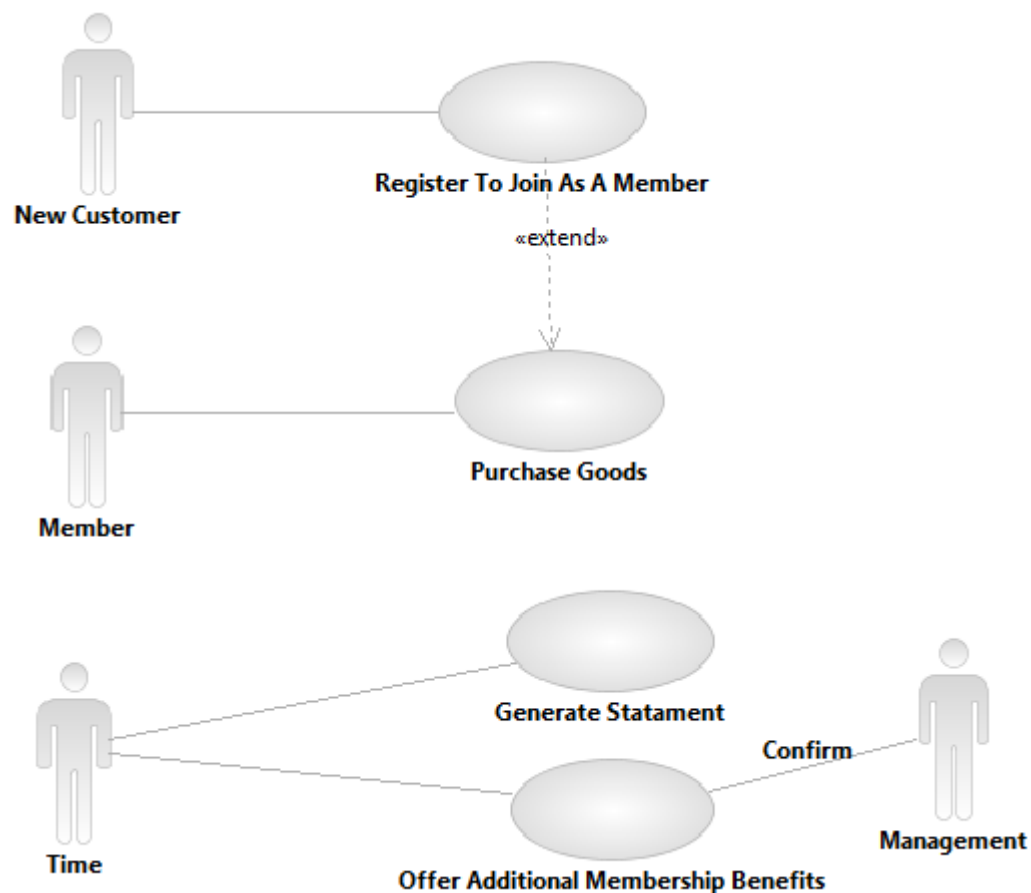


1. Identify all the relevant actors and use cases in the whole system

Use Case	Actor(s)	Description
Register To Join As A Member	New Customer	This use case describes the process of a customer registering to join as a member of Jolly boutique. On completion, the customer will get a membership card with a membership number and password.
Purchase Goods	Member	This use case describes the process of a member of Jolly boutique purchasing goods, verified and recorded by the system.
Generate Statement	Time	This use case describes the process of the system generating the statement including all transactions to the member for payment at the end of every month.

Offer Additional Membership Benefits	Time (The initiative actor) Manager	This use case describes the process of the system generating additional membership benefits and sending it to the member.
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2. Construct a use case diagram of the whole system with all use case relationships.



