MPP Lab Test 3/21/15

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ StudentId:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For the following problem description do the following:

1. (5pts)Create an association matrix for your classes and their relations.
2. (10pts) Create a UML class diagram. Show the major class attributes and methods, and label your associations. Make a note of any design assumptions you make.
3. (10pts) Create a sequence diagram for the use case of a *customer rents a DVD*.
4. (5pts) Write pseudo-code for the method that calculates the customer’s rental due date. Show what class the method is in, show the method signature, and show the method implementation.
5. Important Simplifications for this test:
   1. *Do not worry about the exact use of the Date or Calendar classes. Pseudo code logic for adding to Date is fine.*
   2. *Do not worry about a billing system. No need to model billing for this test.*

Problem Description

We have a video store that rents DVDs and Video games. Each rental item has a number of bonus points associated with it, a rental price, and a number of days it can be rented. We keep track of a customer’s rentals in their account. We also keep track of when they first started their account with us. When a customer returns a rental item we increment their bonus points based on that item’s bonus points.

Based on their bonus point total our customers will have a platinum, gold, or silver account level.

1. Platinum accounts are for customers with 150 or more bonus points
2. Gold accounts are for customers with 100 to 149 bonus points
3. Silver accounts are for customers with less than 100 bonus points

Platinum account customers get their DVDs and Video games for an additional 3 days for free.

Gold account customers get an additional 2 days for free.

Silver account customers get an additional one day for free.

Make your design extensible so we could support additional rental items and account levels in the future.