

Exercise 1

1. Identify relevant entities and entity types in the example (next slide).
2. Identify relevant relationships.
3. Draw **and** verbalise the single statements.
4. For each Relationship: What is the cardinality and existence?
5. Take at least one entity type and identify interesting attributes.

Exercise 1 - Example

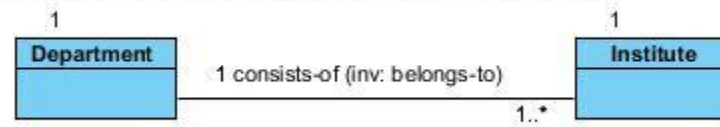
Every institute at the Graz University of Technology belongs to one department (Fakultät). Each department has one dean, who is also professor at one institute within the department. Each institute belongs to exactly one department, but departments consist of more than one institute.

One particular institute is the knowledge technologies institute, in the department of computer science, whose dean is Franz, who in turn is professor at the Institute for Software Technology.

Exercise 1 – Solution 1a

A department consists of one or more institutes, and each institute belongs to one department.

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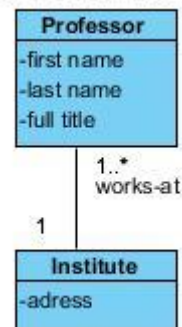


Exercise 1 – Solution 1b

Professors work at institutes (every professor works at exactly one institute, and at each institute at least one professor is working).

Attributes: Professors have first and last names, and some titles. Institutes have addresses.

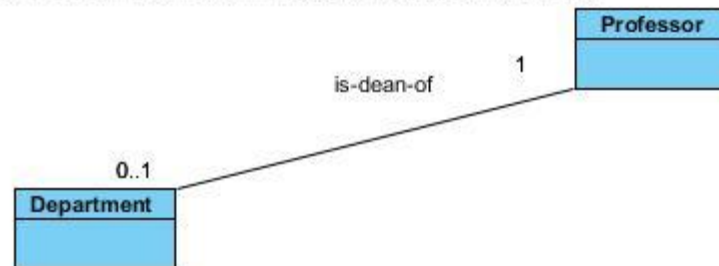
Visual Paradigm for UML C



Exercise 1 – Solution 1c

A professor can be dean of a department, and every department has exactly one professor who is its dean.

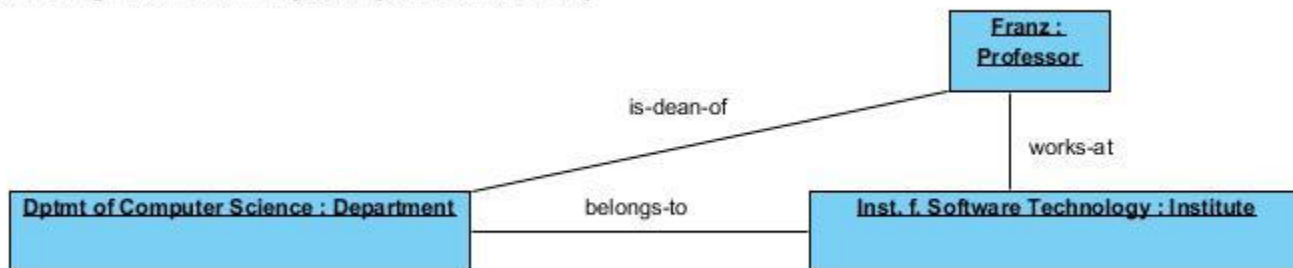
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Exercise 1 – Solution 1d

Franz is professor at the Institute of Software Technology, which belongs to the Dptmt of Computer Science, and Franz is also dean of the Dptmt of Computer Science.

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Exercise 2

1. Which relationship exists between the following pairs of entity types: „subtype“ (specialisation) or aggregation?
 - Company – One-Person-Enterprise
 - City - District
 - Family – Person
 - University – Educational Institution
2. Given a *.csv-file with the following data – what ER model would you create?

Jahr	Monat	Herkunftsland	Naechtigungen
2012	1	Arabische Länder in Asien	74
2012	1	Australien	188
2012	1	Baden- Württemberg	1158
2012	1	Bayern	2699
2012	1	Belgien	180
...

<http://data.graz.gv.at/daten/package/touristen-in-graz> - Daten f. 2012

Exercise 2 – Solution 1a

1. Which relationship exists between the following pairs of entity types: „subtype“ (specialisation) or aggregation?

- **Supertype:** Company – One-Person-Enterprise
- **Aggregation:** City - District
- **Aggregation:** Family – Person
- **Subtype:** University – Educational Institution

Exercise 2 – Solution 1b

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