Task 1: Requirement Elicitation

Q1. List 5 different requirements gathering techniques that you would use to find out more about the problem. Why would these 5 you have selected be appropriate to use in this situation?

Campus Common System (CCS) is being developed to achieve the goal of keeping track of booking requests, event registration and online ordering. The 5 requirements gathering techniques will be useful in analyzing the problem in a more structured way. These are:

1. Interviewing: It is a good technique to investigate issues in-depth with the current way of doing things, and discover their opinions, feelings, and improvement opportunities the proposed system can introduce.

2. Questionnaire: It is a useful aid not only to structure the interview, it can also be used in conducting opinion survey among a large number of people in Macquarie University.

3. Background Reading: Background reading of the existing systems (manual and automated) and documentation can help us understand the current processes of Macquarie University relevant to the system to be developed.

4. Document Sampling: This technique is a method of gathering all the relevant forms, reports and sample data which will be used in data modelling, coming out with data dictionary and designing initial forms, screen and reports layout.

5. Observation: Numerous observations of a representative sample need to take place in order to generalize the findings as each stakeholder possess unique characteristics and behaviours.

Q2. Outline a strategy (of between 3-4 requirements gathering stages) and detail which techniques you would use at each stage, and what data you would use from previously gathered information.

I would execute 3: Background Reading first to gain a better insight of what is occurring in Macquarie University. I proceed on to craft questions in order to be adequately prepared for the next stage – conducting interviews with the management team using the information I gathered from reading background materials such as performance reports, corporate website, manuals and documentation.

Next is 1: Interviewing will be used to understand the requirements with more details; engage the students, staffs, and the organization's leadership (CCS Managers) to gain more insight about their preferences, business justification for developing the CSS and clarify ambiguity in the user requirements.

Then, I would use 2: Questionnaire technique to target a larger audience of the Macquarie student and staff body. Questionnaire is a useful technique to help organize the interview process in a more structured way and not to miss out significant details and areas of concern during the interview. Example of questions I want to ask are – How often do you buy food from the Campus Common? What information do you provide when you book events?

Lastly, I would carry out the 5: Observation technique. Unobtrusive observation provides insight on what the different stakeholders – students/student groups and staff/department – on campus do. Mainly, what goes behind booking requests, MQ event registrations and ordering of food & beverage, including how they interact with restaurants.

Task 2: Requirements Specification

Q3. Write two user scenarios that would describe a typical usage over the course of a day (one from a CCS Delivery Person's perspective and another from CCS manager's perspective)

1. CCS Delivery Person's Perspective: At the start of the day, I log into my CCS account to check the orders I have delivered and see the comments and ratings I received in the past week. As I end my class, I check to see if there are any orders assigned to me. I accept the orders I want to deliver and create in the system a delivery fleet record (confirming the order delivery date, time, and amount and process payment). After that, I go to the Restaurant, pick up the order and deliver the goods. I change the order status to "Delivered" upon completion. Throughout the day, whenever I go online in CCS, I get notifications from restaurants regarding delivery orders and I choose whether to accept them or not.

2. CCS Manager's Perspective: On a typical day, I view the event bookings happening for the week ahead. After that, I check for any booking requests in CCS. When I see a booking request, I refer back to the event booking schedule. If it does not conflict with other bookings, I send a booking confirmation and change the status of the event. I then proceed to create the event booking. If there is a conflict, I decline the booking request. I also maintain restaurant details to ensure they are accurate and register new ones if there is a vacant space. If there are any new events that MQ is running, I update them through CCS.

Q4. Provide four example user stories from different actors

1. As a MQ Student, I want to register my details to CCS so that I can order food, register for MQ events and book space for events at Campus Common.
2. As a Restaurant Attendant, I want to change the status of the order as "Picked Up" so that I can notify a CCS Member that their order is on its way.
3. As a CCS Delivery Person, I should be able to accept a delivery order so that I can pick it up from the restaurant and deliver it.
4. As a CCS Manager, I should be able to view a member's booking so that I can manage schedule conflicts.

