CS130 Databases Lab 4

PREAMBLE
If you have not connected to the PostgreSQL database on webcourse.cs.nuim.ie before then you will need to complete all of steps in the STAGE 1 Document in Lab 2.
If you have connected to the PostgreSQL database on webcourse.cs.nuim.ie before – then you will already have your username and database password. You will need to follow the steps in the STAGE 1 Document in Lab 2 from Step 1. Please note that your connection may still be available in PGAdmin.

MOST COMMON ERROR? Typing your database password incorrectly.

In the table **`CS130lab4`** within the public schema of the **cs130** database on `webcourse.cs.nuim.ie` details about the file downloads from an online file repository for audio and video files. The data is fictional. It has been randomly generated. You are encouraged to look at the data in this table. `filename` is the name of the file which a user has downloaded, `downloadts` is the timestamp in ISO format representing the moment the user downloaded the file, `filesize` is the size of the file in MB, `appname` is the specific app the user used to download the file, `IP_Address` is the IP Address from which the user downloaded the file.
Finally `user_agent` is the string left by the browser inside the app to allow identification of the client browser.

In all questions below the Moodle Quiz will ask you to report the number of rows returned.

Q1: Write a query to list all of the downloads which occurred on the 21st of January 2017.

Q2: Write a query to list all of the downloads which occurred on the 13th of December 2016.

Q3: Select all file downloads where the `user_agent` contains the terms `ubuntu linux firefox` in this order but may be separated by different numbers of characters.

Q4: WebKit is a layout engine software component for rendering web pages in web browsers. It powers Apple's Safari web browser. In the user-agent file the AppleWebKit is written as AppleWebKit/digits.digits.digits OR justAppleWebKit/digits.digits. For example AppleWebKit/54.456.4 or AppleWebKit/64.4

Write a query to find all downloads where AppleWebKit is found in the user-agent where there digits.digits.digits after it. Note (NEW CONTENT) If you want to match a period or full stop character in a regular expression - you must ESCAPE IT. So you must say \. if you want the REGEX to match an actual period or full stop character. If you do not escape it then you will be telling the regex to MATCH ANY SINGLE CHARACTER (Alphanumeric).

Q5: Write a query to list all downloads which occurred on any Sunday in 2016. The user-agent string in these downloads should contain Googlebot/2.1.

Q6: Write a query to list all downloads where the filename starts and ends with a vowel and the extension is .mpeg.

Q7: Write a query to list all downloads where the whole filename (name and extension) DOES NOT contain any vowels.

Q8: Write a query which lists all downloads where the app name has an even number of characters, the whole filename has an even number of characters and the file is an MP3 file.

Q9. Write a query to list all of the app names where the name of these apps is composed ONLY OF vowel characters.

Q10: It is suspected that a group of hackers called the 42Group have managed to break into the file download system and corrupt specific files. Only specific files are corrupted. These files are those files which have a download timestamp where all parts of the timestamp (Excluding the year) add to the number 42. The 42Group attacks did not happen in 2016 but happened in all other years. Write a query to identify these files.

Q11: Select all file downloads where the filesize is greater or equal to 400mb, the hour of the download timestamp is a prime number, the day of the download timestamp is a prime number and the month of the download timestamp is a prime number.

Q12: Select all file downloads where the log to the base 10 of the number of characters in the appname is equal to the log to the base 10 of the number of characters in the IP Address and the filesize is greater or equal to 100MB.

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 – <u>any demonstrator can ask you to show your SQL queries running.</u>

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