

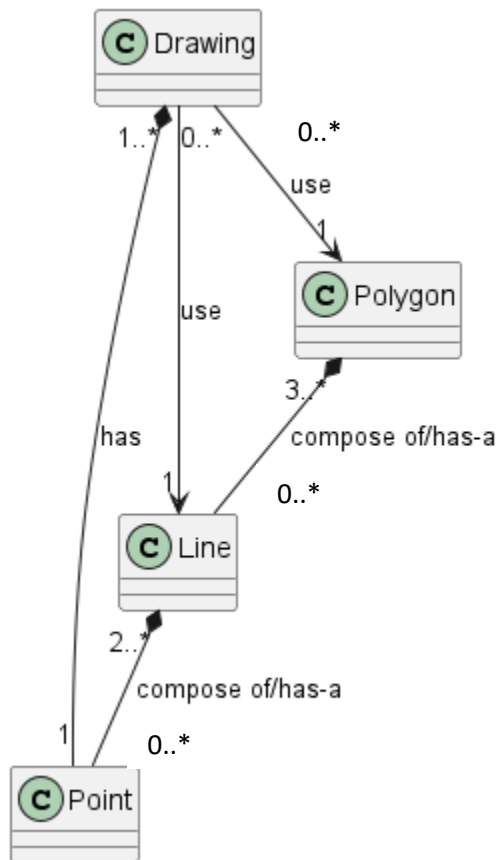
ENSF607 Assignment 1

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Exercise 1 – UML diagram showing the relationship between the Drawing, Point, Line and Polygon classes

Note about cardinality:

- A line must have at least two points (as denoted by 2..* below the line box)
- A polygon must have at least 3 lines (3..*) which means a triangle is the very basic polygon.
- An extremely basic drawing contains only one dot without line nor polygon. Thus, a simple arrow is used without any diamond between drawing and polygon and line. The drawing must include at least one point (1..* and composition through the solid diamond).
- If a point, or a line, or a polygon exist, it must be drawn on one and only one drawing. Thus #1 is denoted on top of each of these boxes in the relationship with drawing.



Exercise 2:

Program output of the original codes:

```
C:\Users\EricDiep\MEng\ENSF607\al>java Drawing

Oops... Polygon's toString method doesn't know how to use the Line's toString method.
    And Line's toString method doesn't know how to use Point's toString method to
    display its lines' start and end point coordinates.
The perimeter of the polygon 1 is 250.18:

Oops... Polygon's toString method doesn't know how to use the Line's toString method.
    And Line's toString method doesn't know how to use Point's toString method to
    display its lines' start and end point coordinates.
The perimeter of the polygon 2 is 242.18:

Oops... Polygon's toString method doesn't know how to use the Line's toString method.
    And Line's toString method doesn't know how to use Point's toString method to
    display its lines' start and end point coordinates.
The perimeter of the polygon 3 is 344.52:
```

Program output after changing the toString methods of all the programs:

```
The lines in polygon 1 are:
Line 1: start at (20, 30), and end at (50, 100)
Line 2: start at (50, 100), and end at (105, 30)
Line 3: start at (105, 30), and end at (20, 30)

The perimeter of the polygon 1 is 250.18.
The lines in polygon 2 are:
Line 4: start at (120, 130), and end at (150, 200)
Line 5: start at (150, 200), and end at (200, 130)
Line 6: start at (200, 130), and end at (120, 130)

The perimeter of the polygon 2 is 242.18.
The lines in polygon 3 are:
Line 7: start at (320, 330), and end at (250, 400)
Line 8: start at (250, 400), and end at (400, 330)
Line 9: start at (400, 330), and end at (320, 330)

The perimeter of the polygon 3 is 344.52.
```

Exercise 3:

The class inventory is created as an “manager” to automatically manage the order, suppliers and items. It manages a list of suppliers, order and items. It is assumed that the inventory will have at least one supplier, one item and one order. There’s no point to create an inventory system with nothing in it.

The UML diagram is quite self-explanatory except the following points that may be unclear:

