Macquarie University

ISYS254 – Applications Modelling & Development

Assignment 1 – Requirements & Modelling

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Task Descriptions

Task 1: Requirements elicitation

Q1) 5 different requirements gathering techniques

1. Background reading: This would be appropriate to use in this situation because it helps me to understand the problem before meeting stakeholders and starting to work on the campus system.

2. Observation: This would be appropriate to use in this situation because I can have first-hand experiences observing decision-makers in other current campus systems and how they operate.

3. Document sampling: This would be appropriate to use in this situation because I can gather quickly and efficiently quantitative data on existing volumes of data that would be useful to finding out more about the problem.

4. Interviews: These would be appropriate to use in this situation because I can gather useful and applicable information from stakeholders about the problem using open-ended questions (breadth and depth of replies) or closed interview questions (precise, reliable data that is easy to analyse).

5. Questionnaires: These would be appropriate to use in this situation because they are an economical way of gathering information about the problem from many stakeholders.

Q2) Strategy (requirements gathering stages)

Stage 1: I will use background reading to understand the problem and the requirements of the system before meeting stakeholders and I will use observation to first-hand analyse other campus systems and how they operate.

Stage 2: Using the data acquired from gathering information about the campus system (background reading) and other campus systems (observation), I will use the results for document sampling and creating reports used for decision-making.

Stage 3: Using the reports from Stage 2 and understanding the requirements for the campus system, I will analyse the needs of many stakeholders through the use of questionnaires. If more important or specific information is required from a certain stakeholder, I will conduct an interview with them.

Stage 4: Using the data and information acquired from questionnaires and interviews, I will begin to address the problem statement concerning the "Campus Common System" (CCS).

Task 2: Requirements specification

Q3) 2 user scenarios

1. CCS Delivery Person: On a typical Monday, I check to see if there are any orders of food and/or beverages placed by a CCS Member through CCS. If an order is placed by a CCS Member, I accept the order delivery by accessing the CCS manage delivery screen. After that, I pick up the order from the Restaurant, load the order and deliver the order to the CCS Member. Once I deliver the order to the CCS Member, I change the status of the order as delivered and record the order through CCS.

2. CCS Manager: On a typical Monday, I check to see if any CCS Member has requested to book a space at Campus Common to hold an event through CCS. If an event booking request has been made, I check the details of the event booking request and see if there any schedule conflicts to manage. If the event booking request is acceptable, I access the CCS create event screen and enter all event details such as event name, date and time to create the event booking. However, if the event booking request is unacceptable or unavailable, I can deny the event booking request.

Q4) 4 example user stories from different actors

1. As a CCS Manager, I want to change the status of the event, so that the correct information concerning an event is entered and displayed.

2. As a CCS Delivery Person, I want to view an order delivery, so that I can choose the correct order to deliver to the CCS Member.

3. As a CCS Member, I want to rate and comment on my order delivery, so that my suggestions for a better or more efficient order delivery can be received by the CCS Delivery Person.

4. As a MQ Student, I want to view registration details, so that I can correctly enter the appropriate information to register to become a CCS Member.

