



# INFS1200/7900 Module 1 Assignment

Due: March 24, 2023 @ 04:00 PM

Version: 1.0

Weighting: 15%

	Full Name	Student ID (8 digits)
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## 1. Overview

The purpose of this assignment is to test your ability to use conceptual modelling, such as ER and EER diagrams, to capture important aspects of a system which need to be stored in a database.

The assignment is split into two parts:

- **Part A** (Questions 1 to 4) may be completed either in groups of two or individually.
- **Part B** (the RiPPLE component) must be completed individually.

This assignment is worth 15% of your course mark, with Part A worth 12.5% and Part C 2.5%.

## 2. Submission

All submissions for

**Part A** must be made through an electronic marking tool called **Gradescope**, which will also be used for marking and providing feedback. You **must** record all your answers in the spaces provided in this document and upload it to Gradescope. Altering the format or layout of this document in anyway will attract penalties. You may however add landscape images in the submission boxes without changing the orientation of the page. All submissions must have the name and ID boxes filled out in order to be identified. For students working in groups, submissions should be made by ONE team member only. Extra submissions may attract penalties.

**Part B** is to be completed through the RiPPLE platform (link available on Blackboard) and is automatically graded.

## 3. Plagiarism

The University has strict policies regarding plagiarism, copying, contract cheating and other forms of academic misconduct. Penalties for engaging in unacceptable behaviour can range from cash fines or loss of grades in a course, through to expulsion from UQ. You are required to read and understand the policies on academic integrity and plagiarism in the course profile (Section 6.1). If you have any questions regarding acceptable levels of collaboration with your peers, please see either the lecturer or your tutor for guidance. Remember that ignorance is not a defence!

In particular, you are permitted to use generative AI tools to help you complete this assessment task. However, if you do, please provide complete copies of your interactions with the AI tool in the space provided at the end of your submission. Please note that if you use generative AI but fail to acknowledge this by attaching your interaction to the end of the assignment, it will be considered misconduct as you are claiming credit for work that is not your own.

## 4. Task

This assignment contains two parts.

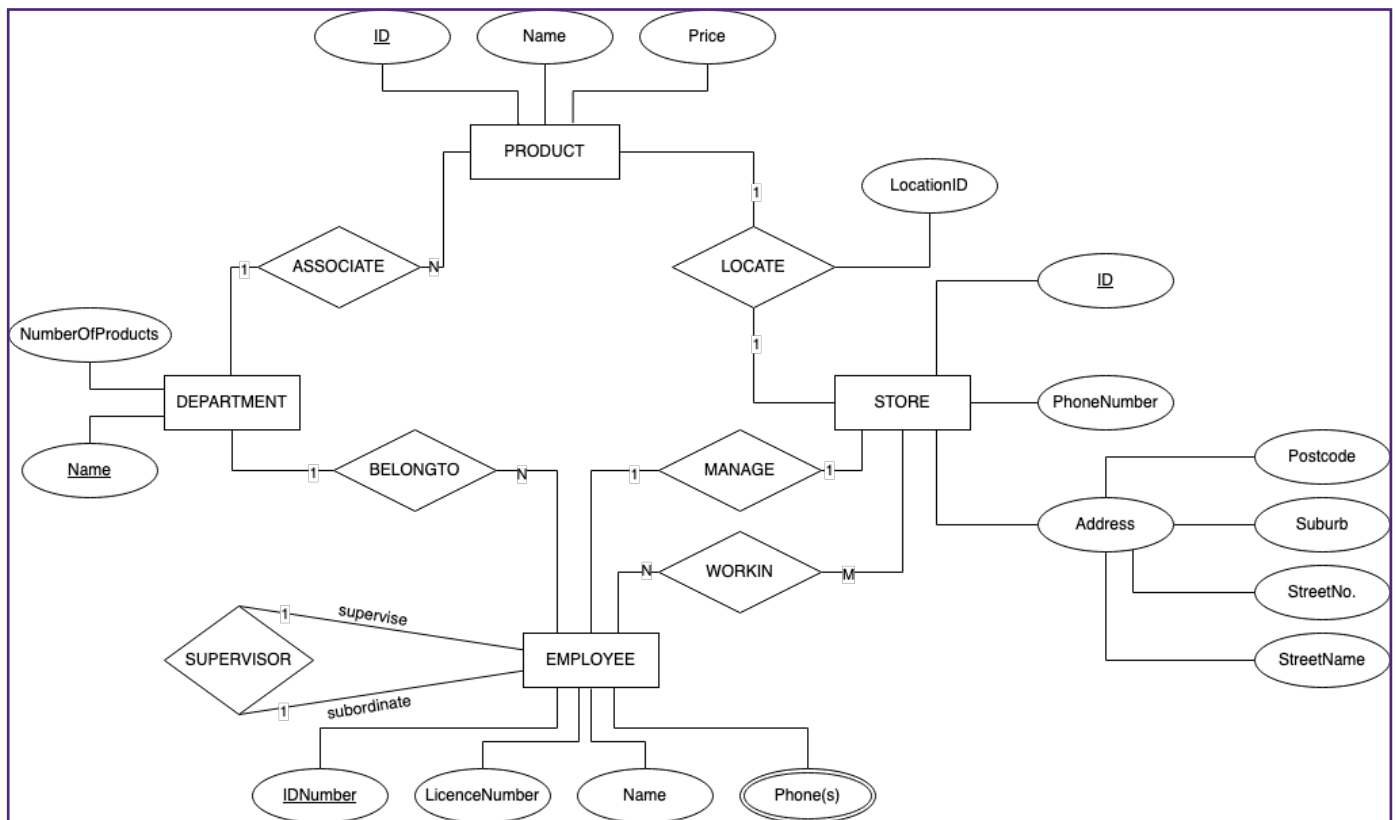
**Part A** comprises 4 questions, each containing a brief UoD that provides contextual information regarding a system or organisation. Please note that all UoDs included in this assignment are fictional. For each of these sections you will need to create an Entity Relational (ER) diagram, or Extended Entity Relational (EER) diagram based on the UoD. If the UoD is unclear regarding specific aspects of the brief you may note assumptions on your ER diagram. However, please beware that your assumptions must not conflict with or violate any aspects of the UoD.