Q5. Write three functional requirements for the proposed system for different actors

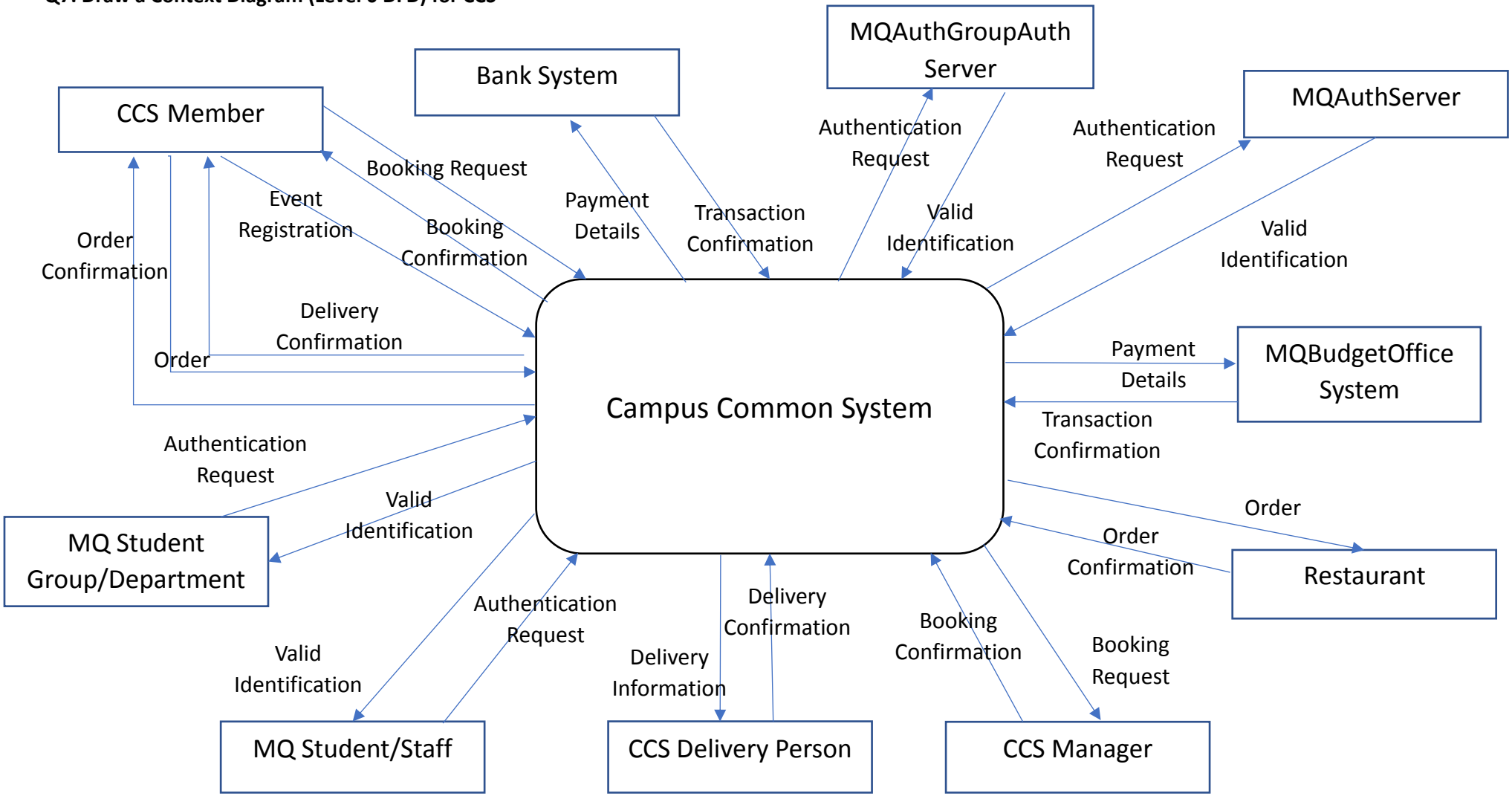
1. The system shall provide the functionality for a CCS Member to cancel their event booking.
2. The system shall provide the functionality for the Restaurant Attendant to view and update the order status.
3. The system shall provide the functionality for the CCS Manager to create event bookings.

