MONASH University

# Assessment

## Faculty of Information Technology

## FIT5125 / FIT4005

## Research Methods for IT

## Semester 2 2024

## Assignment 3: Weeks 8 & 9

**Value**

This assignment is worth **20%** of the total marks for FIT5125 / FIT4005

**Assignment due date**

Monday, 14 October 2024 at 4:30pm (Week 12)

**Submission method**

Submit to Moodle:

- a separate PDF for the exercises for Week 8 & 9.

# Assignment Criteria

This assignment relates to the material studied in Weeks 8 & 9.

| **Week 8 Descriptive Statistics** | **Week 9 Inferential Experiments** |
|---|---|
| Weighting: 20 marks | Weighting: 20 marks |
| See page 3. | See Page 5. |

This is an individual assessment; it must be your own work and expressed in your own words.

*A marking guide is available on Moodle.*

*There are specific requirements for file names on your submission (see the instructions for each task).*

**Assessment rules:**

1. Note that plagiarism detection procedures may be applied to each submission. See the University rules and regulations regarding plagiarism and resulting penalties. Any case of plagiarism detected will mean automatic failure of the entire assignment. Note that even where TurnitIn reports a high similarity score, this may simply be the result of text that is part of the original question or a correctly referenced quotation (such cases are not plagiarism).
2. Late submissions will incur a penalty of 5% per day, see: https://publicpolicydms.monash.edu/Monash/documents/1935752
3. Submissions should follow the instructions for each task, described under "What to Submit".
4. Monash policy on Special Consideration is available at: https://www.monash.edu/exams/changes/special-consideration
5. In line with Monash University policy, we aim to mark and return work within 10 working days of submission where possible.

# Assessed Exercise (Week 8)
# "Telling a data story"

Telling a coherent story with your data is a core part of the research process. Statistics can be used in myriad ways to describe any given dataset, so it is important to use the appropriate measures and visualisations to enrich and provide context to a narrative of your data. Although in a perfect world we would ask a question and then design a process to capture data that answered that question, in reality we often have to undertake an initial data collection exercise to help us formulate our research questions.

In this assignment, students are required to tell a story about some initial data collected from all Australia-based students taking FIT5125 (Reseach Methods for IT). The data collected for this assignment has two components: (1) student experience of food insecurity and food purchasing behaviour (using an anonymous online questionnaire); and (2) a single anonymous 24-hour dietary recall using the Intake24 platform that was introduced in the Week 1 "Live Podcast".

In order to collect this data, all Australia-based students are required to complete the both the questionnaire and the Intake24 survey by 4pm Thursday 26 September 2024. You will be sent a link to the questionnaire on the day of the release of the assignment (Monday 23 September 2024). Note: all students will be sent the link to the questionnair but we'll only be using the Australia-based student data for the assignment (since Intake24 is for an Australian diet). On Friday 27 September, the anonymous data for all respondents will be made available in the form of two CSV files. This is the data for which you are required to tell a data story about.

The idea for this assignment came from a researcher at the University of Sydney (Prof. Margaret Allman-Farinelli) in collaboration with Dr. Anu Ivaturi and Dr. Tracy McCaffery (Monash University). They are undertaking research on food insecurity in Australia's international student population.

We have designed this assignment to provide all Australia-based students with the option to participate in this research by agreeing to anonymously contribute their questinnaire response data, your Intake24 recall data, and you data story.

When Australia-cased campus students complete the questionnaire they will be given the option to consent to participate in the study. This is completely optional and at no time will the Australia teaching team for FIT5125 (CE, lecturer or tutors) be made aware of who chose to participate in the study or not. This is to avoid any actual or perceived risk of 'coercion' (as we studied in Week 2's material on research ethics).

**Complete the following:**

1. Complete the questionnaire and the 24-hour dietary recall by 4pm Thursday 26 September 2024.
2. On Friday 27 September (or later) download the anonymous data (questionnaire responses and Intake24 responses) from the unit Moodle page.
3. Formulate a research question that you want to ask of this data. **(max. 50 words)**
4. Select 2 appropriate descriptive metrics that tell you something about the data, and calculate those metrics on your data, using a tool of your choice. Present the fields from the dataset used and the resulting calculated values, and elaborate on what those values are revealing about your data. **(max. 50 words)**

5. Create an appropriate visualisation to help explain what you are saying about the data. The visualisation should be fully annotated.

6. Write a short narrative description of your findings as they relate to you research question, referencing both your chosen metrics and visualisation. **(max. 250 words)**

**What to Submit**

1. A PDF document, named "STUDENT-ID-Week8.pdf" containing your response to the assignment.

**How Much to Write**

There is a strict word limit for your answers detailed above. For submission over the specified word limits, only the parts of answers within the word limit will be awarded marks.

**What to Know**

- If you have any questions about the assignment, you should submit them as a public post to the Ed forum (under the sub-category "Assignments") so that all students have access to the question and CE or admin tutor's response.
- This is an individual exercise that forms part of the formal assessment for the unit, you must therefore work alone and follow Monash University's policies, procedures and regulations relating academic integrity, plagiarism and collusion (see Moodle).
- As this is a formal assessment tutors are not allowed support to directly, however, they can provide feedback on any studio activities (during the studio).
- The aim of this assessment is to evaluate your understanding of basic statistics, and to assess your ability to correctly apply basic statistical computations.

# Assessed Exercise (Week 9)
# "Working with hypotheses"

In this exercise you will formulate a hypothesis, prepare a plan of your study (including statistical testing) and justify it, including the potential limitations of it. Consider the topic of **artificial inteligence and data privacy**. Imagine you are asked to develop this research area further.

**Complete the following:**

1. Propose a hypothesis. It should be something you can realistically test using one or more of the statistical tests covered in this course. It can concern any subtopic or natural phenomena which relates in some way to the topic: artificial inteligence and data privacy. **(max. 50 words)**
2. Write down the null hypothesis. **(max. 50 words)**
3. Write down the independent and dependent variables as well as at least three confounding variables. **(max. 50 words)**
4. Imagine you had a budget of up to 1000AUD (in addition to up to 100 hours of your time to conduct the study). Explain what data you will collect to investigate this hypothesis and how you would obtain the data in a practical fashion. **(max. 100 words)**
5. What statistical test(s) do you expect to conduct to test your hypothesis. Provide your assumptions of the data and why such tets(s) are appropriate. **(max. 150 words)**
6. What are the limitations of your study? Write a paragraph that explains these limitations as well as potential future investigations you might conduct. **(max. 200 words)**
7. Present a different narrative that could have been presented from your results, highlighting how the data needs to be selected, methods changed, or process otherwise manipulated to support this different interpretation. **(max. 50 words)**

**What to Submit**

1. A PDF containing your answers to the questions named "STUDENT-ID-Week9.pdf".

**How Much to Write**

There is a strict word limit for your answers detailed above. For submission over the specified word limits, only the parts of answers within the word limit will be awarded marks.

**What to Know**

- If you have any questions about the assignment, you should submit them as a public post to the Ed forum (under the sub-category "Assignments") so that all students have access to the question and CE or admin tutor's response.
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