**Part B** of this assignment will involve you completing, authoring and moderating questions on RiPPLE.

### Question 1

Plumbings Warehouse is a retail chain specialising in household hardware and garden goods. Plumbings is currently undergoing an update of their data storage systems, and they have asked you to design an ER diagram to store their retail information.

- Each Plumbings product has a unique ID number, name, price and associated department.
- Departments are identified by their name, and Plumbings also store the number of products in each department.
- Plumbings stores are given an ID number, phone number, and address (Street No., Street Name, Suburb and Postcode).
- Plumbings wants to improve their customer experience by storing the precise location of a product in each store. For example: Nails are stored in Aisle 78, section C. The location of a product varies in each store.
- Employee data contains their ID, licence number, name and phone(s), as well as the store(s) they work in, and their primary department. Each employee has another employee assigned as their supervisor.
- Each store has a single manager, and an employee may only manage one store.

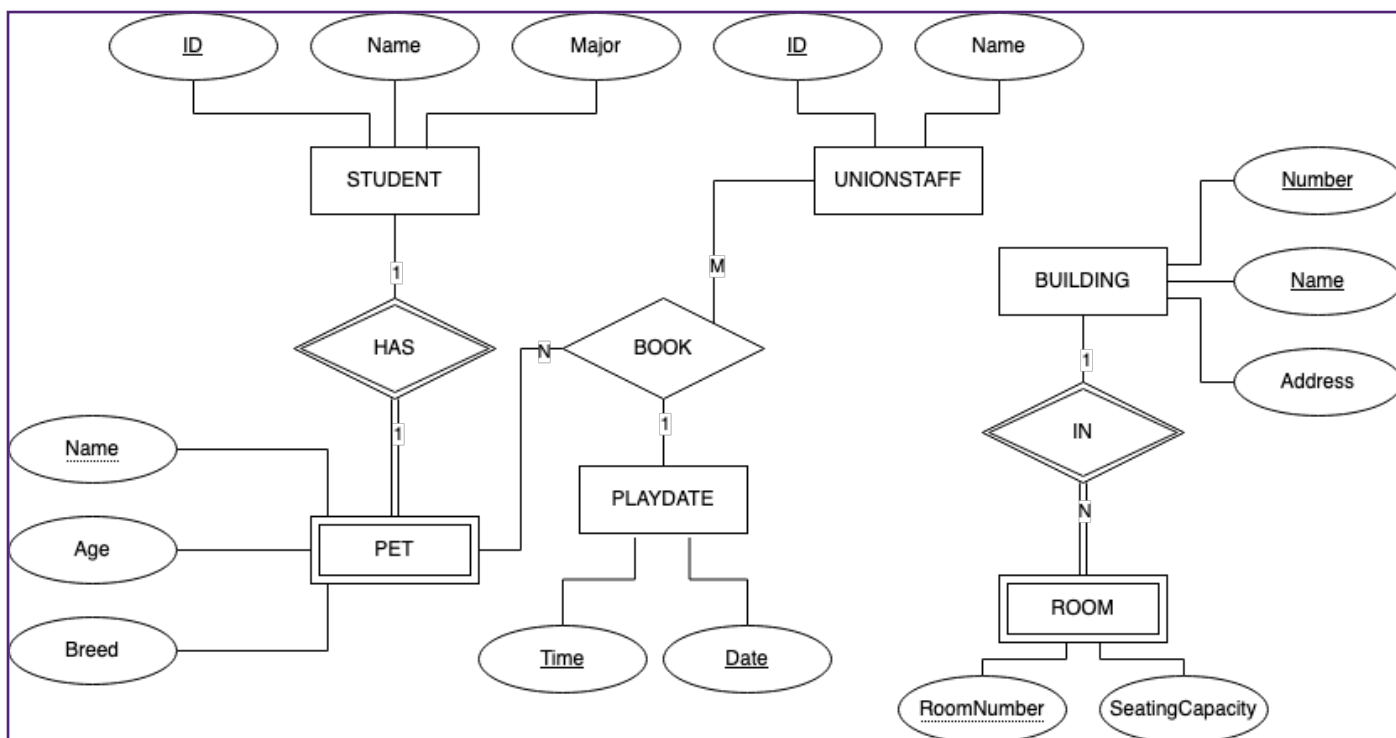


## Question 2

The student union has implemented a “bring your pet to uni” day each month to improve student well-being. As pets are not permitted in lectures and tutorials, the union have a system where students can book in their pets for a supervised play date with other pets.

In this simplified model, student ID, name and major are recorded for each student while their pet’s name, age and breed are recorded. Union staff ID and names are stored. Each building at the university has a unique number, unique name, and their address stored in the system. A room used for a play date has its number and seating capacity recorded; the room number is unique within its building.

Each play date is booked in for a specific date and time for multiple pets & staff members, and may make use of adjoining rooms in a university building if additional space is required.