Q6. Write three non-functional requirements for the proposed system

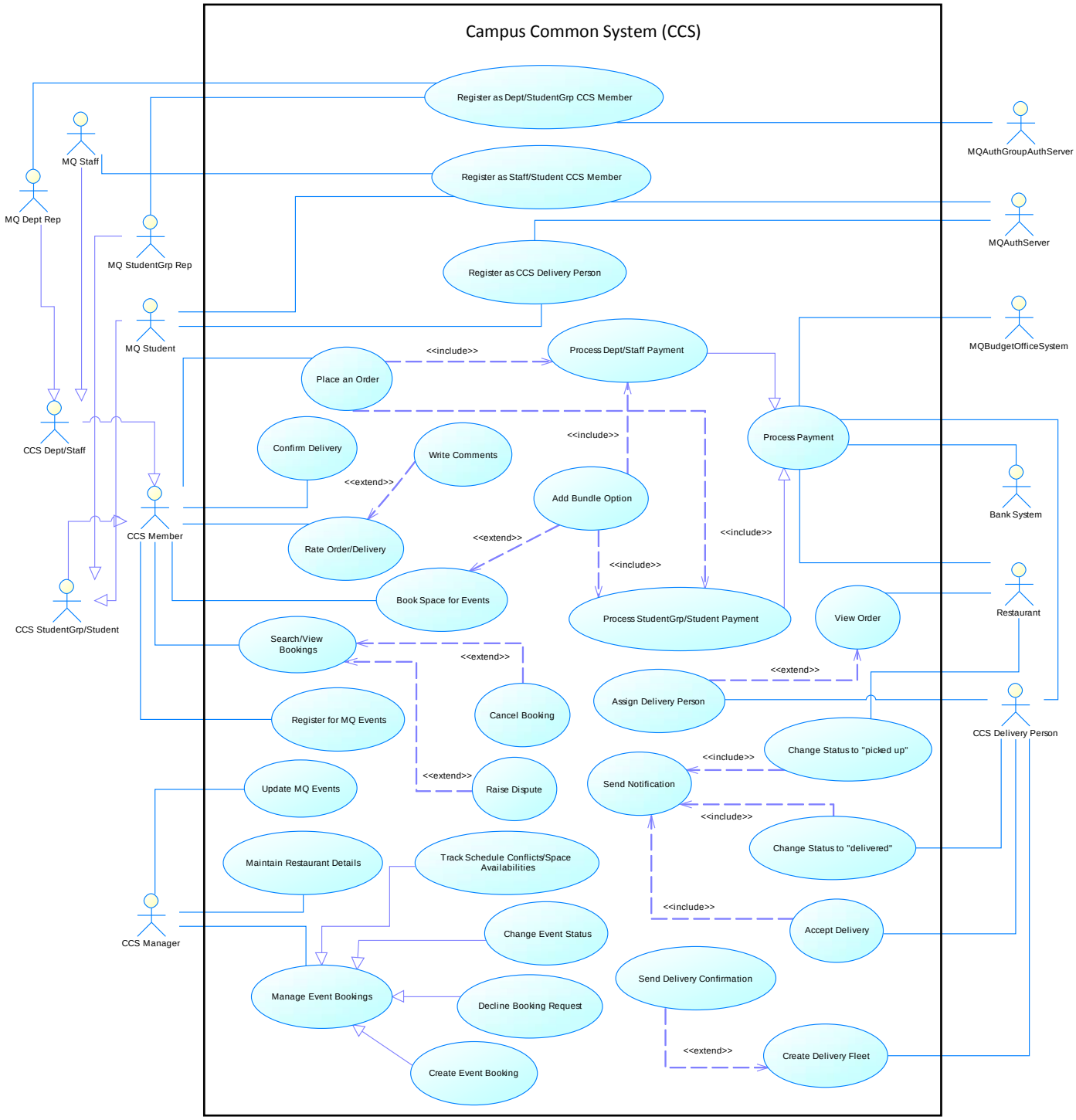
1. System availability: The system shall maintain a maximum downtime of 1 day per month for maintenance purposes.
2. Performance: The system shall support up to and including 100 orders being placed at the same time to accommodate current members and future expansion of database space.
3. Response Time: The system shall respond to the entry of orders by members within 10 seconds.

Task 3: Diagrams for Different System Perspectives

Q7. Draw a Context Diagram (Level 0 DFD) for CCS



Q8. Draw a Use Case Diagram for CCS based on the problem statement and extract.