Q5) 3 functional requirements for the proposed system for different actors

1. The system shall allow a CCS Manager to create event bookings.

2. The system shall allow a CCS Delivery Person to change the status of an order as delivered.

3. The system shall allow a MQ Student to register to be a CCS Delivery Person.

Q6) 3 non-functional requirements for the proposed system

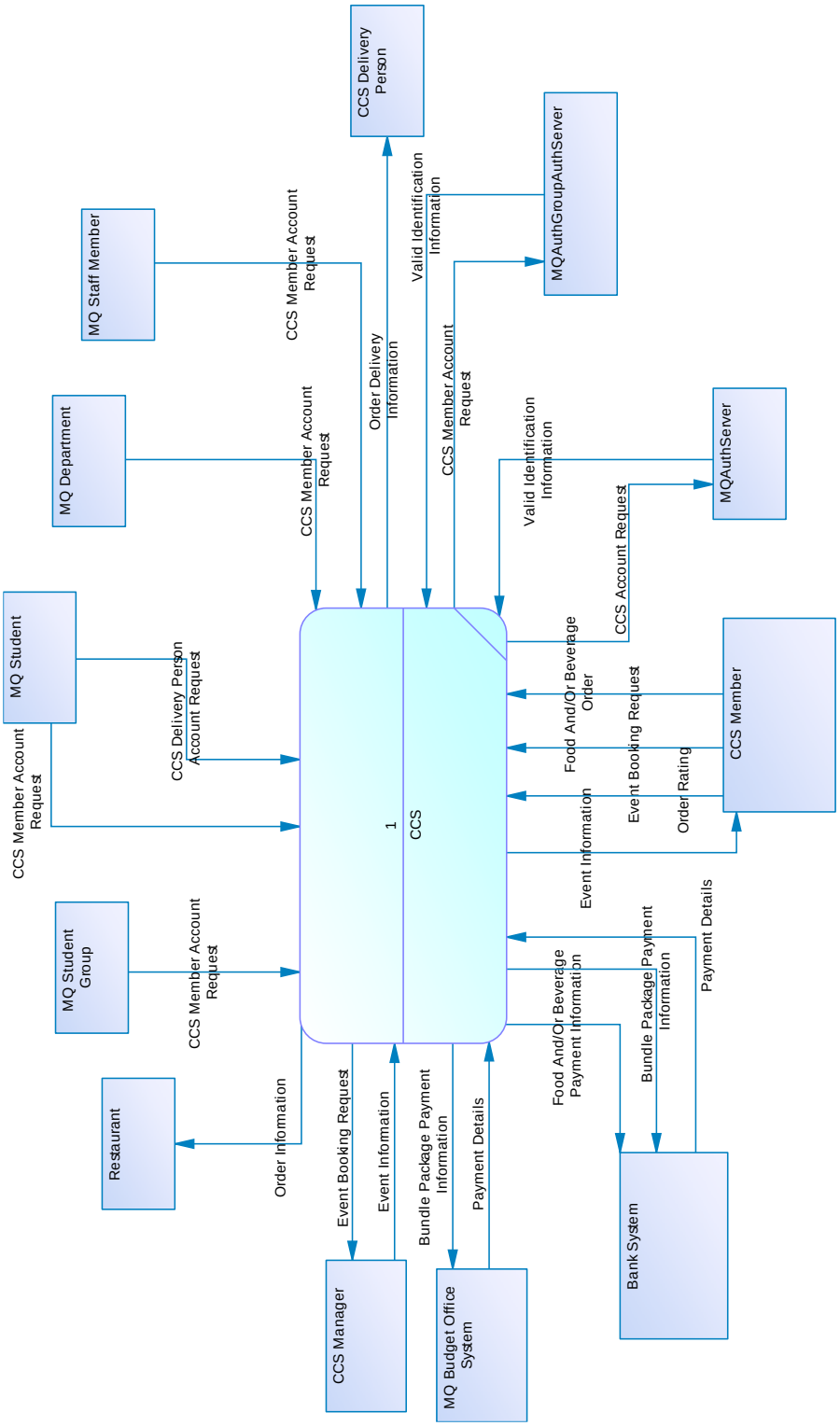
1. The system shall use RSA-1024 encryption to deliver MQ Student or MQ Staff Member registration data to the MQAuthServer when validating their account (security).

