Assignment 2 UML Design

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Scenario Description

The North Library of Shenzhen has been open for trial operation since September 28th. During the trial operation period, it is only open to **reserved readers**, and there is also a certain limit on the number of daily receptions. You need to design a **reservation system** to meet this requirement. For library administrators, the reservation system can publish reservation information and obtain reservation records. For readers, the reservation system can view various reservation data and make reservations. Administrator can set several entry times and each time has the **highest reservation capacity**.

1. For all WeChat users, when using the library reservation system for the first time, the system will obtain WeChat ID and other necessary personal information.
2. Readers can **access all available reservation information within a week**.
3. Readers can **query the reservation information within the specified date**. If the limit of one entering time is not reached, readers can make an reservation to enter the library in the entering time. After reader reservate a entering time, he/she can **cancel** it if the status is not started.
4. Readers can view the status of all their **reservation records**, including *not started*, *not signed in*, *signed in and absent*.
5. Readers can **sign-in** upon arrival at the designated time.
6. Administrator can obtain all reservation records within a date range.
7. Administrators can **release/update/remove reservation information**. In each entering time of a specific day, they can set information about the specific start time, specific end time and highest capacity.

   For example: In Nov. 1st 2023, readers can visit the Library in following entry times and it can also set highest capacity of each time:

   - *Nov. 1st 2023 8:00 to 11:00, capacity is 1000.*
   - *Nov. 1st 2023 11:00 to 14:00, capacity is 500.*
   - *Nov. 1st 2023 14:00 to 17:00, capacity is 800.*
   - *Nov. 1st 2023 17:00 to 20:00 capacity is 500.*

> ### Definition of Terms
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> reader 读者
> administrator 管理员
> reservation 预约
> reservation for entry 入馆预约

Question 1: Use case diagram（40 points)

Draw a user case diagram according to the scenario above. The use case diagram should contains actors, use case and system boundary.

Question 2: Class diagram (60 points)

Find and draw all **entity class** according to the scenario above. In this sections you need to indicate the **class names**, **relevant attributes**, **methods** (in the table below) and the **relationship between classes**.

During your design ,if you need a control class for system control, you can design a control class named `OrderSystem`. If you think it is no need to add an additional control class, you can only submit the entity classes.

Only the following methods need to appear in class diagram. For each method, you should add some explanations about its arguments, return value.

Method Name	Return Value	Parameter	Describe
queryReservation	`<T extends Collection>`	`Datetime`, `Calendar`, `LocalDate` or other date class	Readers query reservation information based on the given conditions.
cancelReservation	boolean	Design by yourself	Readers cancel the reservation.
releaseReservationInstance	boolean	Design by yourself	Administrator releases reservation information.
updateReservationInstance	boolean	Design by yourself	Administrator updates reservation information.
removeReservationInstance	boolean	Design by yourself	Administrator remove reservation information.
reserve	boolean	Design by yourself	Readers make reservation.
signIn	Design by yourself	`Datetime`, `Date` or other time class	Readers perform check-in operations.
viewAllReservationRecord	`List`	None	Readers view his/her all records.

What to Submit?

Complete all the questions and combine the UML diagrams into a single PDF file before **Nov. 3th 10:00pm** . If necessary, given several explanations about your diagrams.

Any handwriting UML diagrams are not allowed for this assignment.