Assumptions:

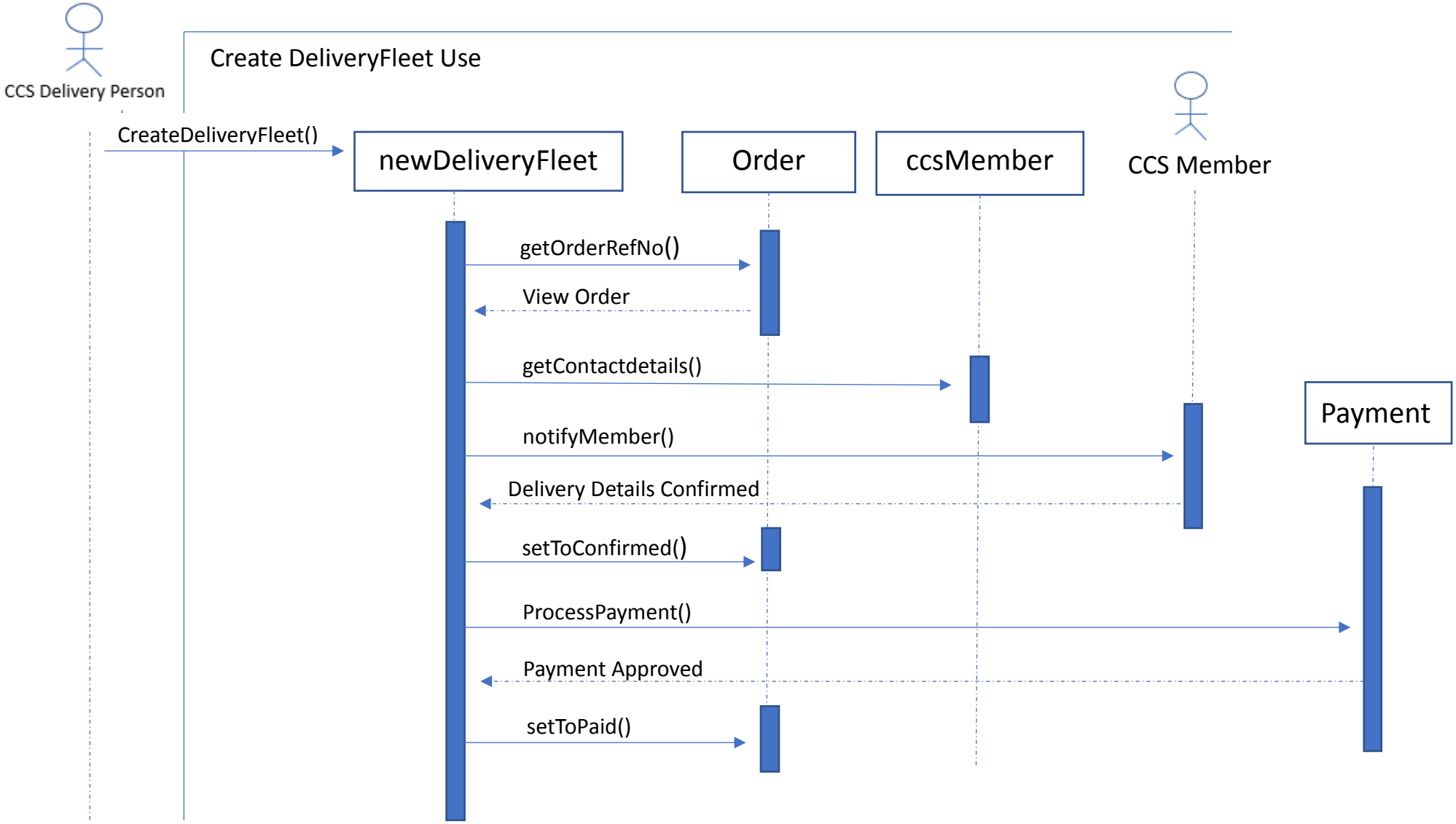
1. Food and beverages can be ordered and delivered outside the campus common.
2. Delivery Person can process payment as soon as member confirms delivery.
3. Manager can maintain restaurant details.

