Lab One: Introduction to BI

At the end of this lab, you should have:

- got to know your fellow students within your lab;
- set up your working environment for the rest of semester;
- successfully logged in to the database server;

You should also have answered the relevant questions at the end of the lab sheet. The above statements are the *learning outcomes* of this laboratory and will be achieved in concert with the other learning activities that you undertake for this unit.

Task One: Getting to Know Each Other

1. Your tutor will firstly introduce themselves and briefly explain the purpose of the labs and how they will function. It is important to get to know your tutor, as they will be your first port of call during semester for practical activities.

2. Spend the first five minutes of this lab getting to know those around you; firstly, turn to the person to your left and get to know them by introducing yourself by name and sharing one 'fun fact' about yourself and chatting further, if you wish.

3. Next, spend the next five minutes repeating the same with the person on your other (right) side – same questions and same introduction.

Task Two: BI Concepts

4. In small groups, perhaps with those situated around you that you just introduced yourselves to, discuss answers to the following questions:

    a. What are the three primary types of analytics? Which further two types of analytics are sometimes considered part of the analytical hierarchy?

    b. Do you think that the 'human factor' of business intelligence development is important? If so, why is that?

    c. List some examples of different types of visualisations that can be used to display data within the field of Business Intelligence.

    d. Give an example of a way in which data could be drilled up and drilled down – how would you display (or group) the data to start with, then as you drill up or down?

Task Three: Workspace Setup

5. Decide which of the two (really, three) ways you wish to work with the lab content this semester:

    a. the UniApps streaming application system on your own laptop computer (this method is generally recommended for most people);

    b. the UniApps streaming application system on the lab machines (the least preferred method of the three) or;

    c. installing the required programs for this unit on your own computer system (if they are already installed for another reason such as for another unit, it is recommended to go down this path instead to avoid any conflicts).

6. Undertake the steps below depending on the decision that you've made above:

d. *if UniApps on your own laptop computer*: visit the UniApps website in your browser at https://uniapps.uwa.edu.au/ and then login with your UWA credentials. Follow the prompts to download and install the "UniApps" software for your computer (either Mac or Windows). Once installed, navigate to the "UniApps List" from the LMS site for this unit and click the "Launch" button under "MySQL Server". You may have to do this clicking a couple of times to get it working properly on your machine – that is to be expected;

e. *if UniApps on the lab machines*: navigate to the "UniApps List" from the LMS site for this unit and click the "Launch" button under "MySQL Server". You may have to do this clicking a couple of times to get it working properly on your machine – that is to be expected;

f. *if 'Your Own' computer system*: you will need to download and install the MySQL shell from https://dev.mysql.com/downloads/shell/.

   i. If you are on Windows, download the x64 (unless you know you have a different architecture) MSI installer, run it and make sure you only select the "Workbench" and "Shell" to be installed. If you get a popup, see the next dot-point.

      If you are installing MySQL on a Windows system, you **may** be prompted to install the "Microsoft Visual Studio Redistributable". **Only if you are prompted to do so**, you can download it from https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170. You will likely need the "x64" version, but if you know you have a different processor architecture, download its version instead!

   ii. If you are using a Mac, use the "About My Mac" page (from the Apple menu) to determine if you should download the ARM (for M1/M2 Macs) or x64 (for Intel Macs) DMG file. Run the installer within this file.

   iii. We won't be using Microsoft Power BI until the later part of semester, however you may want to install it on your own machine in preparation for the later part of semester. If you wish to install it on your own Windows machine, as its only available for Windows computers and not Mac computers, install "Power BI Desktop" from the Microsoft Store. This is different to "Power BI Online".

      We will be using R with Microsoft Power BI to extend its capabilities. If you have installed R and RStudio for another unit, there is nothing else you need to do at this step. If you need to install R, download just the R Interpreter from https://cran.r-project.org/bin/windows/base/ ("Download R-4.3.x for Windows"), not RStudio as well. The latest 4.x version will be sufficient. Once installed, we can leave it be for now – we won't need to use this for many weeks.

   iv. If you wish to install the Mongo shell, which we will also utilise later in semester, please follow the separate instruction file for this, available on LMS.

   v. If you are using Windows (your own machine), search for 'MySQL Shell" in the search box in the Start Menu and open the application. If you are using Mac (your own machine) open up a Terminal from the Applications folder and type in '`mysqlsh`' and press Enter/Return.

Task Four: Testing a Database Connection

7. Enter the command as below into the MySQL Shell and press Enter/Return:

   ```
   \connect test@db.tris.id.au
   ```

   You will then be prompted for a password: this is '`test123!`' without quotes. **Do NOT copy and paste this, it will not work in the vast majority of cases without typing it in.**

8. You should receive information about your connection, if you have connected correctly and successfully. If so, you have successfully connected and can type '**`\quit`**' (without quotes) to quit the application.

End of activities. Please see the next page for the questions you may wish to answer.

Questions

Ensure you can answer these questions to cement your understanding of the lab.

1. What is the name of the person to your left and the name of the person to your right?

2. What is the name of your lab tutor?

3. Are you using your own computer with UniApps, your own computer having installed the applications specifically, or the trading room computers?

4. Have you installed the required programs and accessed the MySQL shell?

5. What is the command to connect to the database server?

End of Lab One.