

Class Diagram

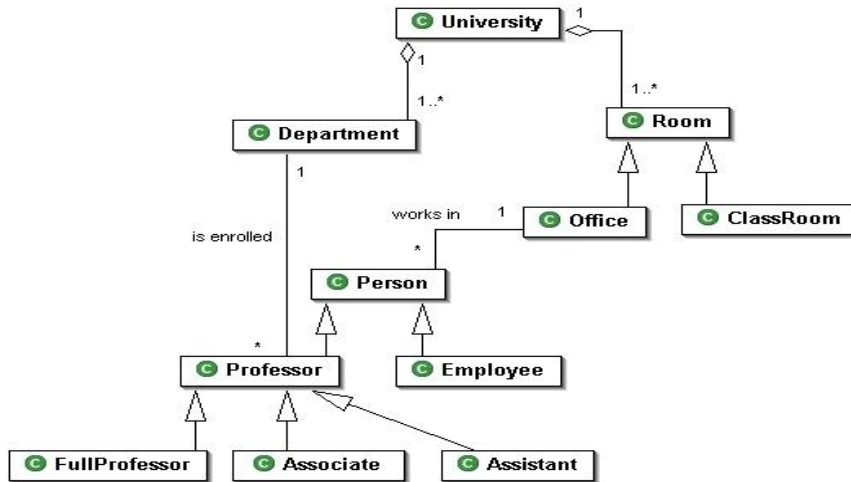
Exercises



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.

University: solution



SoftEng
<http://softeng.polito.it>

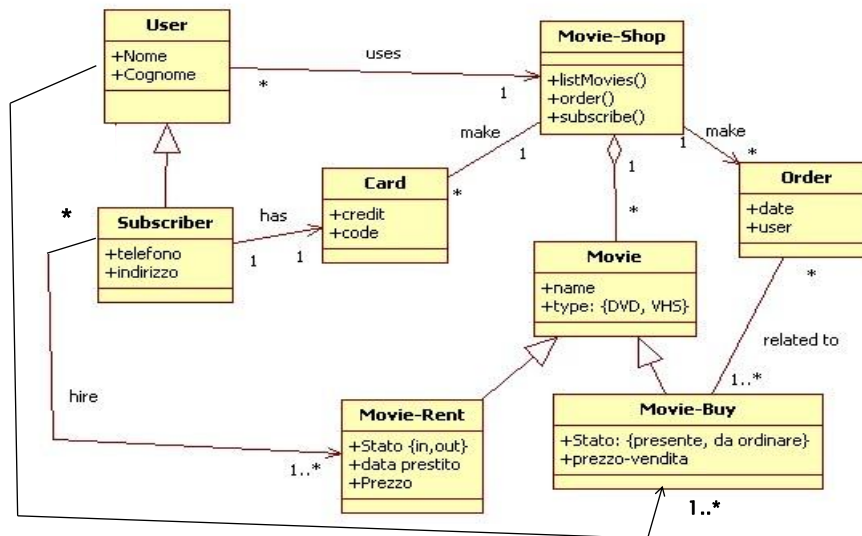
Diagram made with Omondo UML tool

Movie- Shop

- Design a system for a movie-shop, in order to handle ordering of movies and browsing of the catalogue of the store, and user subscriptions 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 .

SoftEng
<http://softeng.polito.it>

Movie-Shop



Flights

We want 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 as 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.

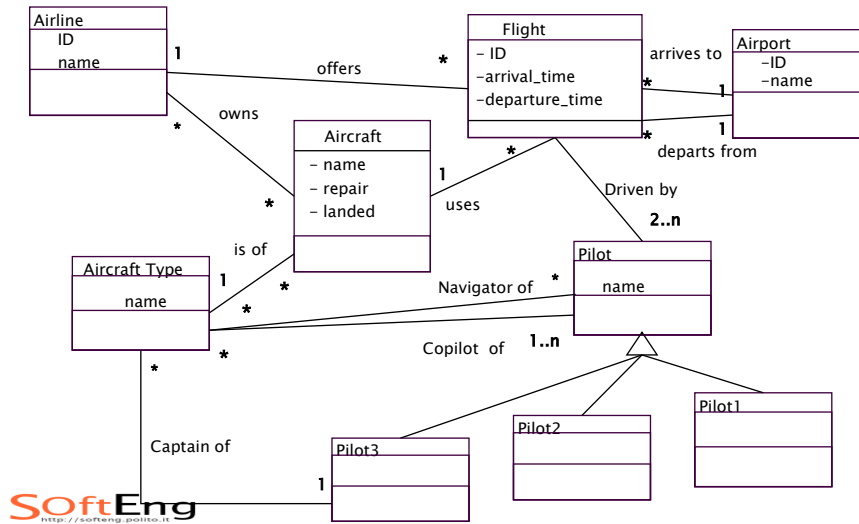
An aircraft can be in a working state or it can be under repair.

