DBI Lab 003: Entity Relationship Modelling

Databases and Interfaces

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1 Lab Overview

> ⚠ Creating ER Diagrams
>
> You are not required to use a specific piece of software for this lab task. We recommend using Microsoft PowerPoint, as it is freely available to you. Please tell us which software you used in your lab submission, if you would prefer to use something else.
> If you decide to use pen and paper, please make sure that you use a ruler and that your diagram is well presented. A diagram that is not well-made, messy, or unprofessional might not get a mark for this lab activity.

In this lab session we will practice translating problem descriptions into entity-relationship (ER) diagrams, using the techniques presented in the lecture

Complete the following exercises compiling your answers into a single PDF document, the requirements for which are detailed in the Submitting your lab work section.

2 Questions

Q1 Modelling a Film Production Company

Consider the following problem description:

> **Film Production Company: Problem Description**
>
> A film production company wants to create a database to store the details of its movie collections. Information to be stored about each movie includes: price, title, year and genre. Each movie will have a leading actor, and each leading actor may appear in multiple movies. Actors have names associated with them, and it should be possible to search the database with the actor's name.

Analyse the problem description and model its data requirements completing the following:

1. Identify entities, attributes, relationships, and cardinality ratios from the problem description.
2. Using the identified components, generate an ER diagram that captures the film production company's needs. Use the ER notation presented during the lectures.

Q2 Modelling Drug Trials at a Pharmaceutical Company

Consider the following problem description:

> **Drug Trials at a Pharmaceutical Company: Problem Description**
>
> A research laboratory at a leading Pharmaceutical company is running several drug trials on healthy volunteers to check for side effects. Each drug has a unique name. Each trial involves one drug and multiple volunteers who take the drug and report any side effects. For each volunteer in each trial, it needs to be recorded whether they had side effects and what those side effects were. There could be multiple side effects for the same person, like headache, dry mouth, and fever. Each side effect has a standard description. For simplicity, assume each volunteer participates in at most one drug trial. Data stored about volunteers includes their National Insurance Number, name, age, gender, address and phone number.

Analyse the problem description and model its data requirements completing the following:

1. Identify entities, attributes, relationships, and cardinality ratios from the problem description.

2. Using the identified components, generate an ER diagram that captures the pharmaceutical company's needs. Ensure that all M:M and 1:1 relationships are removed in your solution. Use the ER notation presented during the lectures.

3 Submitting your lab work

Compile your answers into a single PDF document. Your submission should:

- Be neat and easy to read
- Must include a cover page with:
  - Your name
  - Student ID
  - University email address
  - Module code (COMP1048) and title (Databases and Interfaces)
  - Lab number (003) and title (Entity Relationship Modelling)
  - Date of submission

Name your PDF file using the following format - `DBI_lab003-<student_id>.pdf`, where, `<student_id>` is your student ID. For example, if your student ID is `z123456`, you should name your PDF file `DBI_lab003-z123456.pdf`.

Submit to the Lab 003 assignment on Moodle before the deadline - late submissions will receive a mark of zero, as per the coursework issue sheet.

Additionally, unreadable or corrupted submissions, submissions without the required cover page, or submissions that do not demonstrate a reasonable attempt at answering all questions will result in a mark of zero for the entire lab.

This lab contributes 1% of your overall module grade.