# University

Define a class diagram for a glossary for university. In a university there are different classrooms, offices and departments. A department has a name and it contains many offices. A person working at the university has a unique ID and can be a professor or an employee.

- A professor can be a full, associate or assistant professor and he/she is enrolled in one department.
- Offices and classrooms have a number ID, and a classroom has a number of seats.
- Every Employee works in an office
- An employee enters and exits a classroom

1-Read, underline nouns – nouns are candidates for classes (but also for attributes ..) 2-draw classes

- 3 define attributes for classes
- 4 define relationships (look for relationships in verbs)
- 5 define multiplicity



### Airline

Draw a class diagram to model a system for management of flights and pilots.

An airline operates flights. Each airline has an ID-

Each flight has an ID a departure airport and an arrival airport: an airport has a unique identifier.

Each flight has a pilot and a co-pilot, and it uses an aircraft of a certain type; a flight has also a departure time and an arrival time.

An airline owns a set of aircrafts of different types.

An aircraft can be in a working state or it can be under repair, and in a particular moment an aircraft can be landed or airborne.

A company has a set of pilots: each pilot has an experience level: 1 is minimum, 3 is maximum. A type of aircraft may need a particular number of pilots, with a different role (Ex. captain, co-pilot, navigator): there must be at least one captain and one co-pilot, and a captain must have a level 3.

#### (BUSINESS RULE)





## **Movie shop**

Specify a system for a movie shop, in order to handle ordering of movies and browsing of the catalogue of the store, and user subscription with rechargeable cards.

Only subscribers are allowed hiring movies with their own card.

Credit is updated on the card during rent operations.

Both users and subscribers can buy a movie and their data are saved in the related order.

When a movie is not available it is ordered.





### **USE CASE buy movie**

Scenario buymovie1 (user, movie available) Scenario buymovie2 (user, movie not available) Scenario buymovie3 (subscriber, movie available) Scenario buymovie4 (subscriber, movie not available)

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1	User enters the shop and asks to clerk for movie X	
2	Clerk searches movie x in catalogue	F1
3	Movie is available, clerk picks movie	
4	User pays	F2
5	Clerk records sale of movie x	F3

#### Scenario buymovie2

1	User enters the shop and asks to clerk for movie X	
2	Clerk searches movie x in catalogue	F1
3	Movie is NOT available,	
4	Clerk orders movie	F4
5	Clerks books movie for user	F5

### **Functional requirements**

F1	Search movie in catalogue
F2	Manage payment
F3	Record sale

F4	Order movie
F5	Book movie x for subscriber z



### System design

A few clerks, each has a register (sells, rents, browses catalogue ..)

