Prac #3
ERD – Further Practice

- **Learning outcomes and objectives**
  Student will be able to design and create Entity-Relation diagrams (ERD) in MySQL Workbench to model a database using a simple narrative business scenario provided. Students will consider all necessary components required to model a database.

- **Pre-requisites**
  This prac is for further practices to what you learned in the previous Prac (Prac #2). You are assumed to have the detailed knowledge of ER notation and ER modelling. Chapter 3 &4 from Coronel-Morris textbook and lecture notes used in Lecture 2 & 3 which explains relational database models and ER modelling are required reading.

- **ERD Exercises**

  You are provided with business scenario descriptions (in a narrative form) for each Exercise (Exercise 1 and Exercise 2). **Create an ER diagram each** to model the database corresponding to each scenario:

  Exercise 1 is a scenario to develop a database model for a regional fishing festival to manage data records of fishers and fishes caught in the festival,

  Exercise 2 is a scenario to develop a database for the Airport Authority to manage information about airlines, pilots, and planes using the airport

The final ERD for each Exercise should show all relevant attributes including primary and foreign keys. Indicate all connectivities, cardinalities and optionalities.

Try to make your own assumptions for the choice of optionalities in your ERD if needed, and write all assumptions you made explicitly.

Always start hand-drawing your draft ERD on the paper firstly before creating your ERD using MySQL Workbench finally.

[Exercise 1 Scenario] – Fishing Festival DB

For a regional fishing festival held annually, we need a database to store information on the fisher's identity (id) (a unique id given when entering the festival event), which includes first name, surname, age and number of fish caught. Also stored is the fish type code (C = carp, M = Murray cod, T = tench, R = redfin), fish type (carp, etc.), weight, length when caught and type of lure used. Finally, the throw-back weight must be recorded. For example, a carp of any weight must be kept but any Murray cod below 2kg and any redfin below 300g must be thrown back.
We must assume that a fisher can only catch one fish at a time. Also, an individual fish cannot be identified, so we cannot know whether a fish has been caught more than once.

[Exercise 2 Scenario] – Airport DB

The Airport Authority in a small nation requires a database to store information about airlines, pilots and planes.

There is only one airport but several airlines use it. For each airline the identification code, full name and phone number of its local office is required.

Several types of plane use the airport and for each type the fuel capacity and maximum range is to be recorded. One airline owns multiple planes in various types.

Each pilot works for only one airline. For each pilot, their name, age, address, the types of plane they can fly and the pilot's licence number is to be recorded.

Further information must be recorded to enable the production of a report listing the following details for each plane that uses the airport:

- plane identification code
- plane type
- date of manufacture
- owning airline

You are to submit the original Workbench file containing two ERDs (.mwb file).
Create ERD models for the two scenarios (one ERD model for each scenario), save as one mwb file containing both models, and submit them via LearnJCU to get marked off for Prac #3.

Marking Criteria:
(This prac weighs 3% of the total subject marks)

You will be given 0 to 3 marks depending on your completeness/correctness of your work.
(1.5 marks in full for each Exercise)

- **End of Prac 3** -