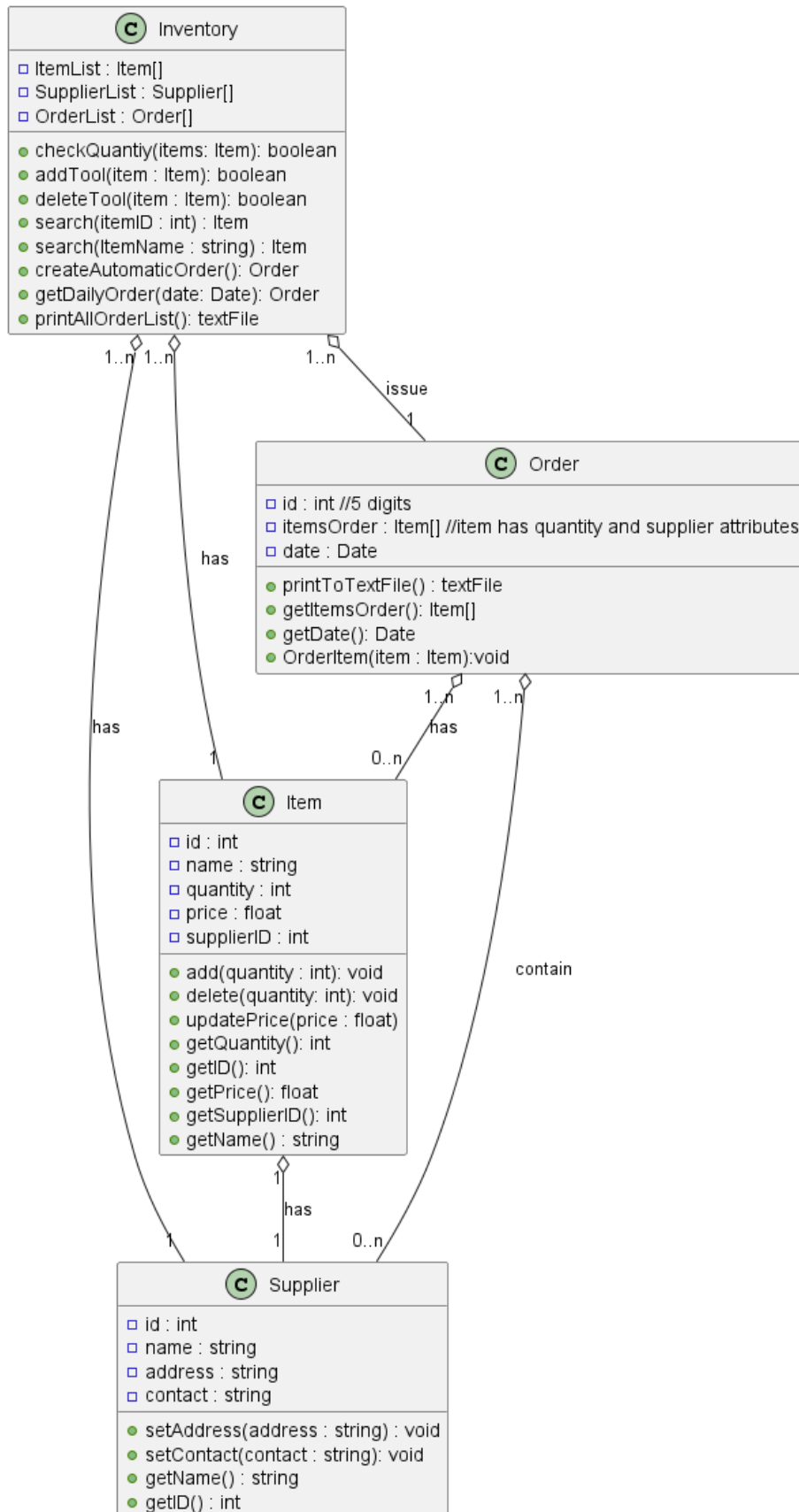
In the Inventory object:

- The createAutomaticOrder() method would automatically iterate through the itemList periodically (e.g. daily) to create order for any items with quantity less than 40. It would generate an order and store this order in the OrderList.
- The owner can search for a specific order by date through the getDailyOrder() method. Note this method can be overloaded with an order id argument.
- The printAllOrderList() method will generate a text file that includes all the orders placed

In the Order object:

- The itemsOrder attribute is an array (Items[]) that contains all the items that need to be ordered. Each item is one line item on the order.
- The Order object would include all the line items order in a day, and it has a printToTextFile method that generates a text file that shows a list of all items ordered in that day.
- The OrderItem() method is created to manually order one item.

Finally, the constructor of each class is not included in the UML, as there are many ways to construct the objects. Not all getters and setters are included either.



Exercise 4:

Please enter the name of the 'X' player: Eric

Please enter the name of the 'O' player: James

Referee started the game...

	col 0	col 1	col 2
row 0			
row 1			
row 2			

Eric, what row should your next 'X' be placed in?7

Invalid entry, please enter a number between 0 and 3

Eric, what row should your next 'X' be placed in?j

Invalid entry, please enter a number between 0 and 3

Eric, what row should your next 'X' be placed in?0

Eric, what column should your next 'X' be placed in?0

	col 0	col 1	col 2
row 0	X		
row 1			
row 2			

James, what row should your next 'O' be placed in?0

James, what column should your next 'O' be placed in?0

The spot you choose is full. Please choose another spot

James, what row should your next 'O' be placed in?1

James, what column should your next 'O' be placed in?1

	col 0	col 1	col 2
row 0	X		
row 1		O	

	+-----+	+-----+	+-----+	
row 2				
	+-----+	+-----+	+-----+	

Eric, what row should your next 'X' be placed in?2

Eric, what column should your next 'X' be placed in?0

	col 0	col 1	col 2	
	+-----+	+-----+	+-----+	
row 0		X		
	+-----+	+-----+	+-----+	
row 1			O	
	+-----+	+-----+	+-----+	
row 2		X		
	+-----+	+-----+	+-----+	

James, what row should your next 'O' be placed in?1

James, what column should your next 'O' be placed in?0

	col 0	col 1	col 2	
	+-----+	+-----+	+-----+	
row 0		X		
	+-----+	+-----+	+-----+	
row 1		O		O
	+-----+	+-----+	+-----+	
row 2		X		
	+-----+	+-----+	+-----+	

Eric, what row should your next 'X' be placed in?1

Eric, what column should your next 'X' be placed in?2

	col 0	col 1	col 2	
	+-----+	+-----+	+-----+	
row 0		X		
	+-----+	+-----+	+-----+	
row 1		O		O
				X
	+-----+	+-----+	+-----+	
row 2		X		
	+-----+	+-----+	+-----+	

James, what row should your next 'O' be placed in?2

James, what column should your next 'O' be placed in?1

|col 0|col 1|col 2

row 0	X			
row 1	O	O	X	
row 2	X	O		

Eric, what row should your next 'X' be placed in?0

Eric, what column should your next 'X' be placed in?1

row 0	X	X		
row 1	O	O	X	
row 2	X	O		

James, what row should your next 'O' be placed in?0

James, what column should your next 'O' be placed in?2

row 0	X	X	O	
row 1	O	O	X	
row 2	X	O		

Eric, what row should your next 'X' be placed in?2

Eric, what column should your next 'X' be placed in?2

row 0	X	X	O	
row 1	O	O	X	

row 2		X		O		X	
	+-----+						

Game overs! Tie