The two newly added use cases for a CCS Delivery Person are “Assign Delivery Person” and “Create Delivery Fleet”. As soon as the restaurant views an order they have just received, they are able to assign it to the next available Delivery Person. Delivery Person will then be notified of the assignment and thereafter accepts the assignment. The second use case requires the Delivery Person to create a delivery fleet containing the member’s order details such as the schedule and payment mode. Fleet in this context means a Delivery Person’s record of confirmed order, delivery date and time, as well as amount paid. This is completed before actual delivery (takes place outside of the system).

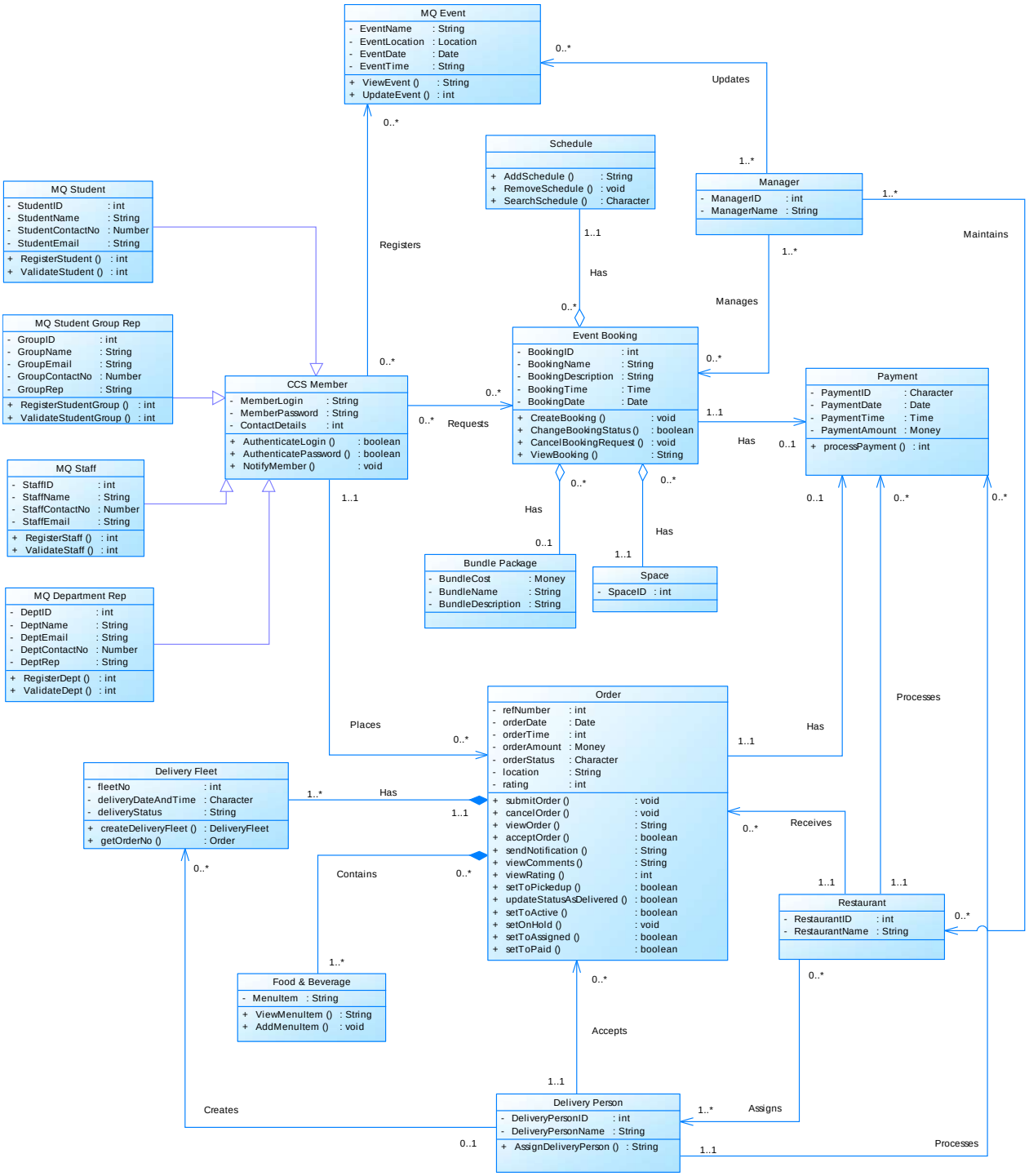
Q9. Write a use case description for one of the use cases you created

