

**Faculty of Engineering & Built Environment
School of Electrical Engineering and Computing
COMP1140: Database and Information Management**

Assignment 3:
**SEEC Resource Access Database Design Project-
Physical Database Design**

Due: Week 12 (Oct. 29 to Nov. 2, 2018), At the beginning of your lab session

WORTH 15% of final course assessment mark

In this assignment, major steps in the physical database design are conducted (as described below) as well as revising the concept database design and logic database design of assignment 1 and assignment 2, and a final report of the project is written.

This assignment has 3 parts as specified below.

1. Revise the concept database design and logic database design, based on your revision and the feedback provided by your marker. I.e., do the following three steps:

1.1 Do concept database design, including Requirement Specification (including data requirements, transaction requirements and business rules), and EER Diagram and Data Dictionary.

1.2 Map the EER model to the relational model. Document the relational schema in DBDL

1.3 Normalize the relational schema to Boyce-Codd Normal Form (Point out what norm form each relation is in, do the normalisation if any relation is not already in BCNF.). The final normalised schema must be documented in DBDL.

2. Completed major steps in the physical database design

2.1 Write SQL scripts which create the normalised SEEC Resource Access database, including all necessary tables with right parameters such as primary key, foreign key, default value.

2.2 Write SQL statements satisfying the transaction requirements including:

2.2.1 Input proper data (as you consider legitimate) of at least three rows for every table, and

2.2.2 Implement the following queries (make sure to populate with enough and proper data into related tables so that non-void result is shown for each query. *A query will be given zero mark if it has void output or no output*). Note: in the queries below, the values of xxx and yyy can be the corresponding values in your database.

Q1: For a staff member with id number xxx, print his/her name and phone number.

Q2: Print the name of student(s) who has/have enrolled in the course with course id xxx.

Q3: Print the name(s) of the student member(s) who has/have borrowed the category with the name of camera, of which the model is xxx, in this year. Note: camera is a category, and model attribute must be in movable table.

Q4: Find the moveable resource that is the mostly loaned in current month. Print the resource id and resource name.

Q5: Print the maximal number of speakers that the student with name xxx can borrow. The student is enrolled in the course with course id yyy. Note: speaker is a category.

Q6: For each of the three days, including May 1, 2018, June 5, 2018 and August 19, 2018, print the date, the name of the room with name xxx, and the total number of reservations made for the room on each day.

3. Write a **final report**. The final report should include all the content of the above two tasks, including all the SQL scripts.

The **final report** should include the following:

1. Requirement Specification (including data requirements, transaction requirements and business rules).
2. EER Diagram and Data Dictionary
3. Map the EER model to the relational model. Document the relational schema in DBDL. Give normalized relational schema in DBDL. Ensure that normalisation steps are shown.
4. SQL script (both in your sql file and in your report file) which creates the SEEC Resource Access database as stated in 2.1.
5. SQL statements (both in your sql file and in your report file) satisfying the transaction requirements as stated in 2.2

Method of submission: Both softcopy and hardcopy submissions are required:

- zip all required files into one zip file (including the project report, the project database SQL backup file, and any files you consider as part of the assignment). The file name **MUST** be identified by 4 sections: A3, your first name, your surname, and your student number, e.g., A3SimonLee1234567.zip
- It must be submitted to Blackboard -> Assessment -> AssignmentsSubmission-> Assignment3.
- Print the project report (with all related SQL codes), hand in the hardcopy to your instructor at the beginning of your lab session of week 12. The hard copy must have on the front a signed copy of the cover sheet which is available from:
http://www.newcastle.edu.au/__data/assets/pdf_file/0008/75383/AssessmentItemCoverSheet.pdf
- **Note: please make sure to fill in your Tutorial Group (i.e., time), Tutor Name,** as well as other items. Otherwise your submission marking may be

delayed. It is recommended that you put the same lab session as you put for your assignment 1 and assignment 2.

- The SQL script part will be checked and marked in the Tut/Prac session of the week the assignment is due. Therefore, **you MUST be present at the tut/prac session of the due week for grading in order to receive marks.**

Note: Absence to your tut/prac session of the due date will result in your assignment 3 being zero mark. (If you have special circumstance, you need to discuss with lecturer in advance.)

Note: Ten percent of the possible maximum mark for the assessment item will be deducted for each day or part day that the item is late. Weekends count as one day in determining the penalty. Assessment items submitted more than five days after the due date will be awarded zero marks.

Please note:

Zero mark will be given if you donot submit both hardcopy and softcopy.

If your hardcopy submission and softcopy submission are not at the same time, the time of the later submission will be counted as your assignment submission time.