Distinction Level Project

For the Distinction level projects, the topics mainly focus on how to store data in the real-world into a datastore.

You can come up with a topic in your own domain.

Your Distinction level project also be completed to a Credit level if the outcome does not show sufficient efforts and quantity.

Important: Do not do theoretical web-based studies or copy some vendor's assertions about their database features.

For any of the project topic, you are required to include at least things listed below in the outcome:

1. Identification of entities (at least 6 entities including 1:1, 1:M and M:M relationships) in the selected domain within the boundary.
2. An Entity Relationship Design in either UML expression, crow's feet notation, or Chen notation regarding the whole picture of your designed datastore.
3. Create a DB with at least 25 records.
4. An implementation of the datastore on MySQL server or any available database server for making queries.
5. Prepare a comprehensive report on the system details.

All reports are required in the electronic format. You will need to include the report into your portfolio at the end.

An interview will be held to demonstrate your project.

Higher Distinction Level Projects

Note that for a Distinction, you would normally implement a database for your own domain

These projects are intended for Higher Distinction level but could also be completed to a Distinction level.

Important: **Do not do only theoretical web-based studies** or copy some vendor's assertions about their database features.

Example topics, others are possible:

Comparison of database products (including Cloud databases, NoSQL databases) from the point of view:

- data structures, normalisation aspect, retrieval (how easy is it to recombine information to find new knowledge in the data?).
- concurrency model/isolation levels.
- speed of access; updates (including inserts) and queries.

- database security (demonstrate how you implement safeguards, do not list security issues and safeguards from the internet).

Database use with mobile devices

- Cases where data is captured and stored offline; how to manage synchronisation between device and server-based database; security issues and safeguards in such scenarios

Data migration

- Transforming and cleansing data when migrating between different database products.

Cloud databases and tools

- Amazon, Azure, MongoLab, Rackspace, Google Cloud..
- Make sure you have free access to the databases so you can investigate.

NoSQL databases

- Mongo, Hadoop, CouchDB...
- what's special about data modelling and accessing?

Distributed setups

- may be hard to implement, but is a good topic

Big data processing

- e.g. using MapReduce - needs large datasets.

https://archive.ics.uci.edu/ml/datasets.php

Data, privacy and legal issues

- Are you allowed to put your Australian customers' data on servers hosted in different countries?
- Who is liable when your database gets hacked?
- What permissions do you need to store personal data?

This is a tricky topic, but it is the only one that does not require practical work.