

**Monash University**  
**FIT5147 Data Exploration and Visualisation**  
**Semester 1, 2023**

## **Programming Exercise 1: Tableau Public (5%)**

Please carefully review all the requirements below to ensure you have a good understanding of what is required for your assessment.

1. **Due Date**
2. **Instructions & Brief**
3. **Assessment Resources**
4. **Assessment Criteria**
5. **How to Submit**
6. **Word Count & Penalties**

---

### **1. Due Date**

Monday, 20 March 2023, 9:30 AM

---

### **2. Instructions & Brief**

In this assignment you are required to read in some data and explore and visualise it using Tableau Public/Desktop, then submit a brief report showing your findings and the visualisations you used. **It is an individual assignment and worth 5% of your total mark for FIT5147.**

#### ***Relevant learning outcomes for FIT5147:***

1. Perform exploratory data analysis using a range of visualisation tools;
6. Implement interactive data visualisations using R and other tools

#### **Details of task:**

The data set for this assignment relates to a survey of the frog population of the state of Victoria. The dataset is a compilation of Frog Census records (citizen science program) and the preceding Frog Watch program for the Port Phillip and Westernport CMA Region (<https://discover.data.vic.gov.au/dataset/frog-census-records3>). It was supplied by the Melbourne Water Corporation.

For this assignment, we will focus on the types of frogs that have been sighted from the years 2000-2018 CE. The data used for this assignment is not identical to the original data as it has been edited in various ways (so we don't recommend you look at the original data or any related studies). Firstly, the data has been simplified by omitting various fields and records. Secondly, a few known errors in the original data have been removed or corrected. Thirdly, some of the values have been adapted and simplified. For this PE1 assignment, the resulting data describes when, where and how the frogs were sighted and what types of frogs they were.

Column	Description
Unique ID	Unique numerical code
Date	Date of observation
Time Start	Time of observation
Latitude	Location of observation
Longitude	Location of observation
Type of observation	Manner of observation
Scientific name	Formal name of species
Common name	Colloquial name of species
Family	Part of the full scientific classification
Genus	Part of the full scientific classification
Species	Part of the full scientific classification

Table 1: Fields of the PE1 data set

For you, the most crucial change to the data is that **three types of data irregularities or errors have also been included in the data**. One of the requirements of this assignment is for you to find, describe and handle them. This modified dataset can be found on Moodle in the Assessments section under the Programming Exercises heading.

The task has two components: **data exploration using Tableau**, and a short **written report**.

### Data Exploration using Tableau

You are expected to:

1. Load the dataset in Tableau Public/Desktop
2. Use data visualisation to **check for and find** the three aforementioned irregularities in the dataset. Each types of irregularity may occur multiple times in the data.
3. Amend the data to **correct** these errors using any tool of your choice (e.g., Excel, Python, R, Tableau)
4. **Using visual analysis**, answer the following questions:
  - Q1: Compare and contrast when different types of frogs were observed. Consider this on both an hourly and a monthly timescale. What does this suggest about the behaviour of the researchers or the frogs?
  - Q2: Compare and contrast the "Type of Observation" used to gather the data. How does this variable support, challenge or change your conclusions

to the first question?

5. Write a report that **describes** this data exploration process (see below for details)

Note: any instances of the NULL value for “Type of Observation” variable should not be regarded as an irregularity for this assignment.

### Written Report

Once you have finished your data exploration, write a report that contains the following information:

1. Data checking and cleaning (i.e., Steps 1 to 3)
  - An **image** to show what your data looks like after loading it in Tableau
  - A brief explanation (maximum of **one paragraph per error**) and an accompanying **image of each of the errors** or irregularities that you have found, showing how you found them **using Tableau**, and explaining & justifying how you resolved them. The image must show a **relevant visualisation**, not just the data or a table.
2. Data exploration (i.e., Step 4)
  - Your answers to Q1 and Q2 with accompanying **images of the data visualisations** that you used to support your analysis, and a brief **explanation** of why you have used those type of visualisations

The report should also:

- Be submitted as a **PDF file**
- Be **no more than 5 pages** in length, including figures, with a minimum font size of 10 (title page and any table of contents are excluded from the page limit)
- Be **properly structured** with headings, subheadings, figure captions, page numbers, and references (if appropriate)
- Have **high quality images** of your visualisations with clearly readable and legible text/labels (presume that it is read as part of an A4 document with no zooming)
- **Not include any code snippets**
- **No Generative AI** software or system may be used to complete this assessment task.

### 3. Assessment Resources

*PE1\_frog\_data.csv* (Available on Moodle)

---

### 4. Assessment Criteria

The following outlines the criteria which you will be assessed against.

- Demonstrated ability to check and clean data and read into Tableau Public [1%]

- Demonstrated ability to visually explore data using Tableau Public [2%]
- Demonstrated ability to see trends/patterns in data [1%]
- Quality of report [1%]

**As part of the grading process, mandatory interviews to discuss your submission will occur during the Tutorial in Week 5. If the interview is not successfully attended, you will not receive any mark or feedback for this assessment.**

---

## **5. How to Submit**

Once you have completed your work, take the following steps to submit your work.

1. Save your report as .pdf.
2. Name your file using the following structure **PE1\_Surname\_StudentID**
3. Click the **Add Submission** button below to submit and upload your report

*Please note that your assignment **MUST** show a status of "Submitted for grading" before it can be marked. Please read the **Submission Status** section under Assessments on Moodle for more information. Drafts will not be marked.*

## **6. Word Count & Late penalty**

The report must not be more than 5 pages of graded material including figures (min. font size 10). 1 additional page may be used as a title page with a table of content, if you so wish. 1 mark will be deducted if the report does not meet these requirements.

The penalty of 0.5 marks (out of a total of 5 marks) per day will be applied for all late submissions, including weekends.