rental price is chosen.	Return date is calculated. Item is added to the sale and the rental price and taxes are added to the sale.	
Chooses to add regular sale items	Displays sale item screen.	
Customer enters product's Serial number	Displays price and asks for quantity	
Customer enters Quantity	Sale item added to the sale and sale amount including taxes	
Sales is concluded	Sale is displayed including all of the details and the amount owed.	