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 aeroplane may need a particular number of pilots, with a different role (e.g.: captain, co-pilot, navigator): there must be at least one second and one co-pilot, and a captain must have a level 3.

Flights – solution



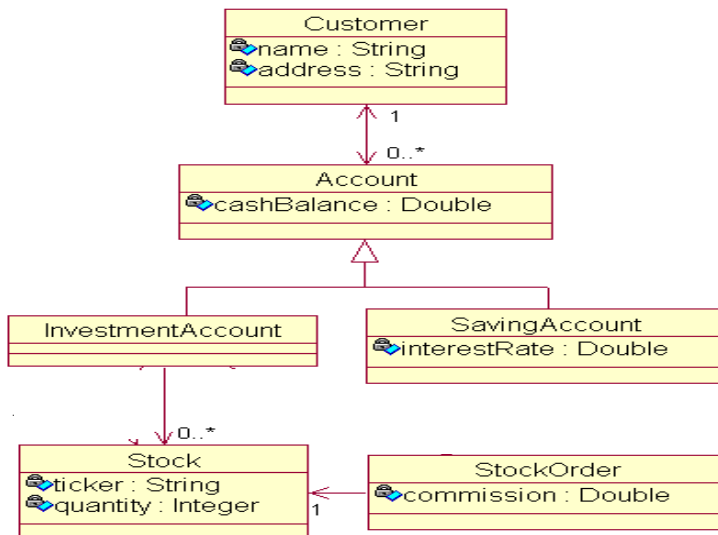
Bank system

A bank system contains data on customers (identified by name and address) and their accounts.

Each account has a balance and there are 2 type of accounts: one for savings which offers an interest rate, the other for investments, used to buy stocks.

Stocks are bought at a certain quantity for a certain price (ticker) and the bank applies commission on stock orders.

Bank solution



Hospitals

Hospitals have an ID, a name and an address.

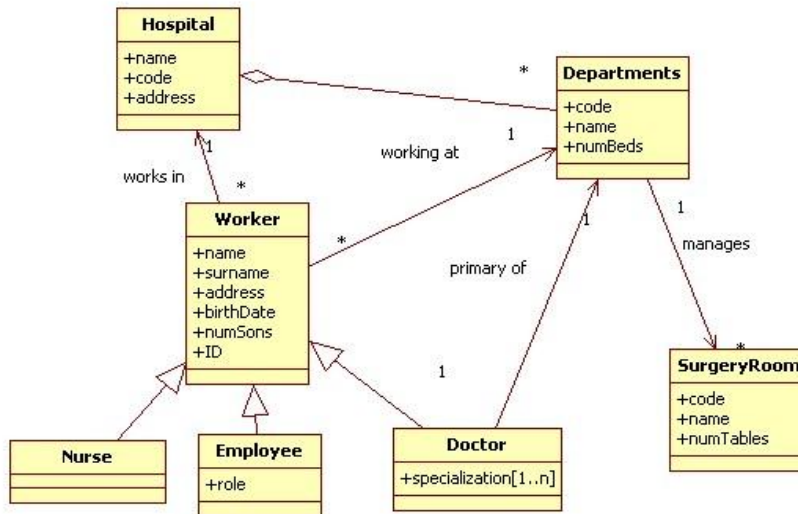
People working in a hospital have an ID, unique in the hospital, surname, name, birth date, address, and number of sons

Hospital workers can be doctors (having a list of specializations), employees (having a role) and nurses.

Hospital is divided in departments, having a code, a name, and a number of beds. For each department we know the primary doctor and all the workers.

Each department can manage surgery rooms identified by name, ID and number of surgery tables.

Hospital: solution



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Library

Library contains books borrowed by students identified by their ID.

Books have a library code, title, one or more authors and number of pages

Authors have name and surname, and they can have written many manuscripts published in different books.

Each book has an editor and a book may be provided by different editors in different dates.

Students cannot borrow more than 3 books, and each book has a starting date and a return date.

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Library: solution

