



# **CPSC203: WEEK-1 LAB-1**

## **UML-Use Case Diagrams**

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## COURSE WEBSITE

[http://wiki.ucalgary.ca/page/  
Courses/Computer\\_Science/  
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# UML (UNIFIED MODELING LANGUAGE) USE CASE DIAGRAMS

- In many design processes, the use case diagram is the first that designers will work with when starting a project. This diagram allows for the specification of high level user goals that the system must carry out. These goals are not necessarily tasks or actions, but can be more general **required functionality of the system**.
- Use cases specify the expected behavior [**what**], and not the exact method of making it happen [**how**]



# PURPOSE OF USE CASE DIAGRAMS

- The purpose for using use cases is to
  - Uncover and describe all tasks that need doing in a system (of both human and system actors)
  - To analyse what functionality that need developing for the system
  - The use of use cases must mean that the right functional requirements are made of the system (the requirements of the business!)



# COMPONENTS OF A USE-CASE DIAGRAM

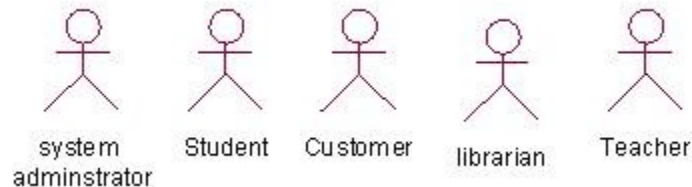
## ○ Actors

An actor specifies a role that some external entity adopts when interacting with the system directly.

It may represent a role played by:

- a user
- another system
- a piece of hardware

Actors may be both at input and output ends of a use case



# COMPONENTS OF A USE-CASE DIAGRAM

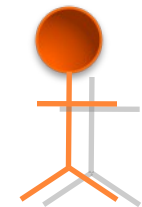
## ○ **Actors**

### • Purpose:

- To analyse which actors will use the system
- To analyse how the use of the actors is linked

## ○ **Association:**

The association is the link that is drawn between an actor and a use case. It indicates which actors interact with the system to complete the various tasks.



Actor



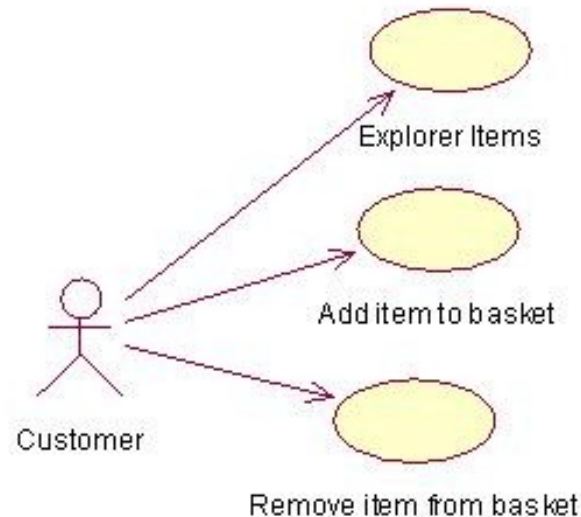
Arrow represents the association with a use-case



# COMPONENTS OF A USE-CASE DIAGRAM

## ○ Use Case

- Describes all the services required or performed by the actor.
- To analyse the functionality the system must include.
- To give an overview of the functionality and how it is linked



# USE CASE EXAMPLES

## Problem Statement-1:

**Construct a use case diagram for a library database management system. The actors are the librarian, assistant librarian, and clients. The use cases are to add books, delete books, add clients, delete clients, list books, list clients, check out books, and check in books.**

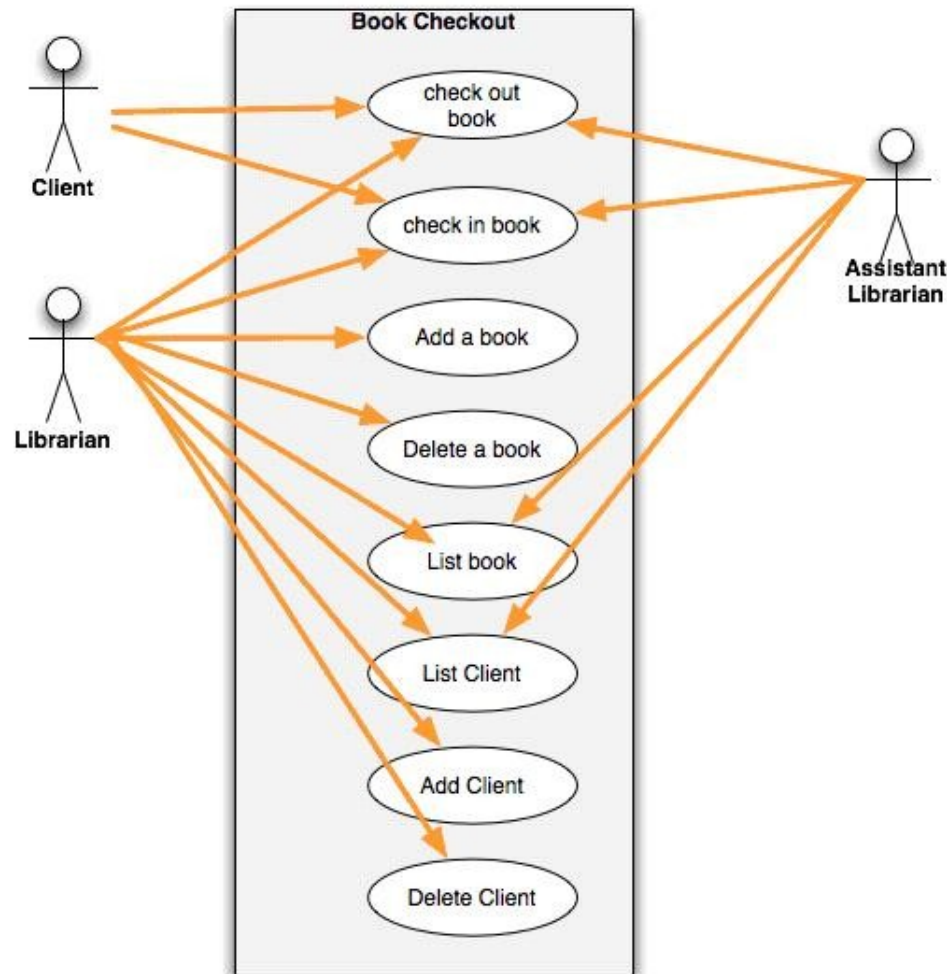
**The client may only access the check-in and checkout use cases while the Librarians may access all the use cases. The assistant librarian can access everything except adding or deleting books and clients.**





