



# Fundamentals of Data Management

## Pass Tasks 5.2: SQL - Data Definition Language

### Overview

In this tutorial, you will practise using SQL DDL statements to CREATE, ALTER and DROP tables in databases.

### Purpose

Learn to write SQL DDL statements to create tables.

### Task

Solve the tasks given below.

### Time

This task should be completed in your fifth lab class and submitted for feedback in the fifth lab or at the beginning of lab 6.

### Resources

- Online module (from Canvas)
- Elmasri & Navathe, Fundamentals of Database Systems
- Connolly & Begg, Database Systems, Chapter 7
- Online resources, e.g.
  - Several topics on SQL at this link:  
<http://www.w3schools.com/sql/default.asp>

### Feedback

Discuss your solutions with the tutorial instructor.

### Next

Get started on module 6.

## Credit Tasks 5.2 — Submission Details and Assessment Criteria

Document your solutions to the tasks using a Word processor and upload to Doubtfire as pdf. The tutors will discuss them with you in the lab.

## Subtask 5.2.1

Consider the following COMPANY Database relations

| Employee    |                     | Department     |  |
|-------------|---------------------|----------------|--|
| Attribute   | Explanation         | Attribute      | Explanation                                      |
| emp_id      | id field            | dept_id        | id field   |
| emp_fname   | first name          | dept_name      | name   |
| emp_lname   | last name           | mgr_id         | emp_id of manager                                |
| emp_bdate   | birth date          | mgr_start_date | date when manager started running the department |
| emp_address | street & city       |                |  |
| gender      | M, F or U(ndefined) |                |  |
| dept_id     | id of department    |                |  |
| super_id    | emp_id of superior  |                |  |

| Project   |  | Works_on  |  | Salary     |  |
|-----------|--|-----------|--|------------|--|
| Attribute | Explanation                            | Attribute | Explanation                                    | Attribute  | Explanation  |
| proj_id   | id field                               | proj_id   | id of project                                  | emp_id     | id of employee                                       |
| proj_name | name                                   | emp_id    | id of employee working on it                   | salary     | yearly amount of employee's income                   |
| proj_loc  | location of project                    | role      | role of the employee in the project            | start_date | date when the employee started receiving this salary |
| dept_id   | id of department that owns the project | hours     | number of hours employee worked on the project |            |  |

Figure 2: COMPANY database

The company database is incomplete. The database also has to accommodate some details about the role the employee has in a project – such as technician or manager. There has to be a field salary\_factor which is a number that shows the percentage of additional remuneration a user receives for working in this role. There also has to be a comment attribute where the role can be described.

Having added these fields, write the DDL statements to create all tables. Your solution must include foreign key constraints, check constraints and default values (where they are meaningful). You must also show which attributes are nullable and reasoning why.

Document the solution and upload.