School of Science

ISYS1055/1057 Database Concepts

Assignment 2 (open for 24 hours)

	Assessment Type: Individual 24-hour exercise; no group work. Submit online via Canvas→Assignments→Assignment 2. Marks are awarded for meeting requirements as closely as possible. Clarifications/updates may be made via announcements/relevant discussion forums.
	Due date: Tuesday 16 September 2020, 8:00 (open from Tuesday 15 September 8:00). Please check Canvas→Syllabus or via Canvas→Assignments→Assignment 2 for the most up to date information. For late submissions, there is a penalty of -10% of total possible marks per hour for assignments submitted late up to 4 hours after the specified deadline. The submissions received later than 4 hours will not receive any marks.
	Weighting: 30 marks

1. Overview

Database systems are a key technology for the storage, management, manipulation, and retrieval of structured data. They have an impact on the use of information technology in applications ranging from banking, to travel bookings, to online shopping. In this assignment you will apply the skills and concepts that you have learned about database systems in the course so far.

2. Assessment Criteria

This assessment will determine your ability to:

1. Follow coding, convention and behavioural requirements provided in this document and in the lessons.
2. Independently solve problems by using database concepts taught over the first several weeks of the course.
3. Understand the relational model.
4. Write and understand SQL queries.
5. Meet deadlines.

Seek clarification from your instructor, when needed, via discussion forums.

This 24-hour exercise is worth thirty points in total for fifteen questions, which accounts for 30% of the overall assessment for the course. The assessment components and weights for the course are:

Assessment 1	Assessment 2	Assessment 3	Assessment 4
20%	30%	30%	20%

3. Learning Outcomes

This assessment is relevant to the following Course Learning Outcomes:

- CLO 5: Apply SQL as programming language to extract data from databases for specific users' information needs.

It also supports the following Graduate Learning Outcomes:

- Enabling Knowledge: You will gain skills as you apply data modelling knowledge effectively in diverse contexts.
- Critical Analysis: Analyse and model requirements and constraints for the purpose of designing and implementing software artefacts and IT systems.
- Problem solving: Design and implement database solutions that accommodate specified requirements and constraints, based on analysis or modelling or requirements specification.

4. Submission format

Submit your assignment via Canvas→Assignments→Assignment 2. You must submit ONE .pdf file with the filename being your student number (e.g., S1234567.pdf). Your submission must be based on the template document that is provided together with this document. In addition to the answers to the questions, your submission must contain your worklog file that shows the process of your working as explained in Section 7. Further information about how to download the questions is provided in Section 8.

- **IMPORTANT: You must submit your worklog as well as answers to questions. Submissions without a worklog will receive zero marks. Refer to Section 7 to generate your worklog.**
- **Use the template that is provided for your answers.** This will make sure you will not forget to include crucial information that is necessary for marking your work.
- Do not forget to include the question numbers in your submission. Each question has a unique code that must be identified in your files.
- Use at least 11-point font size
- It is your responsibility to correctly submit your files. Please verify that your submission is correctly submitted by downloading what you have submitted to see if your file includes the correct content.
- Never leave submission to the last minute -- you may have difficulty uploading files.
- You can submit multiple times – a new submission will override any earlier submissions.
- If unexpected circumstances affect your ability to complete the assignment, you can apply for Special Consideration. Special Consideration will automatically result in an equivalent assessment in the form of an online test and interview (time to be arranged by the course coordinator).
- More information on special consideration is available at https://www.rmit.edu.au/students/student-essentials/assessment-and-exams/assessment/special-consideration

5. Academic integrity and plagiarism

Important: Your worklog will be checked for academic integrity. Worklogs showing breaching academic integrity will lead to plagiarism hearing.

Academic integrity is about honest presentation of your academic work. It means acknowledging the work of others while developing your own insights, knowledge and ideas. You should take extreme care that you have:

- Acknowledged words, data, diagrams, models, frameworks and/or ideas of others you have quoted (i.e. directly copied), summarised, paraphrased, discussed or mentioned in your assessment through the appropriate referencing methods,
- Provided a reference list of the publication details so your reader can locate the source if necessary. This includes material taken from Internet sites.

If you do not acknowledge the sources of your material, you may be accused of plagiarism because you have passed off the work and ideas of another person without appropriate referencing, as if they were your own.
RMIT University treats plagiarism as a very serious offence constituting misconduct. Plagiarism covers a variety of inappropriate behaviours, including:

- Failure to properly document a source
- Copyright material from the internet or databases
- Collusion between students

For further information on our policies and procedures, please refer to the University website.

6. Assessment declaration

When you submit work electronically, you agree to the assessment declaration.
The detailed rubric and assessment criteria are available online via Canvas→Assignments→Assignment 2.

7. The worklog for your assignment

You MUST submit the worklog of your activities using Oracle connections in SQL Developer to generate the answers for questions in Section 8. In the absence of this element, your assignment will receive zero marks.

