INFO90002 Assignment 2 S2 2020

SQL & Relational Algebra

Assignment 2 – SQL & Relational Algebra

Date Due: 0900H (9.00 a.m.) AEST Friday 2nd October 2020

Submission: Via LMS https://lms.unimelb.edu.au

Weighting: 10% of your total assessment. This assignment of 30 marks will be graded as %.

Melbourne "Touch" Rugby Summer Competition

"Touch" rugby is a five-person game that is played in the off season (usually late Spring to late early Autumn). It is a fast and lively game where instead of tackling other players to the ground – they only have to touch or 'tag' the player for there to be a restart in play.

There are 8 touch rugby clubs that compete in the Melbourne Touch Rugby Summer comptition. There are currently four competitions: mens, womens, seniors – for men over the age of 35 years, and a mixed division for teams made up of men and women. A mixed team must have a minimum of three female players in every game. A team must have a minimum of four players available to play the game. If one team is unable to field a side (minimum of four players) at the game start time they forfeit the game and suffer a walkover, and do not record any value for their score. The other team scores 28 points.

The competitions have been running for several seasons, with the details of every game and participating teams and players carefully recorded.
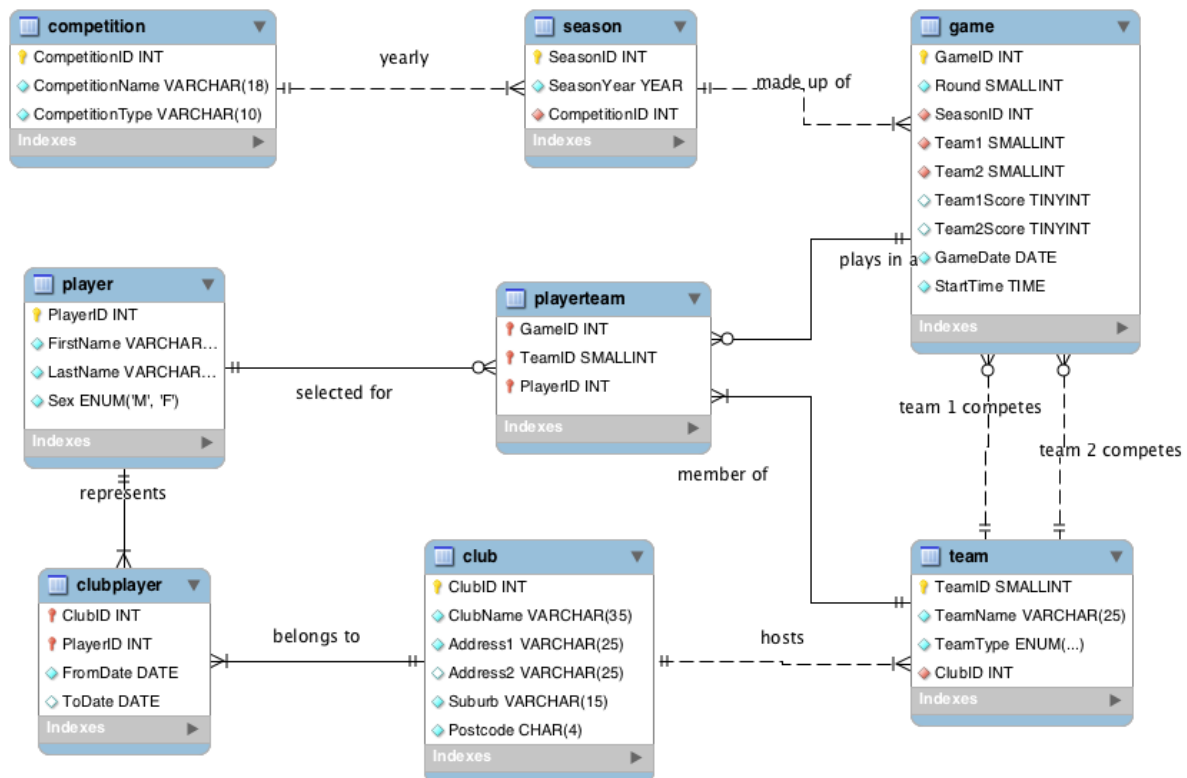

Figure 1 Touch Rugby Physical E.R. Model

Assignment 2 SET UP

INFO90002 server

To set up the database on the INFO90002 MySQL server, download the file *trugby.sql* from the Resources Module on the Canvas LMS and run it in Workbench. This script creates the schema and database tables and populates them with data.

On your own device (BYOD)

To set up the database on the INFO90002 MySQL server, download the file *trugby-byod.sql* from the Resources Module on the Canvas LMS and run it in Workbench. This script creates the schema and database tables and populates them with data.

To use the touch rugby data set enter:

```
use trugby;
```

1. The Relational Algebra Tasks

In this section are 2 relational algebra tasks to answer. Write one relational algebra statement.

Q1.1. List the team names and points of any team to have scored more than 50 points in any game in any season. Write the Relational Algebra and the SQL query.