2. The system shall support up to 25 food and/or beverage orders at the same time (performance).

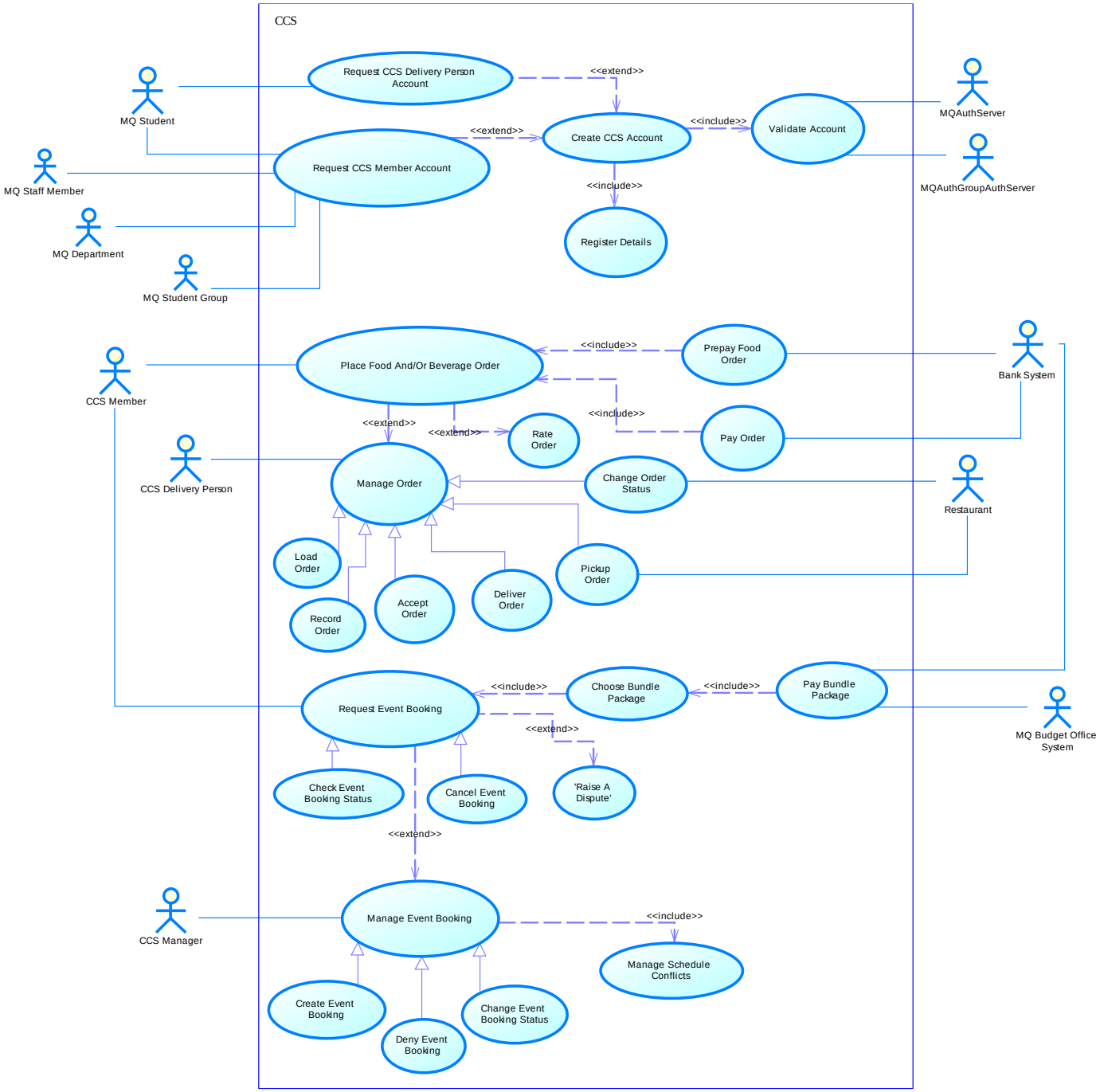
3. The system shall validate a MQ Student Group or MQ Department through the MQAuthGroupAuthServer within 5 seconds. If this takes more than 5 seconds, an estimate of time remaining shall be displayed to the user after the 5 seconds (responsiveness).

Task 3: Diagrams for different system perspectives

Q7) Context Diagram (Level 0 DFD) for CCS



Q8) Use Case Diagram for CCS



2 newly added use cases for CCS Delivery Person in Use Case Diagram

1. Record Order (used in Q9 & Q10): This involves recording information about the food and/or beverage order such as the date and time of the order, quantity of the order and payment information.

