Fundamentals of Data Management

Pass Tasks 4.1: Functional Dependencies and Normalisation

Overview

In this tutorial, you'll practise identifying functional dependencies and ensuring a relational database is in third normal form.

Purpose

Learn to identify problems with database schemas and how to solve them using normalisation.

Task

Solve the functional dependency and relational design problems outlined below.

Time

This task should be completed in your fourth lab class and submitted for feedback in the fourth lab or at the beginning of lab 5.

Resources

- Online module (from Canvas)
- Elmasri & Navathe, Fundamentals of Database Systems, Chapter 15
- Connolly & Begg, Database Systems, Chapter 14
- Online resources, e.g.
  - https://www.youtube.com/watch?v=oGObN5TKY9E
  - http://www.cs.nott.ac.uk/~nza/G51DBS/dbs11.pdf
- You can use a specialised tool or simply use tables in your lab report.

Feedback

Discuss your solutions with the tutorial instructor.

Next

Get started on module 5.

Pass Tasks 4.1 — Submission Details and Assessment Criteria

Document your solutions to the tasks in document using a word processor or other suitable software. Upload a pdf to Doubtfire. The tutors will discuss them with you in the lab.

Subtask 4.1.1

What do you have to do to bring the following table into First Normal Form:

stud_id	stud_name	subj_code	subj_title	sem_year	staff_id	convenor	grade
1234	John Smith	ITM2005	System Architecture	1/2015	111	Bob Hauser	83D
		ACS1005	Data Mgmt	2/2015	222	Jane Collins	44N
9555	Peter Nguyen	ITM2005	System Architecture	1/2015	111	Bob Hauser	95HD
		PRG1001	Programming I	2/2015	333	Ahmad Singh	65C

Document the steps and resulting table(s) and give reasons why they are necessary to achieve 1NF.

Discuss this with the tutor before you proceed to the next task.

Document the solution and upload.