<div align="right">(1 mark)</div>

Q1.2. List the club name that Robert Menzies plays for. Write the Relational Algebra and the SQL query

<div align="right">(1 mark)</div>

2. The SQL Tasks

In this section are 9 SQL tasks to answer. Write one (single) SQL statement per question. Subqueries and nesting is allowed within a single SQL statement. CASE statements are allowed. DO NOT USE VIEWS of any type. This includes inline views to answer questions. **Schema on read is not allowed**.

Q2.1. For each letter of the alphabet, print how many player's last name begins with that letter. (You can skip letters with a count of zero.)

<div align="right">(1 mark)</div>

Q2.2. Name any player, and their club who has never played a game in any season in any competition.

<div align="right">(2 marks)</div>

Q2.3. Count the number of walkovers in each year. Order your result in chronological order.

<div align="right">(2 marks)</div>

Q2.4. List the full name, game count for all players who have played more than 50 games for the same club.

<div align="right">(3 marks)</div>

Q2.5. List all players who have played for two or more different clubs. List the player's name, the club name and month and years they started and finished playing with each club. Order the result by Player, then oldest start date.

<div align="right">(3 marks)</div>

Q2.6. List the team name and game date when a Mixed Touch rugby team fielded more than four women for their game. Order the result by the most recent to oldest date.

<div align="right">(3 marks)</div>

Q2.7. Has any male player played in the Mens, Senior Mens, and Mixed teams for the same club? List the full name of the player and the club.

<div align="right">(4 marks)</div>

Q2.8. Name any player who played in 2016 and 2018 but did not play in 2017

<div align="right">(4 marks)</div>

Q2.9. List the for and against totals for all teams in the 2017 Mixed Rugby division. For is the sum of all points a team scores. Against is the sum of all points scored against that team. Order the result by the highest derived percentage (for / against as a percentage).

<div align="right">(6 marks)</div>

Submission Details:

Submit a single PDF showing your answers to all questions to the Assessment page on LMS by
0900H (9.00 a.m.) AEST Friday 2nd October 2020

Formatting requirements for your submission

For each question, present an answer in the following format:

- Show the question number and question in **black** text.

- Show your answer (the SQL statement) in **blue** text **(PLEASE DO NOT use a screen shot)**

- For SQL only questions show a screenshot of the result from Workbench displaying <u>10 or fewer</u> lines.

- For SQL only questions show how many rows were actually returned, in **red** text.

- Show each query on a separate page.

Example:

1. Relational Algebra & SQL

Q.X. Write the relational algebra and SQL for all clubs whose club rooms are in Armadale

$\pi_{\text{clubname}}(\sigma_{\text{suburb='Armadale'}}(\text{Club}))$

```
SELECT clubname
FROM club
WHERE suburb = 'Armadale';
```

2. SQL only questions

Q.XX List all the team names and team types. List the result by team name in alphabetical order

```
SELECT teamname, teamtype
FROM team
ORDER BY teamname;
```

teamname	teamtype
▶ Footscray Men	Mens
Footscray Mixed	Mixed
Footscray Seniors	Seniors
Footscray Women	Womens
Geelong Rugby Mens	Mens
Geelong Rugby Mixeds	Mixed
Geelong Rugby Seniorss	Seniors
Geelong Rugby Womens	Womens
Harlequin Men	Mens
Harlequin Mixed	Mixed
Harlequin Seniors	Seniors

32 Rows returned

IMPORTANT: ATTEMPT EVERY QUESTION!

GOOD LUCK!

APPENDIX Sample Marking Schema

In this sample marking rubric Questions 1 and 2 are each worth 1 mark on the assignment but are marked out of 10. You will notice that the result is worth 20% of the available mark. Please attempt every question. The approach is as important as the result.

Q1 (10)	SELECT (2)	FROM (2)	JOIN (4)	RESULT (2)	Q2 (10)	SELECT (2)	FROM + JOIN (2)	GROUP BY (2 marks)	ORDER BY (2 marks)	RESULT (2 marks)
	first_name, last_name, job_title, dept_name 0.5 marks each	staff departments 1 mark each	LEFT | RIGHT OUTER JOIN 4 - correct 3 - natural join | inner jon 2 - left | right join without OUTER ; incorrect join condition 1 - Cartesian or any other join	118 rows Kimberly Grant must be in the set 2 correct 0 other		country_name (1 mark) count(staff_id) (2 marks) (alias ok too)	INNER JOIN | NATURAL JOIN 2 marks outer joins for no staff 1 mark			correct order (1 marks) incorrect order unordered but correct data (0 marks) incorrect result; no result

Any questions? Check the Assignment 2 LMS Discussion forum for suggestions and hints.

RELEASE	Release Date	Comments (if any)
v2 G.A.	4-Sep-2020	Intial release. "General Availability" version to students
v2a	8-Sep-2020	Updates are in **unimelb BLUE** Removed the error 'schema on write' and replaced with the correct phrase 'schema on read'. Schema on Read (views, inline views, temporary tables JSON etc) are not allowed for this assessment. This assignment meets the ILO to write queries against a *known database*.
v2b	17-Sep-2020	Updates are in **GREEN** On page 4 the submission date was the same from the previous semester assessment and has been changed to reflect the correct deadline date.