

YR 11 COMPUTER SCIENCE ATAR

2022 ASSESSMENT TASK 4



Task 4: Creation an Entity Relationship Diagram modelling the data for a business based on a number of case studies.

Type: Project/Assignment

Due Date: Friday 29th April

Weighting: 5

Marks: 65

Question 1

(12 Marks)

Suppose you are given the following requirements for a simple database for the Australian Football League (AFL):

- the AFL has many teams,
- each team has a name, a city, a coach, a captain, and a set of players,
- each player belongs to only one team,
- each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records,
- a team captain is also a player,
- a game is played between two teams (referred to as host_team and guest_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2).

Construct a clean and concise ER diagram, including attributions, primary keys and foreign keys for the AFL database.

Question 2

(4 Marks)

In a college, every student takes many courses, and every course is taken by many students.

Construct a clean and concise ER diagram, including possible attributions, primary keys, and foreign keys.

Question 3**(11 Marks)**

In a University, there are several departments, and each department has a head of department who belongs to Faculty. Department have a name, phone extension, specific mailing address and Students that belong to the department. Students can belong to only one Department at a time and Department can have more than one or no Student. Students and faculty have names and unique identification numbers, with address, age, gender and other information. Student studies different Courses offered by University. Faculty teaches these Courses. In each semester one student can take more than one course and Faculty can teach more than one courses. Faculty members can teach in multiple Departments. Each course can be taught by many faculty members or no one. Faculty members are also working on multiple research projects. These projects are funded by government and university. One project can have more than one faculty member and one faculty member can work on more than one project.

Construct a clean and concise ER diagram, including attributions, primary keys and foreign keys for the AFL database.

Question 4**(38 Marks)**

A Bus Company owns many buses. Each bus is allocated to a particular route, although some routes may have several buses. Each route passes through many towns. One or more drivers are allocated to each stage of a route, which corresponds to a journey through some or all the towns on a route. Some of the towns have a garage where buses are kept and each of the buses are identified by the registration number and can carry different numbers of passengers, since the vehicles vary in size and can be single or double-decked. Each route is identified by a route number and information is available on the average number of passengers carried per day for each route. Drivers have an employee number, name, address, and sometimes a telephone number.

Identify the Entities**(6 marks)****Identify the Relationships****(7 marks)****Identify the primary keys****(6 marks)****Identify other attributes****(4 marks)**

Construct a clean and concise ER diagram, including attributions, primary keys and foreign keys for the Bus database. (15 marks)

END OF TASK