Use Case	Create Delivery Fleet	
Goal	To maintain a record of order delivery payment and fleet from the time the Restaurant Attendant assigns a Delivery Person up to delivery confirmation by CCS Member and successful processing of payment.	
Preconditions	Order is in “Active” state and Delivery Person has been assigned to create delivery fleet	
Success End Condition	Order is set to “Paid” state	
Failed End Condition	Order is “On-hold” or “Cancelled”	
Primary Actor; **Secondary Actors**	Delivery Person CCS Member	
Trigger	Delivery Person receives a notification from restaurant about an order delivery	
Description / Main Success Scenario	**Step**	**Step**
	1	The Restaurant Attendant assigns a Delivery Person and updates the order status to “Assigned”.
	2	Delivery Person “Accepts Order” for delivery and creates a DELIVERY FLEET (record).
	3	Delivery Person reviews order details including delivery location, schedule, amount to be paid, bank details and payment mode.
	4	Delivery Person clicks the button to notify the member requesting confirmation of delivery and payment mode via CCS.
	5	Member confirms delivery details
	6	Delivery Person clicks process payment button.
	7	Delivery Person receives payment approval.
Alternative Flows	**Step**	**Step**
	4.1	Member replied through CCS requesting cancellation of order
	4.2	Delivery Person sets the order status to “Cancelled”
	7.1	Payment is declined and the order status goes “On-hold”

Q10. Draw a Sequence Diagram for the use case description from Q9. Be sure to select a use case that has at least one actor, and a minimum of 3 entity objects (as lifelines) in the sequence diagram



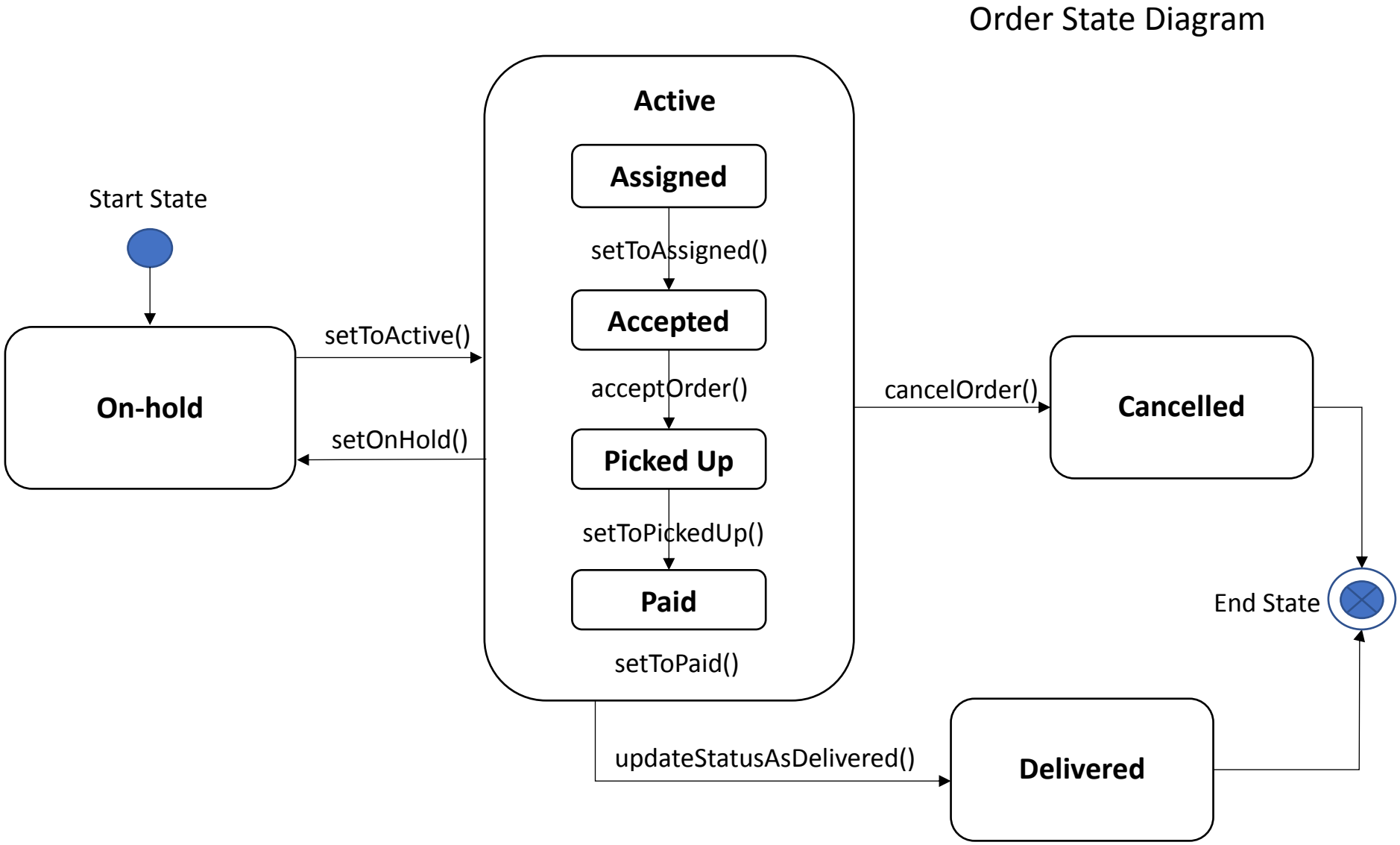
Q11. Draw an entity-class diagram for the entire problem statement



