

# CS130 Databases

## Laboratory Assessment Sheet – Lab Week 7

In this lab today you must connect to your OWN schema in the PostgreSQL database. This means that when you connect to PostgreSQL on webcourse.cs.nuim.ie you do not click on the public schema. **You scroll through the cs130 database to find YOUR schema.** Your schema will match your USERNAME – for example u181234 or p189876. When you have clicked on YOUR schema then you can open the PGAdmin query tool.

You will need to download two SQL files from Moodle to complete today's lab. You should complete the following steps. **DO NOT CALL A DEMONSTRATOR** unless you have followed these steps properly.

1. Connect to your own schema on the cs130 database on webcourse.cs.nuim.ie using phpPgAdmin and open an SQL editor window.
2. Download the two SQL Files **CS130\_Lab7\_Property.sql** and **CS130\_Lab7\_Students.sql** to your computer. **DO NOT COPY AND PASTE THEM FROM THE BROWSER.**
3. Go back to the phpPGAdmin window. **OPEN A PGADMIN SQL EDITOR WINDOW**, use 'Choose File' to select your downloaded file. When you have the file open, press the EXECUTE button to create the tables automatically. *Alternatively you can copy and paste the text into the editor window and then press the EXECUTE button to create the tables.* You can re-run this table creation at any time in the lab.
4. To avoid possible confusion you should close any existing PGAdmin editor windows and open a new empty editor window where you can start your lab.

If you make a mistake at any point in your lab today you can always repeat step 3 above to recreate your tables and restore them back to their original state.

**When you are writing SQL code below DO NOT COPY AND PASTE SQL code directly from the lecture slide PDFs into PGAdmin. You will get errors related to character encoding indicating that there is a character error with your SQL You should TYPE YOUR OWN SQL in to the PGAdmin Editor window.**

### PART 1

Using the property table, as created by the **CS130\_Lab7\_Property.sql** file answer the following questions using UPDATE or DELETE statements.

**Lab 7 Question 1:** Update the Lab 7 property table such that any listing date on the 13th or 14th of October 2017 is updated to the 15th of October 2017. The Moodle Quiz will ask you to specify the number of rows affected by this change.

**Lab 7 Question 2:** UPDATE the asking price of any house which satisfies the following criteria. If the current asking price is less than €100,000 but greater than €5,000 then the asking price is updated to €100,000. The Moodle Quiz will ask you to specify the number of rows affected by this change.

**Lab 7 Question 3:** The agent Property Kings are changing their selling model and will no longer list any houses with C or D energy ratings. This only applies to Semi-detached houses. Write an

SQL statement to delete all of the house listings by Property Kings matching these criteria. The Moodle Quiz will ask you to specify the number of rows affected by this change.

**Lab 7 Question 4:** Write an SQL statement to delete any listing where the agent is null or the number of beds is null. The Moodle Quiz will ask you to specify the number of rows affected by this change.

**Lab 7 Question 5:** The agents CS130 Estates are decreasing the asking price of all of their houses listed by 8%. Write an SQL statement to perform this update. The Moodle Quiz will ask you to specify the number of rows affected by this change.

**Lab 7 Question 6:** Write an SQL statement which removes any house listing with the address field satisfying the following criteria: total length of the field is greater than 20 characters, the field has at least four consecutive digits in the address field, and the address finishes with the word Road. The Moodle Quiz will ask you to specify the number of rows affected by this change.

## PART 2

A relational database model for three tables is shown in the schematic diagram below. The **CS130\_Students.sql** file provides an implementation of this model. It is important that you take a little time to ensure that you understand what this diagram is modelling. The tables provided to you are a sample of data in a larger student enrolment database. A single enrolment is a single student being enrolled on one single course.

You will need to write SQL Join Queries for this part of the lab assessment.

**Lab 7 Question 7:** Write an appropriate JOIN query to list every student (name, gender, email and course) who is enrolled on the module with code or ID 'CS123' for any semester. The Moodle Quiz will ask you to specify the number of rows returned by this query.

