Week 2 (ER Diagrams)

1. What are the steps in the top-down approach to database design?
2. What are business rules?
3. The Poké Mart has launched an online store and needs to record customer information. Customers place purchase orders for products. Order and Product information must also be stored. How many tables would you need?

Entities

1. What is an entity?

Poké Mart:

1. Consider a car rental service. Customers can rent cars. Details about cars and rentals are stored. Identify the entities here.
2. Students are identified by their StudentID. They enrol in units. Units are identified by UnitCode. Identify the entities here.
3. What are the different types of entities? Explain each, giving an example.

Attributes

1. What are attributes? Come up with 5 attributes for a Customer entity.
2. An order is identified using its OrderID. Details of the order such as CustomerID, and Order date are saved. Draw an entity for **Order** along with attributes.
3. Students are identified by their StudentID. Details of the student such as StudentID, name and address are saved. Students can enrol in multiple units. Draw an entity for the **student** along with its attributes.
4. What are the different types of attributes? Explain each, giving an example.

Relationships

1. What are relationships in an ER model?
2. Explain the difference between a strong and a weak relationship.
3. What does the degree of a relationship refer to? Explain the three degrees with an example of each.

1. What is the cardinality/constraint in a relationship?
2. Professor Oak has a strict rule for Pokémon trainers that are about to embark on their journey. Each trainer can have only one Pokémon that will accompany them; the Pokémon can be assigned to one trainer only. Trainers are identified by their trainerID. Individual Pokémons are identified by a unique PokémonID. Find the relationship between the two entities.
3. Customers are identified with an identifier. Their name and address are stored. They can place orders. Orders are identified with an identifier. The date of the order gets recorded. Find the relationship between the two entities. Do you think we could have a mandatory constraint on both sides of the relationship? Why/ why not?
4. An order may contain multiple products. Find the relationship between the two entities.
5. A student is identified using a StudentID. Names, addresses and phone numbers of students are also stored. **Students can be full-time or part-time**. A student can enrol in multiple units. Draw an ER diagram.

Important Takeaway points: