

## SQL Lab: Assignment I (until 22. / 23.11.2011)

### General Information

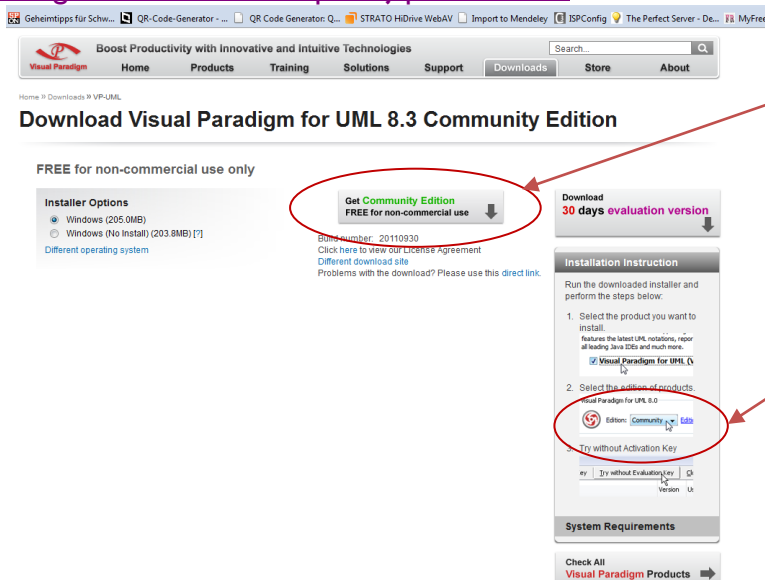
In this lab course, you have to work in teams of two (2) students each.

There are fixed dates for meeting up with your lab tutor for discussion and receiving new assignments, which you have to perform until the next meeting (consult your tutor for details about this).

### Tools

During this first task, you will create a larger data model using suitable software tools. In general, you are **free to use any UML modeling tool** you like (drawing UML diagrams by hand is not permitted!).

For example you can use the tool *Visual Paradigm for UML 8.3*. It is available in a Community Edition which is free to use. It can be downloaded here: <http://www.visual-paradigm.com/download/vpuml.jsp?edition=ce>.



Download Community Edition

Choose Community Edition during installation process!

After installing create a new project and use an Entity Relationship Diagram for modeling task.

## General Task

Use an UML Tool to model the mini-world described below. Keep several things in mind:

- You will later hand in your assignment on **A4 paper and as digital file**. As your data model will be quite large, paper space will probably not suffice. Consider creating several diagrams showing different aspects or detail levels of your model.
- Use the package feature of UML (a package bundles several classes into a group). You have to provide an overview diagram showing how packages relate to each other and then more detailed diagrams per package.
- Your tutor as well as your fellow students should be able to understand your model. Use comments, notes, and **additional documentation!**
- Keep in mind that most modeling tools use an internal data model containing all classes, associations, etc. Reuse parts of the model instead of creating new ones, if a class/package appears in multiple diagrams.
- Model attributes and cardinalities. Use default data types like string, integer, date, etc. whenever possible.

## How to successfully pass the course

During the SQL lab, there will be five assignments to be worked on; the results of each team have to be handed in and will be graded by the team's tutor. There will be three possible grades: "+1" (good), "0" (average), and "-1" (incomplete, insufficient, or missing). To successfully pass the SQL lab, the sum of all five grades must be positive ( $> 0$ ) and all five assignments must be successfully delivered. "Successfully delivered" means, each task must be solved to the half at least. *Important:* You have to be present in the lab, when you pass in your work, because you can be the elect group presenting there solution.

## Task for the first week

Your task is the creation of a database model for the digital library PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>). In order to solve this task, analyze carefully the web pages of the NCBI and try to figure out which classes are needed and how they are related. In order to see an example result set, an interesting query can be the "bla" gene (<http://www.wikigenes.org/e/gene/e/3244915.html>). For some features you need a login for "MyNCBI". This login is free of charge, thus please register yourself.

In particular, take care of these issues:

- Documents: <http://www.ncbi.nlm.nih.gov/pubmed/21980514>

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- A document is uniquely identified by its PMID.
- A document may contain several images.
- Authors: <http://www.ncbi.nlm.nih.gov/pubmed?term=%22Krishnan%20B%22%5BAuthor%5D>
  - Authors may have the same name.
  - Authors may change their working place.
- Journal: <http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&term=%22J%20Neurosci%22%5Bjour%5D>
  - A journal is uniquely identified by its name.
- MyNCBI
  - Please ignore the filter functionality and preference settings for this task.
- Bibliography:
  - A user's bibliography can be organized into Collections.
  - A user may have different access rights regarding the collection. Thus some users may access only open access publications whereas others can access the whole library.

**Please note:** The previous list does not contain all attributes as well as all necessary entities. Therefore, carefully analyze the respective website.