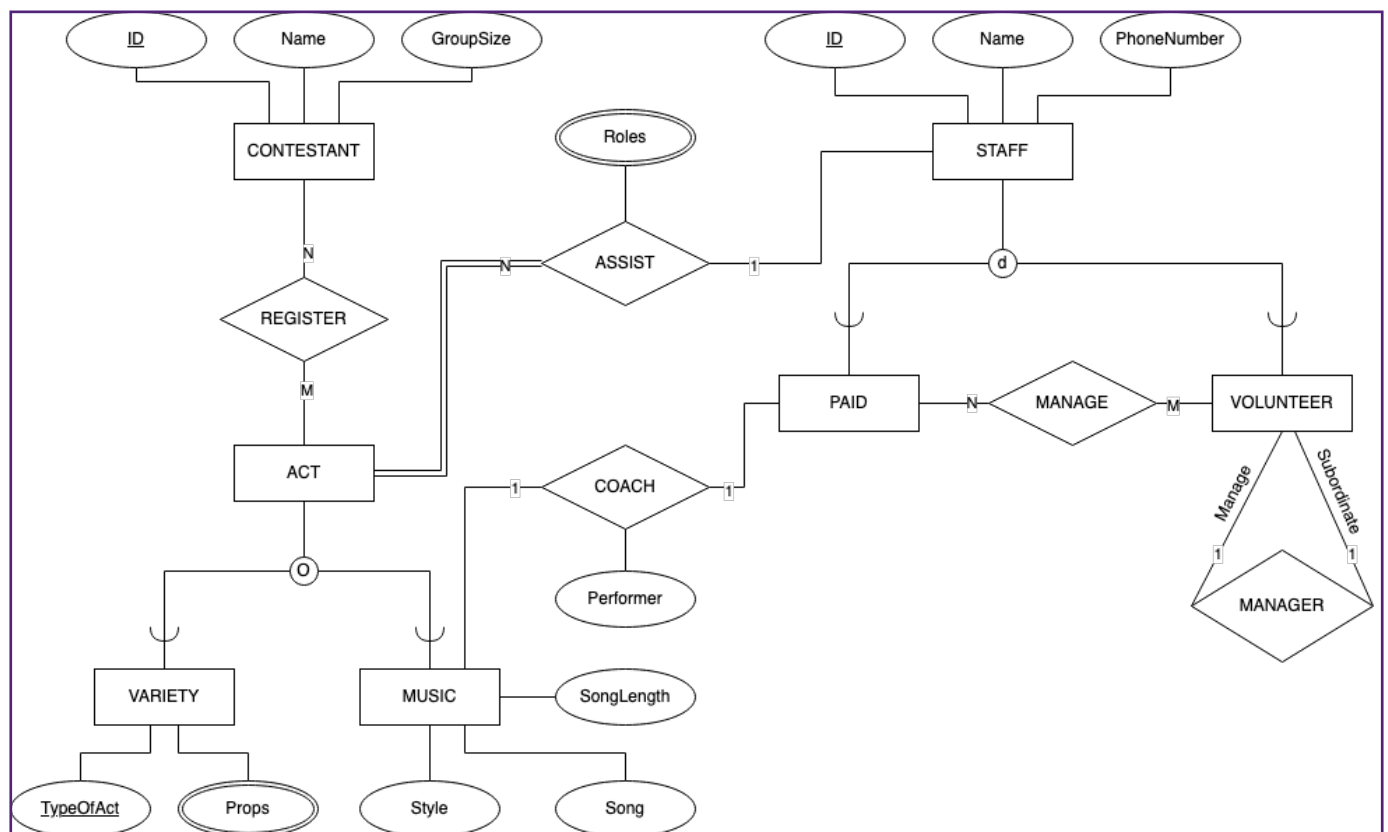


### Question 3

UQ's *Got Talent* is a new talent show that is being launched in 2023 to bring some fun and competition to campus.

Contestants are assigned an ID to go with their name & group size when they register to the competition. Their acts are classified as either Variety, Music, or both. Variety acts record the specific type of act, as well as any props required, while the music acts record the style, song, and song length for scheduling purposes.

UQ's *Got Talent* staff have an ID, name and phone number recorded in the system. As this is a large event, there will be both paid and volunteer staff. Each act will have staff assigned to assist them with the process in several different roles. Paid staff will be responsible for managing the event and volunteers, or they will be specialist performers engaged as coaches for the musical acts. Each volunteer staff member will have one member of administrative staff assigned to be their manager. Each musical contestant will have a single coach assigned to them.

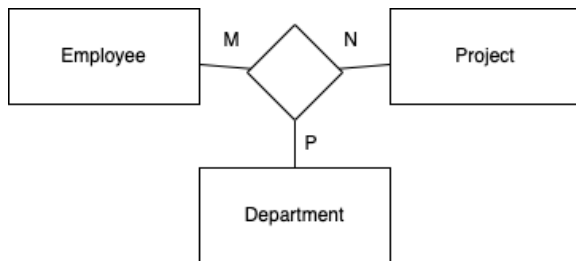


## Question 4

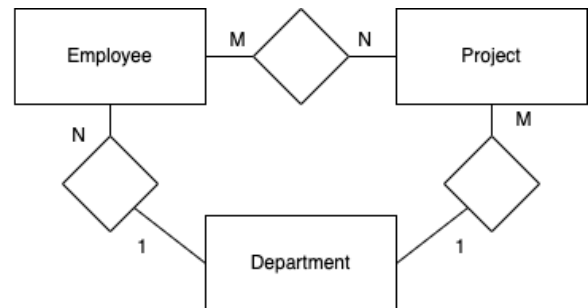
This question examines ability to evaluate design choices in alternative representations for modelling an operating environment. You are asked to choose which ER fragment is best suited for the scenario described, and justify your decision

### Part 1:

A business's projects are managed by a department and worked on by employees from any department within the business. Which ER Diagram fragment is best suited for this situation? Assume that 'standard' attributes (eg. ID, names) are attributed to each entity.