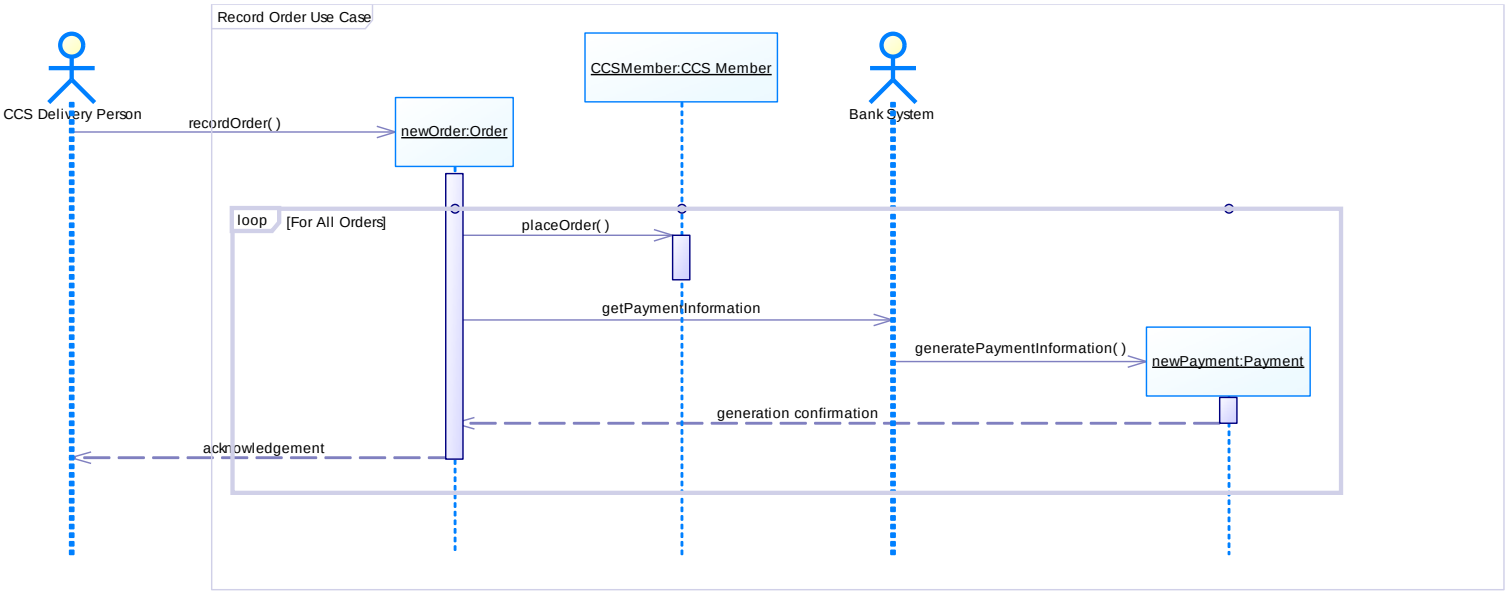
2. Load Order: This involves loading the food and/or beverage order into a vehicle so it can be delivered to the CCS Member.

Q9) Use Case Description (Record Order)

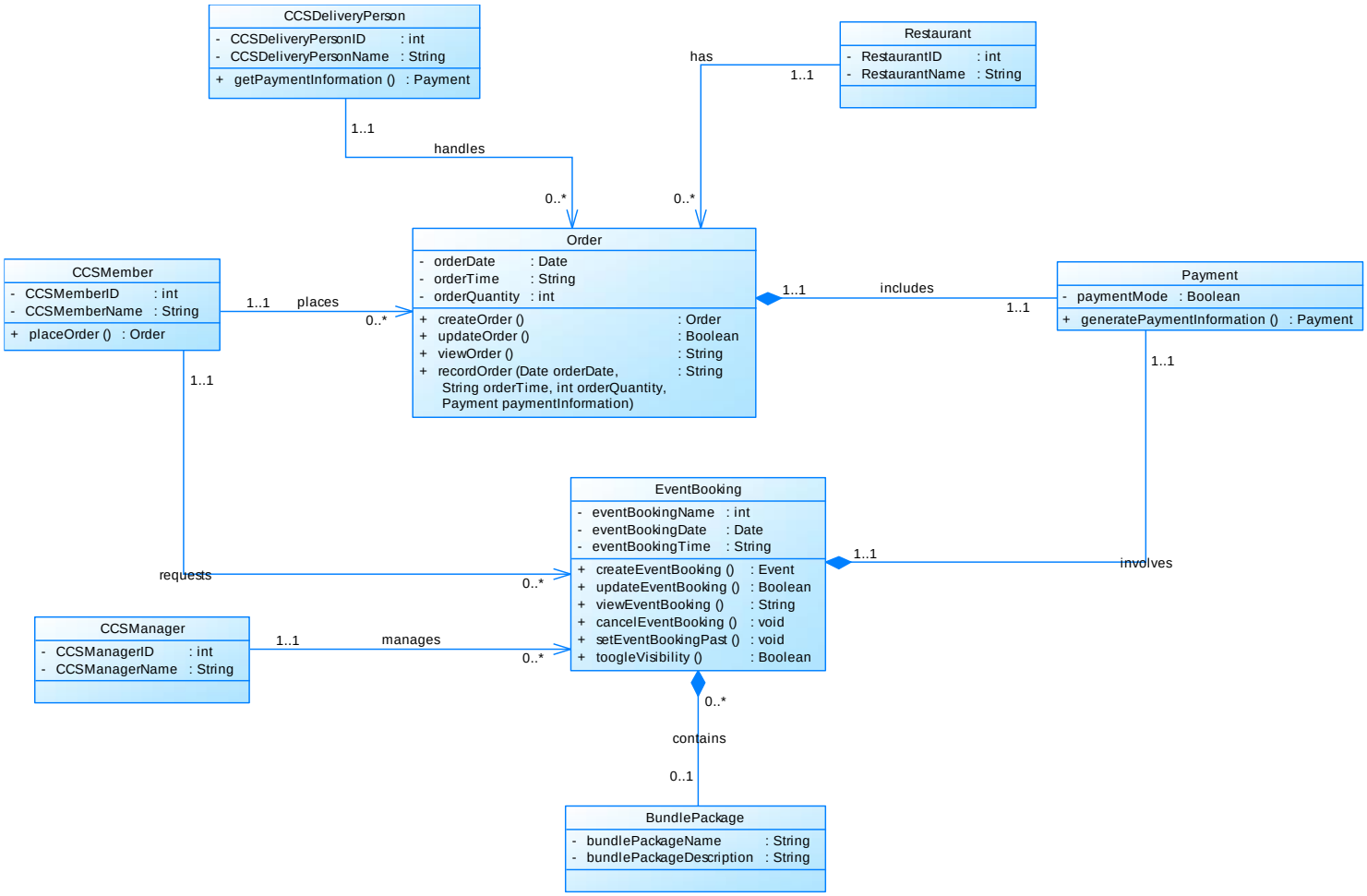
Use Case	Record Order	
Goal	To record a food and/or beverage order	
Preconditions	CCS Member has placed a food and/or beverage order	
Success End Condition	Order has been recorded successfully	
Failed End Condition	Order has not been recorded / order has been incorrectly recorded	
Primary Actors; **Secondary Actors**	CCS Delivery Person Bank System	
Trigger	CCS Member places a food and/or beverage order	
Description / Main Success Scenario	**Step**	**Action**
	1	CCS notifies CCS Delivery Person that a CCS Member has placed an order
	2	CCS Delivery Person sends a request to CCS to get payment information
	3	CCS sends a request to Bank System to generate payment information
	4	Bank System generates and sends back requested payment information to CCS
	5	CCS displays a message to the CCS Delivery Person with payment information
	6	CCS prompts to enter details of the order
	7	CCS Delivery Person enters date and time of the order, quantity of the order and payment information
	8	CCS displays a message to show that the order has been successfully recorded
Alternative Flows	**Step**	**Branching Action**
	2.a	CCS Delivery Person request fails and CCS displays a corresponding error message to the CCS Delivery Person
	3.a	CCS request fails and the system displays a corresponding error message to the CCS Delivery Person