Your worklog should comprise the screenshot for the tables in your Oracle account and SQL history of your Oracle Connections to complete the assignment, as follows:

- Within the window on the left, right click on your Oracle connection, and then select “Schema browser” to show the tables in your Oracle account. Within the window on the right, run SQL query “select * from tab” to show the tables in your Oracle account. Note that you can enlarge the result windows to show your tables on the left and right respectively, as in Figure 1.
- Within an Oracle connection, BEFORE you exist the connection, go to “View → SQL History” to show your activities within this Connection session. You must clearly show the timestamps for all queries (the “TimesStamp” column width can be enlarged), as in Figure 2.

- You should not keep an Oracle Connection open without any activity. You can complete the assignment in multiple Connection sessions, and if so you should submit a screenshot of SQL history for each connection. The multiple connection names can be different but the database tables are permanently kept in your Oracle account.

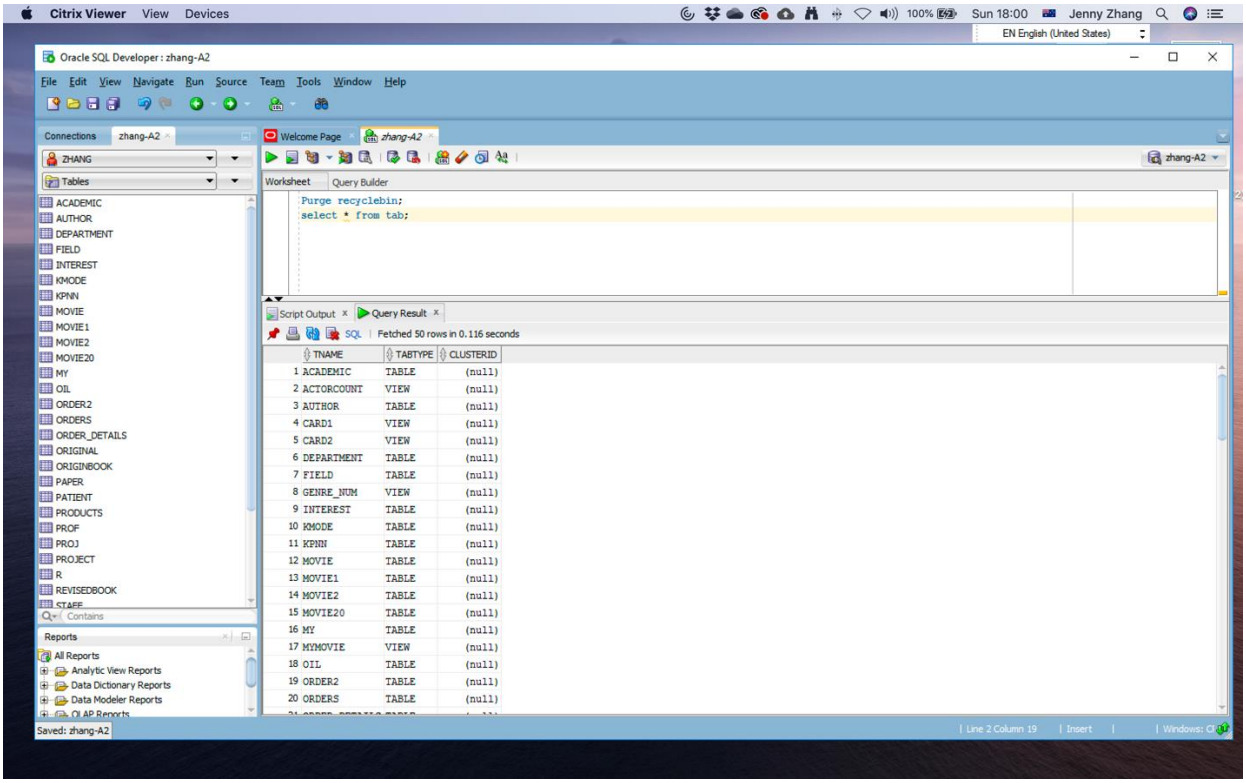

Figure 1. Tables in the Oracle account "zhang"