Assumptions:

1. Event Booking will be added to a Schedule. Schedule has 0 to many Event Bookings.
2. Restaurant can assign 1 to many Delivery Persons to an order but an order can only be accepted by 1 Delivery Person.
3. A Delivery Person can be assigned by 0 to many restaurants.
4. A Delivery Person can process 0 to many payments.
5. A Manager can manage 0 to many restaurant, a restaurant can be managed by 1 to many Managers.
6. An Order contains 1 to many F&B Menu Items. A menu item can be in 0 to many orders.
7. A Delivery Person can create 0 to many delivery fleets as he/she may have just started working.

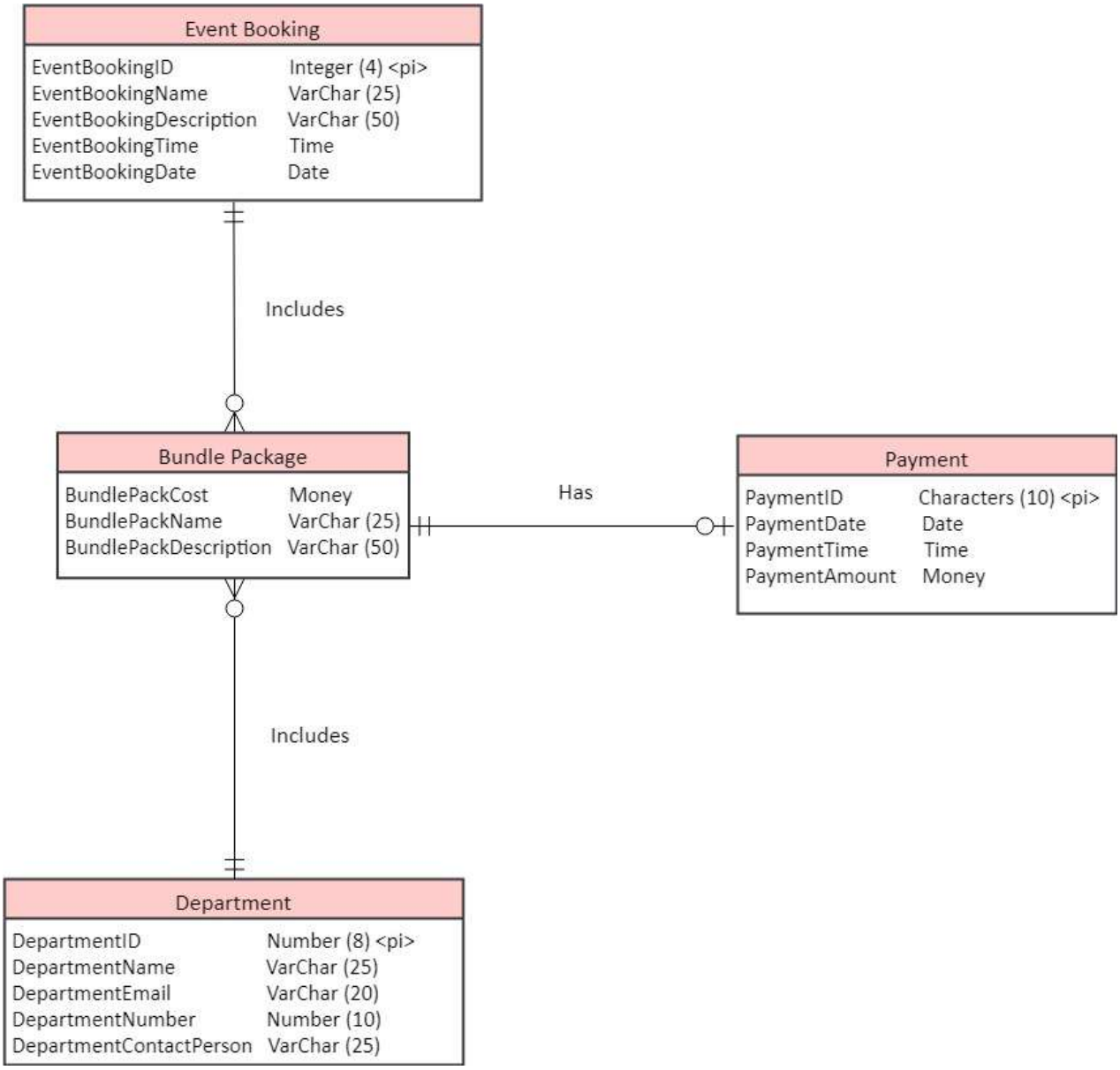
Q12. Select one class from your class diagram and draw a State diagram for that class



Task 4: Data and Storage Considerations

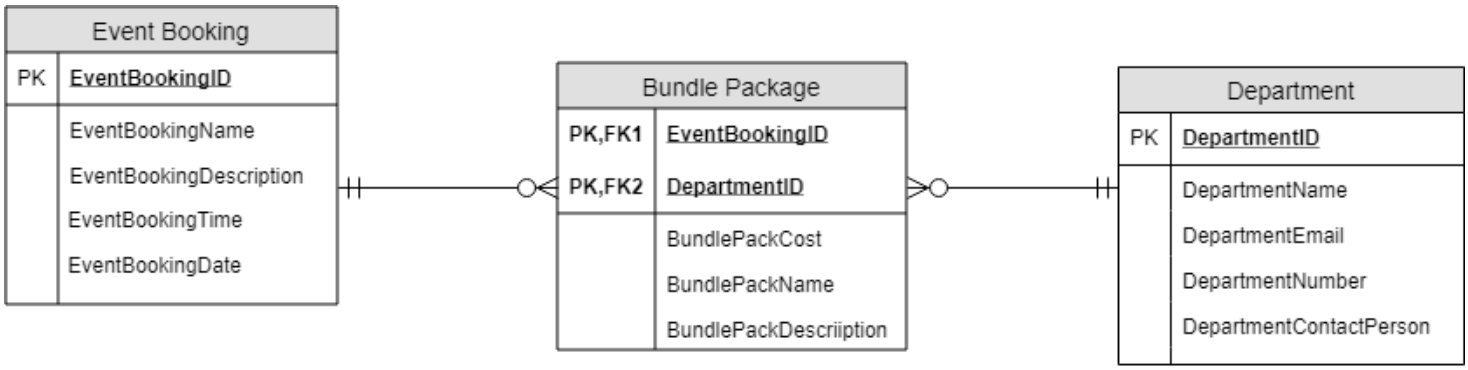
Q13. Draw an ER diagram using one of the following set of entities.

- **Event Booking, Bundle Package, Department, Payment**



Q14. Provide a list of tables with their primary and foreign keys, when ER model in Task 4 is transformed into tables

Event Booking & Department



Bundle Package & Payment