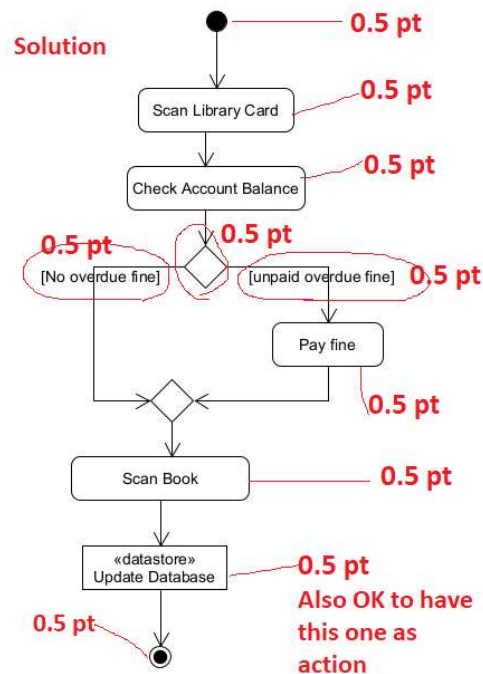


Name: KEY		Number: KEY		Instructor: <ul style="list-style-type: none"> ○ Ms. Rawan Khasawneh ○ Dr. Khaldoon Al-Zoubi
Q1 {CLO5}	Q2{CLO1}	Q3{CLO2}	Q4{CLO1}	Total Grade

Question 1 [5 points] {CLO5}

Draw an activity Diagram for a book checkout process. The process starts with scanning the student's library card then checks his account balance. If the student has no overdue fine, then the librarian scans the book to be checked out. However, if the student has an overdue fine, he then pays the fine before the book is being scanned. After that the database is updated with all required info, which completes the whole process.

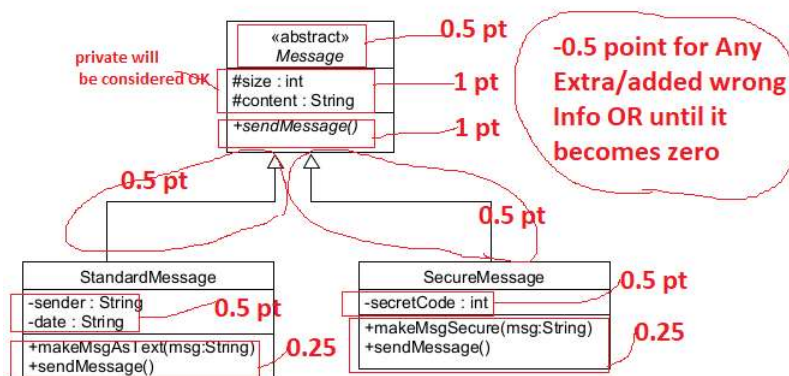


Question 2 [5 points] {CLO1}

Draw the class diagram for the following classes using the object-oriented principles learned during this course:

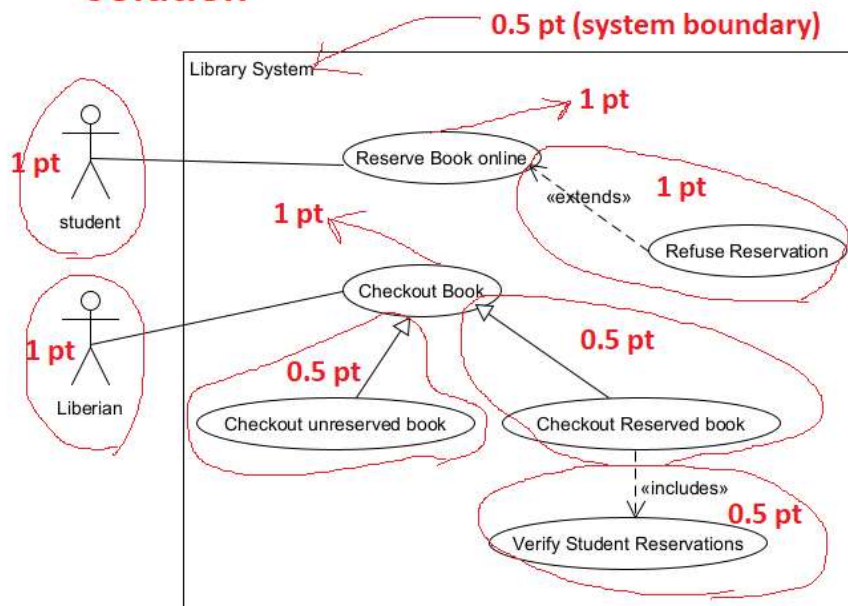
StandardMessage
-sender : String
-size : int
-date : String
-content : String
+makeMsgAsText(msg:String)
+sendStandardMessage()

SecureMessage
-content : String
-secretCode : int
-size : int
+makeMsgSecure(msg:String)
+sendSecureMessage()



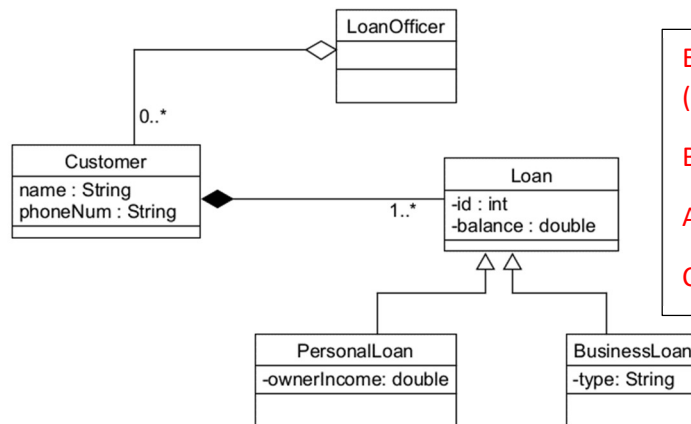
Question 3 [7 points] {CLO2}

Draw a Use Case Diagram for a library System that allows students to reserve the books they want online via the library website. However, the system may refuse students reservation for different reasons like for example if the book is already reserved. The student can then go to the library to check out their reserved books. In this case, a librarian can only check out reserved books for the student who has reservation for that book. However, librarians can checkout unreserved books for any student who wants to check them out.

Solution

Question 4 [8 points] {CLO1}

A) [4 points] Draw the class diagram (i.e., Ignore classes Methods) for the following banking loan system: In this system, customers who want to have loans are approved by a bank loan officer. The officer must be able to track all of his customers and the loans they have. The system needs to identify each loan by a unique id and always stores the balance of that loan. Further, the system needs to store the loan owner income if the loan is of a personal type. However, only the business type is stored if the loan is of a business type. Also, customers names and phone numbers need to be kept by the software.



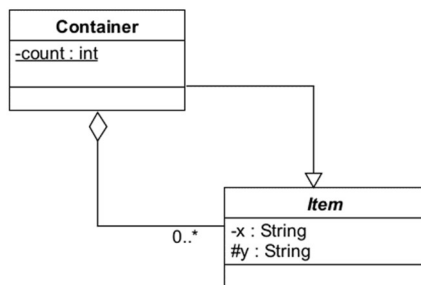
Each class is 0.5 point
(5x0.5 = 2.5).

Both Inheritance = 0.5

Aggregation = 0.5

Composition = 0.5

B) [4 points] Write the code for the following class diagram using an object-oriented programming language.



```

public class Container extends Item {
    private static int count;
    List<Item> items = new ArrayList<Item>();
}
  
```

```

public abstract class Item {
    private String x;
    private String y;
}
  
```