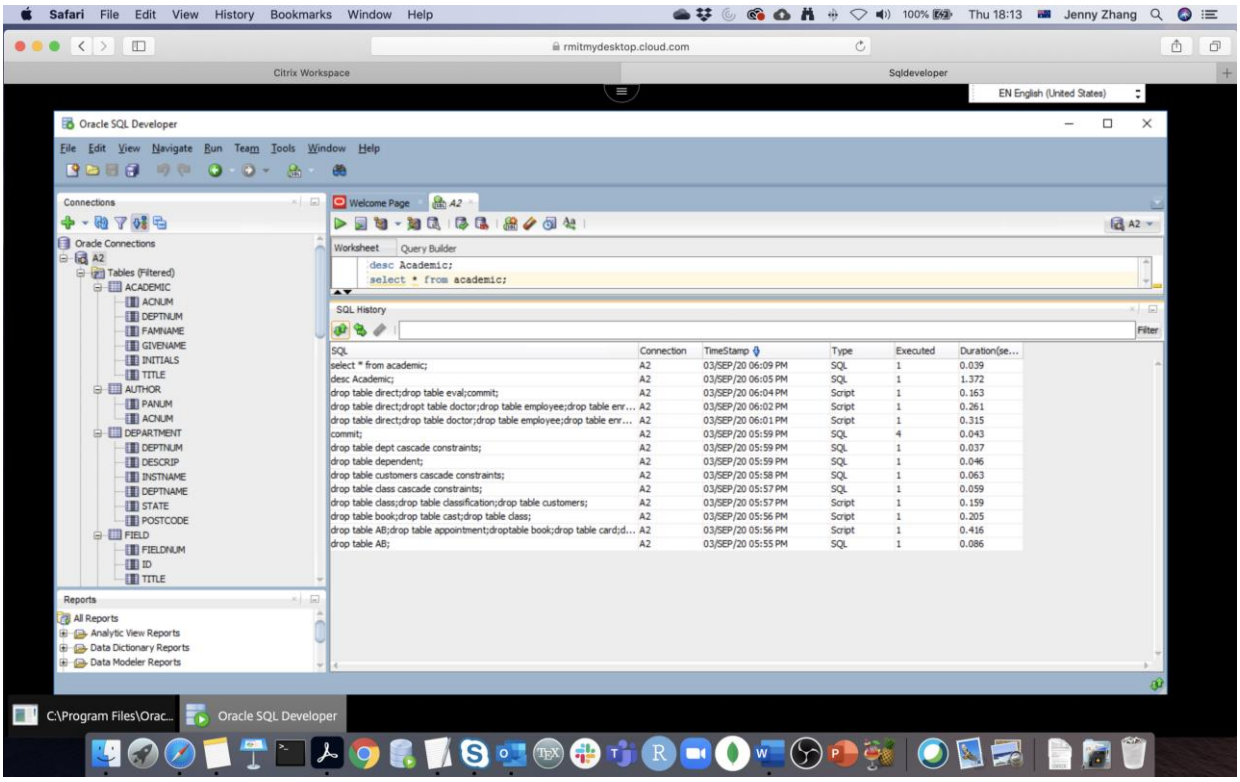

Figure 2 SQL history for a connection named 'A2'

8. Assignment Questions

*In addition to the lecture notes, you should also study by yourself the SQL*Plus tutorial on Canvas (the Oracle section) and other resources for Oracle syntax and useful functions.*

The relational schema for the Academics database is as follows:

DEPARTMENT(deptnum, descrip, instname, deptname, state, postcode)
ACADEMIC(acnum, deptnum*, famname, givename, initials, title)
PAPER(panum, title)
AUTHOR(panum*, acnum*)
FIELD(fieldnum, id, title)
INTEREST(fieldnum*, acnum*, descrip)

Some notes on the Academics database:

- An academic department belongs to *one* institution (instname) and often has *many* academics. An academic only works for *one* department.
- Research papers (PAPER) are often authored by several academics, and of course an academic often writes several papers (AUTHOR).
- A research field (FIELD) often attracts many academics and an academic can have interest (INTEREST) in several research fields.

If you have not done so, download and run the SQL script *academics.sql* on Canvas (the Oracle section) to define and populate the Academics database in your Oracle account.

Copy questions from the question page

The question page is set up separately as quiz on Canvas, which enables that you receive your own set of questions. This question page will be made available from 8:00am 15 September. You must copy the question number as well as the question into your solution document BEFORE you click the "submit this quiz" button on the page. Note that the questions are shown only once and you must copy them to your solution document BEFORE hitting the "submit this quiz" button. An example:

Question reference number: QC1-17
Question: Return the name of the prime minister of Australia.

You must answer 12 questions from the question page and write ONE SQL query for each question unless specified otherwise. Each question is worth different marks. Each component of an SQL statement must be on a separate line. Your query should not produce duplicates in output, but use DISTINCT only if necessary. Include any explanation as comments starting with "--" so that your SQL queries could be directly executed in SQL Developer.

Submission

You must submit ONE pdf file comprising the following components for each of the 12 question:

- Screenshots showing the tables in your Oracle account the SQL history for your connections.
- The question number and question text must be copied from the question page on Canvas.
- Your answer.

For example,
Question reference number: QC1-17
Question: Return the name of the prime minister of Australia.
Answer:

```
Select firstname, lastname
From table
Where position='Prime Minister';
```

A template solution document is provided and can be downloaded from Canvas.