3. Document the use case typical and alternative courses of events for the JMS system.

Use Case Name	Register To Join As A Member	
Actor(s):	New customer	
Description:	This use case describes the process of a customer registering to join as a member of Jolly boutique. On completion, the customer will get a membership card with a membership number and password.	
Reference:	JMS	
Typical Course of Events:	<p>Actor Action</p> <p>Step1: Initiate this use case when a new customer registers to join as member of Jolly boutique</p> <p>Step2: The customer inputs his or her name, email address and phone number into the system.</p> <p>Step5: The customer gets a membership card which means that this use cases ends.</p>	<p>System response:</p> <p>Step3: The system records the personal information about the customer.</p> <p>Step4: Then the system generates a membership number and a password.</p>
Alternative courses	None	
Pre-conditions:	The customer is not a member of JMS	
Post-condition:	None	
Assumptions:	None	

Use Case Name	Purchase Goods	
Actor(s):	Member of Jolly boutique	
Description:	This use case describes the process of a member of Jolly boutique purchasing goods, verified and recorded by the system.	
Reference:	JMS	
Typical Course of Events:	Actor Action Step1: Initiate this use case when a member of Jolly boutique purchase goods Step2: The member waves the membership card at the sensor or enters his or her membership number and password	System response: Step3: The system records the membership card number, date, time, the items purchased and the total amount if the password is correct.
Alternative courses	None	
Pre-condition:	The customer has become a member of JMS.	
Post-condition:	None	
Assumptions:	None	

Use Case Name	Generate A Statement
Actor(s):	Time
Description:	This use case describes the process of the system generating the statement

	including all transactions to the member for payment at the end of every month.	
Reference:	JMS	
Typical Course of Events:	Actor Action Step1: Initiate this use case at the end of every month.	System response: Step2: The system generates a statement (the statement lists all the transactions in the current month) Step3: The system then send emails to the member for payment.
Alternative courses	None	
Pre-condition:	At the end of every month, the statement only includes transactions in current month.	
Post-condition:	None	
Assumptions:	None	

Use Case Name	Generate Lucky Draws
Actor(s):	Time (initiative) Manager
Description:	This use case describes the process of the system generating additional membership benefits and sending it to the member.
Reference:	JMS

Typical Course of Events:	Actor Action Step1: Initiate this use case at 10:00 am on the 15 th of each month. Step3: The manager confirms the information of the members picked by the system.	System response: Step2: The system randomly picks 3 members from those who have made purchases in the last 60 days. Step4: The system sends e-coupons to these members by email.
Alternative courses	None.	
Pre-condition:	At 10:00am on the 15 th of each month, only picking members who have made purchases in the last 60 days.	
Post-condition:	None	
Assumptions:	None	

4. Find the potential classes (nouns that correspond to business entities) based on Deliverable Item 3 (Marked with yellow above).

Potential Classes Extracted from Use Case:

Potential Object List
Member New customer Customer Jolly boutique Membership card Membership number

Password Name Email address Phone number System Personal information
Goods Data Time Items Total amount Details of transaction Transaction
Statement Time Payment
Additional membership benefits Lucky draws Manager Information of the member Purchases E-coupons

5. Select the proposed classes based on Deliverable Item 3.

Remove the nouns that represent:

Synonyms

Nouns outside the scope of the system

Nouns that are roles without unique behavior or are external roles

Unclear noun that need focus

Nouns that are really actions or attributes

Analysis of Potential Classes

Potential Object List	Reason
Member	Yes, a kind of "Customer"
New customer	Yes, a kind of "Customer"

Customer Jolly boutique Membership card Membership number Password Name Email address Phone number System Personal information	Yes, class "Member" No, not relevant for current project Yes, class "Membership card" No, "attribute" of "Membership-c" No, "attribute" of "Membership-c" No, "attribute" of "Member" No, "attribute" of "Member" No, "attribute" of "Member" No, system itself No, "attribute" of "Member"
Goods Date Time Items Total amount Details of transaction Transaction	No, "attribute" of "Transaction" No, "attribute" of "Transaction" No, "attribute" of "Transaction" No, synonyms of goods No, "attribute" of "Transaction" No, same as transaction Yes, class "Transaction"
Statement Time Payment	Yes, class "statement" No, roles without unique behavior No, "attribute" of "Transaction"
Additional membership benefits Lucky draws Manager Information of the member Purchases Discount E-coupons E-mail	No, another saying of "lucky draws" Yes, class "lucky draws" Yes, class "manager" No, attribute of "Membership" No, same as transaction No, unclear nouns No, unclear nouns

Results of Analysis

Proposed class list
Member
Customer
Membership Card
New Customer
Transaction

Statement
Manager
Lucky draws

6. Construct a class diagram based on Deliverable Item 3.

