UNIVERSITY OF WESTMINSTER

5COSC020W DATABASE SYSTEMS

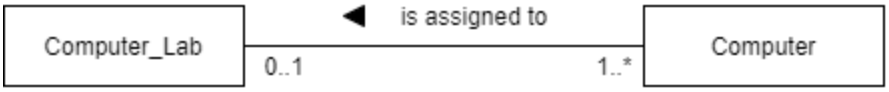
2022-2023 Tutorial 01

Conceptual Database Design – Entity-Relationship Modelling

Tutorial 01 Exercise 01

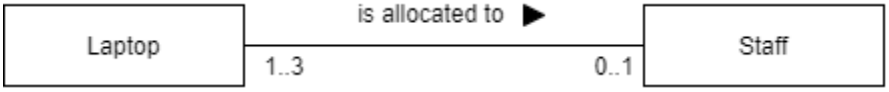
For each of the conceptual Entity Relationship Diagrams (ERDs) below, explain in detail the multiplicities (i.e. participation and cardinality) by **writing 4 separate statements** to explain the **4 digits** on both sides of the relationships. For every statement, also give an example to support the produced statement.

Question 1.1.



Question 1.2.

Question 1.3.



Question 1.4.

Tutorial 01 Exercise 02

Create a basic conceptual ERD for each of the following descriptions. Make sure you include the entity names, relationship names, reading directions and multiplicities (i.e., participation and cardinality).

To create a diagram for each description:

- Access draw.io on https://www.diagrams.net/, click 'Start' and 'Create New Diagram'
- Create an ERD for each description below.
- Export your ERD as a PNG and copy and paste it underneath each description.

Description 2.1.

Each company operates four departments, and each department belongs to one company.

Description 2.2.

Each department in part 2.1. employs one or more employees, and each employee works for one department.

Description 2.3.

Each of the employees in part 2.2. may or may not be allocated one or more devices, and each device may or may not be allocated to an employee.

Description 2.4.

Each employee in part 2.3. may or may not have employment history events.

Description 2.5.

Represent all the conceptual ERDs described in 2.1., 2.2., 2.3, and 2.4. as a single conceptual ERD.

Tutorial 01 Exercise 03

Create a basic conceptual ERD for the following scenario. Include entities, attributes, primary keys, relationships and multiplicities.

STUFFY is an online retailer that sells a large number of products to the general public. Customers can view the products on offer, select a specific product and view the product details such as description and price. Then, customers can place an order for several products and repeat this process until they decide to finalise their order and check out. Subsequently, shipments need to be organised so that the correct items of the ordered products are sent to the right customer.

To create a diagram:

- Access draw.io on https://www.diagrams.net/, click 'Start' and 'Create New Diagram'
- Create an ERD based on the scenario above.
- Export your ERD as a PNG and copy and paste it below.