CONL705: Assignment 1, Part 1:  
Database Design

# Task 1.1 – Entity Relationship Diagram

Please see below created (using Draw.io) Entity Relationship Diagram (ERD) for the IT helpdesk Scenario. Please be aware of two variations of the same ERD, one showing the entities, with the second showing the entities and their suggested attributes.

## Task 1.1.1 – ERD with entities only

Diagram

Description automatically generated

## Task 1.1.2 – ERD with Attributes

Diagram

Description automatically generated

## Task 1.2 – Assumptions regarding Helpdesk Scenario

Upon examining the IT Helpdesk Scenario, a list of assumptions is made during the creation of the Entity Relationship Diagram:

* Whilst one member of personnel can speak to many Operators over the course of raising an issue to the IT Helpdesk, they can only speak to one helpdesk Operator at a time.
* One Operator can only escalate for one problem to one or more Specialists, dependant on the subject area, and amount of Specialist resource is available.
* One member of personnel can one more than one piece of equipment, such as a mouse, laptop, keyboard to name a few.
* One Specialist can specialise in one or more subject areas of expertise, but at least one. However, for the purpose of this scenario, the number of subject areas a specialist can work on, is constrained to 3 subject areas. The First Subject Area a Specialist can manage, is their primary area of expertise, with the next being the secondary and so on.
* One Subject area a specialist can manage, can cover one or more problem types that members of personnel may experience issues with.
* One problem can only be assigned one problem type at any one time. However, the problem type for a problem can change, as required by the operator/ specialist, as problem progresses.
* One problem can have multiple calls associated with it, especially if many calls come in from different personnel regarding the same problem that has a mass effect on the company.
* Any calls logged, will note the personnel who is raising an issue, the operator who responded to the member of personnel and to initially attempt resolution of the issue.
* For the problem entity, the problem will record the first member of personnel who alerted the helpdesk with the first call logged regarding the issue.
* As a problem type can have a child/parent structure for general to specific issues, the problem type entity would both have the main id for the parent and a child problem type referenced if appliable to show the specific problem type and reference any generic problem types if applicable (the general problem types will show null for their parent).
* A Specialist will never have less than 0 problems to manage at any one time.
* Helpdesk Operators and Specialists are also known as members of personnel by the company in which they are employed at. Therefore, their details would also be available in the personnel entity.
* There can be no software, without hardware. Therefore, Software is reliant on being dependant on a member of personnel’s hardware. For example, a member of personnel cannot use a operating system such as Windows or Linux, without the use of being installed onto a Desktop PC or Laptop device.

# Task 2 – Relational Schema

The next set of information converts the information found within the Entity Relationship Diagrams. into relational schemas.

## Personnel\_Register

A picture containing graphical user interface

Description automatically generated

## Helpdesk\_Operator

Timeline

Description automatically generated

## Helpdesk\_Specialist

Chart

Description automatically generated with medium confidence

## Equipment\_Register

Chart

Description automatically generated with medium confidence

## Hardware\_Register

Chart

Description automatically generated with low confidence

## Software\_Register

A picture containing chart

Description automatically generated

## Call\_Log

Graphical user interface

Description automatically generated

## Problem\_Register

Chart

Description automatically generated

## Subject\_Area

A picture containing chart

Description automatically generated

## Problem\_Type

A picture containing chart

Description automatically generated