# USE CASE EXAMPLES

Use Case for Problem Statement-1 (Library management system):



# USE CASE EXAMPLES

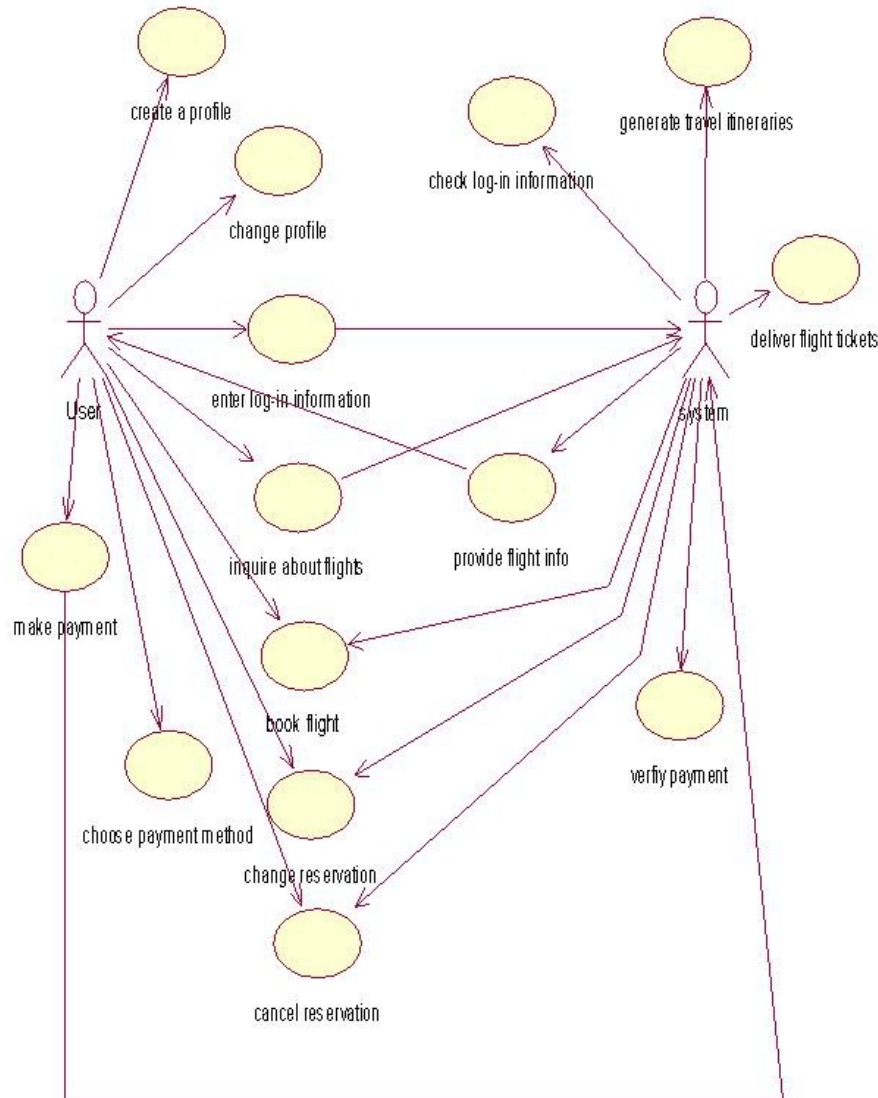
## Problem Statement-2:

Construct a UML Diagram for an online travel agency system. A new **user** is required to create a new profile with a username and password. This profile can be changed at any time if the user wants. The user logs to the system using his/her username and password. The **system** has to check the user's log information and lets him/her log to the system only if this information is valid. After logging in the system, the user inquires about different flights. The system provides him/her with the required information. The user can perform booking, changing, and canceling flight reservations. This includes choosing a payment method and making a payment. The system obtains the payment method and verifies traveler credit line. The system is also responsible for generating travel itineraries and arranging for delivery of flight tickets and flight itineraries.



# USE CASE EXAMPLES

## Use Case for Problem Statement-2 (Travel Agency System):



# USE CASE-CLASS EXERCISE

- Draw a simple use case diagram for an auction site (like ebay). In this site the buyer can search for items, then they can place bid for items of their favorite and finally can purchase items if they win the bid. On the other side, the seller can also look for specific items, create an auction and if his item is sold, he has to ship the item. In both of the cases they need to create an account to log on to this auction site.

