**Swinburne University of Technology**

COS30049 Computing Technology Innovation Project

Semester 2, 2024

**Tutorial Class:** Tuesday 8:30am to 10:30am   
**Tutor:** Qian Li

Assignment 2

**Exploration and Implementation of Machine Learning Models**

**Anti-Pesto Party**

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# Introduction

A precise and succinct description of what motivations you wanted your machine learning project to solve, and who the intended user is.

# Problem

Accurately defining the problem is essential. Outline the specific challenge you aim to address, the limitations of existing solutions, and why a machine-learning approach is suitable.

# Data Collection

Detail the sources and methods used to gather your dataset. Describe any specific criteria or tools used to collect the data, ensuring it is relevant and sufficient for your analysis. Mention any challenges encountered during data collection and how they were addressed.

# Data Processing

Outline the steps taken to clean and preprocess the collected data. This may include handling missing values, normalization, feature engineering, and transforming the data into a format suitable for machine learning algorithms. Describe the processes of joining and merging datasets, ensuring consistency and relevance.

# Machine Learning Model Selection

Describe the criteria used to select the appropriate machine-learning models for your project. Discuss the algorithms considered, the rationale behind your choices, and how they align with the problem's framing. Include any preliminary tests or comparisons conducted to determine the best-performing models.

# Technical Implementation

This section contains a high-level description of your implementation, including libraries‬ used, references to external code sources such as templates, and reasons for any differences‬ between your final decisions. You should briefly explain the reasons why your project was‬ challenging  (e.g., extensive wrangling was required).

# Implementation Evaluation

Evaluate the effectiveness of your implementation by comparing the results against your initial objectives and performance metrics. Discuss the performance of the selected machine learning models, including any validation and testing procedures. Highlight any unexpected outcomes, and provide insights into how well the implementation addresses the problem.  Tests or comparisons are conducted to determine the best-performing models.

# Conclusion

Summarize the key findings and outcomes of your project. Reflect on how effectively your machine learning solution addressed the initial problem and met the objectives. Discuss any significant insights gained, the implications of your results, and potential areas for future work or improvements. Highlight the overall contribution of your project to the field and its potential impact on the intended users.

# Bibliography

Author’s Name *Year Published*, *Title*, *Name of Webpage*, viewed *date <URL>*

# Appendix