**Lab 7 Question 8:** Write an appropriate JOIN query to list every enrolment which involves female students in Semester 1. The Moodle Quiz will ask you to specify the number of rows returned by this query.

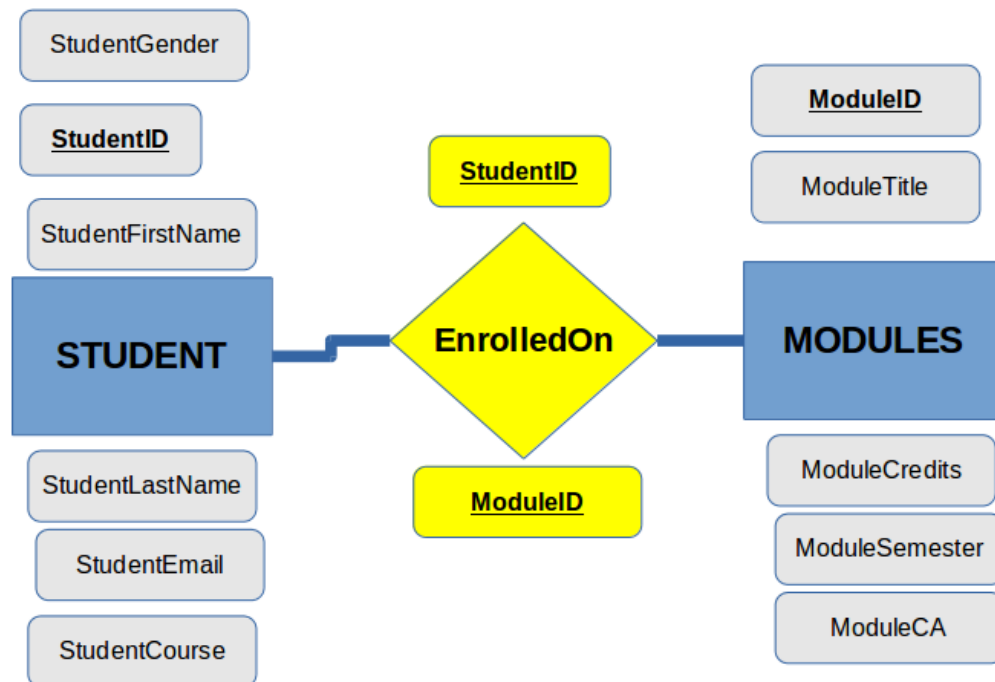
**Lab 7 Question 9:** Write a query to list all of the enrolments for any students who have a 2017 email address from Maynooth University. The Moodle Quiz will ask you to specify the number of rows returned by this query.

**Lab 7 Question 10:** Write a query to display every enrolment of all students who are enrolled on modules which have module credits of between 10 and 15 credits inclusive and where student is not an undergraduate. Undergraduates have student course with BSc or BA. All other student courses are Postgraduate. The Moodle Quiz will ask you to specify the number of rows returned by this query.

**Lab 7 Question 11:** Write a query which will delete the module with module code CS2800 from the database. The Moodle quiz will ask you the TOTAL number of rows deleted in the database when this query runs successfully. It is important that you remember that there are CASCADING DELETES in operation to support REFERENTIAL INTEGRITY in the database. You may need to write a number of select queries to find the total number of rows affected.

**Lab 7 Question 12:** Write a query which will UPDATE the studentID of the student who currently has studentID SN09817 to a new studentID of SN0981775. The Moodle Quiz will

ask you the TOTAL number of rows updated in the database when this query runs successfully. It is important that you remember that there are CASCADING UPDATES in operation to support REFERENTIAL INTEGRITY in the database. You may need to write a number of select queries to find the total number of rows affected.



**You will need to input your answers to the Moodle Quiz for this lab session. This will be the only way you will be assessed for the CA for this lab. You are advised to save your work regularly and to make note of the answers to these questions. You can only submit your answers to the Moodle Quiz twice.**

**While demonstrators will not be checking or assessing your answers – any demonstrator can ask you to show your SQL queries running.**

**COPYING OF SQL OR ANSWERS BETWEEN STUDENTS WILL RESULT IN ZERO MARKS**