Exercise 4 - Entity Relationship Diagrams

1. A college runs many classes. Each class may be taught by several teachers, and a teacher may teach several classes. A particular class always uses the same room. Because classes may meet at different times or on different evenings, it is possible for different classes to use the same room.

   Create an entity relationship diagram to represent this system.

2. A relational database system for a yacht club is to store details of skippers, boats and races. In the database design of the entities, the following business rules are applied:

   - A boat takes part in many races
   - Each boat belongs to one class (a type of boat); several boats may be in the same class
   - Each boat has one skipper who only sails that one boat
   - Several boats may participate in a race and each race involves many boats

   Create an entity relationship diagram to represent this system.

3. An airline provides a chauffeur service to collect customers and drop them off at the airport. A relational database system is being developed to store details of each drop-off. Customers can book only one vehicle at each booking.

   The following entities are used to store details of each drop-off:

   - Customer (stores details of the customer who made an individual booking)
   - Booking (stores details of each booking for the drop-off service)
   - Flight (stores details of the flight associated with the customer's booking)
   - Airport (stores details of the airport that the flight takes off from)
   - Vehicle (stores details of the vehicle assigned to the booking)

   Create an entity relationship diagram to represent this system.

4. A company manufacturers electronic tills for use in shops. The company uses a relational database to store information about its sales. The entities in the database are:

    - Shop (stores details of shops that have purchased tills)
    - Till (stores details of tills that are produced by the company)
    - Salesperson (stores details of the employee responsible for processing the order)
    - Order (stores details of the order placed by the shop)
    - Item (stores details of individual tills that make up an order)

    Create an entity relationship diagram to represent this system.