Option 1



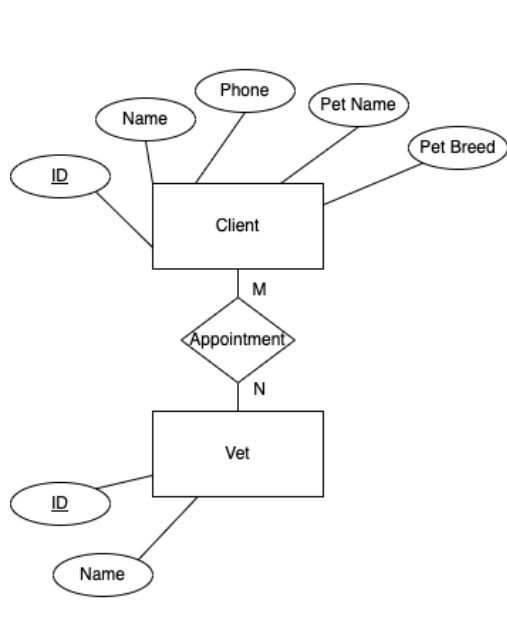
Option 2

Which option would you choose and why?

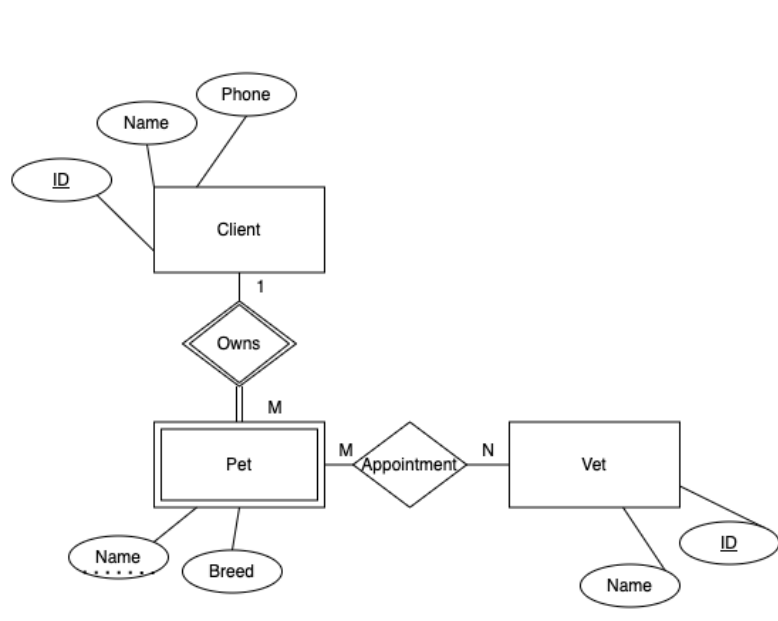
In my opinion, option 1 is more suitable for this UoD situation. In the UoD, cardinality ratio is not mentioned, only the relationship between "EMPLOYEE", "PROJECT", and "DEPARTMENT" is mentioned. The relationships are drawn in option 2 demonstrate the extra cardinality ratio between "EMPLOYEE", "PROJECT, and "DEPARTMENT", which may be considered as an un-need relationship in this situation.

## Part 2:

A veterinary surgery is creating a database to store appointment information between their clients and vets.



Option 1



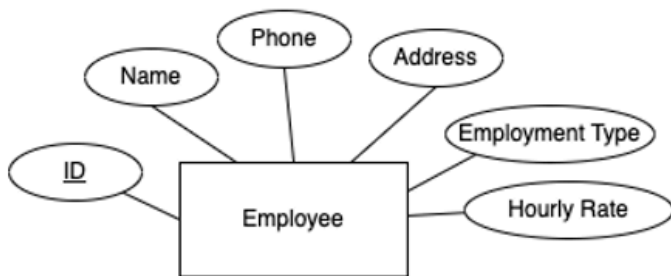
Option 2

Which option would you choose and why?

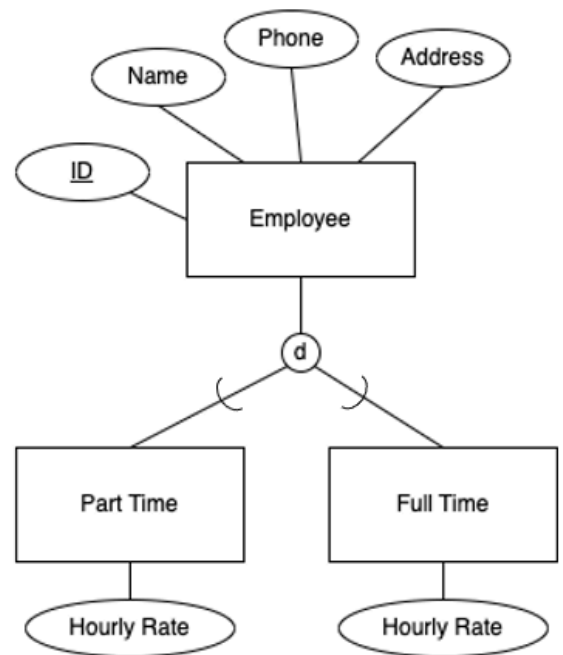
I would choose option 2. This is because pet has name and breed as its attributes, however both of them are not key attribute of pet. Pet can be identified uniquely only by relating to its owner, client entity, and will have its own partial key which in this UoD is name. Therefore, "PET" should be a weak entity, and relates to its owner "CLIENT" by an identifying relationship "Owns". Option 2 will be a better ER diagram than option 1 in representing this idea.

### Part 3:

A business is creating a database to store information about their employees, including their ID, name, address, type of employment (part time/full time) and hourly rate.



Options 1



Option 2

Which option would you choose and why?

In this UoD, I would choose option 2 rather than option 1. In this case, employee captures the common data of different types of employees, part time and full time are different type of employment which are defined based on more specific distinguishing characteristics on employee entity. This makes part time and full time employees be the specialisation of employee, and employee is generalization of type of employment. Therefore, part time and full time employment are subclasses of the superclass employee, an EER diagram should be used. This allows option 2 become the more suitable diagram for this UoD.



## Documenting the use of Generative AI

Please note that if you have used generative AI in any manner, you are required to provide a transcript of your engagement with the system in this section. You can simply copy and paste your discussion with the generative AI system below. It is fine if it goes across multiple pages.

A reminder that a failure to reference AI use may constitute student misconduct under the Student Code of Conduct.

## Part B – RiPPLE Task

(2.5 Marks)

Using the RiPPLE online software, you must complete the following activities before the assignment due date:

- **Resource Creation:** Create one or more effective resource. For a learning resource to be considered as effective it needs to pass a moderation process which is administered by your peers and the teaching team. Teaching staff will be spot-checking to review moderations performed by just peers and change the outcome if necessary.
- **Resource Moderation:** Moderate 4 or more resources effectively. An effective moderation means that you have completed the moderation rubric and have provided a detailed justification for your judgement as well as constructive feedback on how the resource can be improved. Simply saying a resource is “good” does not qualify. Again, teaching staff will be spot-checking the quality of moderations and change the outcome when necessary.
- **Answering Questions:** Answer 10 or more questions correctly. To answer a resource correctly your first response must be correct. You can attempt as many questions as you want, and incorrect answers do not count against you. Only answers from the Practice tab are counted. Answering in-class RiPPLE activity questions does not count towards questions answers.

These tasks are to be completed through the RiPPLE platform, via the link available on Blackboard.

**Note:** For the above three activities, the resources you create, moderate and answer **must** be in the following categories on RiPPLE:

- DBMS
- ER-model

Creating, moderating or answering questions from other categories will not be counted towards your mark for the RiPPLE component of this assignment.