	4.a	Bank System generation fails and returns an error message to CCS
	7.a	CCS Delivery Person enters a past date and time
	7.b	CCS displays an error message and prompts to re-enter a correct date and time

Q10) Sequence Diagram (Record Order)



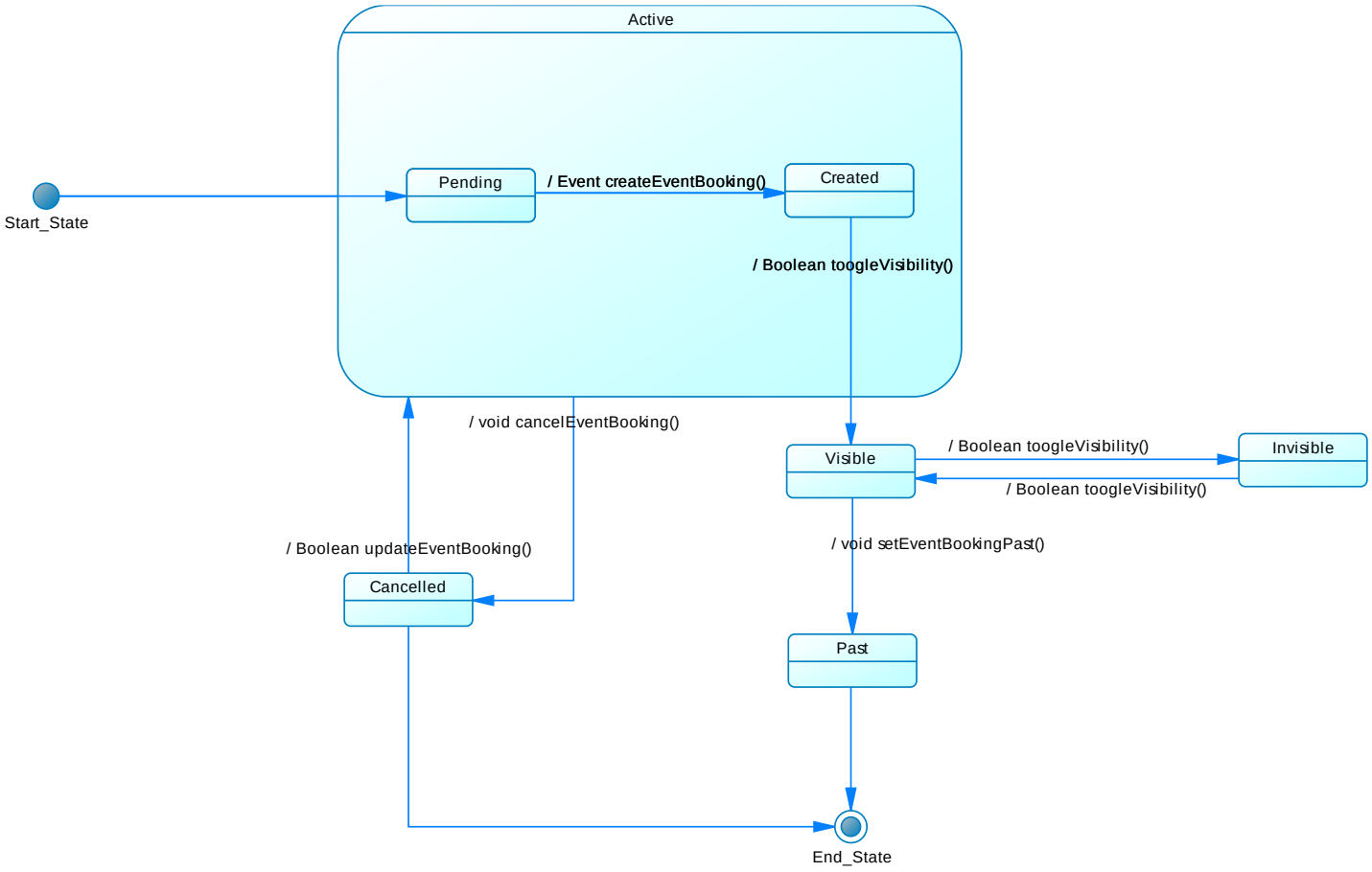
Q11) Entity-Class Diagram



Assumptions

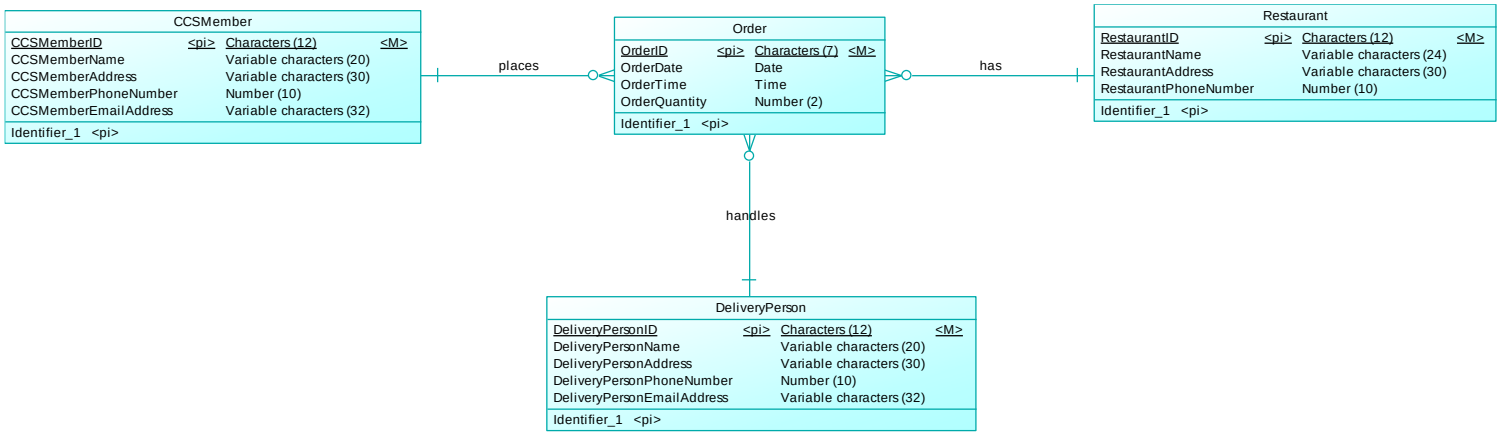
- When a CCS Member requests an Event Booking, they can only choose to add 1 Bundle Package.
- An Event Booking is managed by only 1 CCS Manager.

Q12) State Diagram (Event Booking Class)



Task 4: Data & storage considerations

Q13) ER Diagram



Q14) Tables with PKs & FKs