Master of Applied Technologies		
Course No: **COMP8831**	**Machine Learning**	**Level: 8** **Credits: 15**

Student Name:	**Student ID:**
Assessment Type: Final Project, Report, Presentation	**Weighting: 60%**
Due Date and Time: 14/06/2024 23:59	**Total Marks: 100**

Student declaration

I confirm that:

- This is an original assessment and is entirely my own work.
- The work I am submitting for this assessment is free of plagiarism. I have read and understood the Academic Integrity Procedure here. I have also read and understood the Student Disciplinary Statue here.
- Where I have used ideas, tables, diagrams etc of other writers, I have acknowledged the source in every case.

Students Signature:	**Date:**

Assignment Aims

1. To implement a machine learning project which integrates and applies the skills and knowledge gained through the course.

2. To identify and analyse a collection of machine learning algorithms and critically evaluate the outcome with other possible algorithms.

3. To achieve greater awareness of the latest artificial intelligence tools and techniques for prediction, recognition, optimisation, and decision making.

4. To understand the principles, advantages, limitations and possible applications of machine learning algorithms applied in different areas.

Part A: Project Report   **60 Marks**

Based on approved proposal/topic, the report should highlight your implementation procedure. Some of the key points which should be included in the report has been listed in the following. Please note that bonus parts are not necessary to be implemented but doing so, can award you extra marks:

A) Abstract: A very brief summary of the project aims, method(s) used, and results.

B) Introduction: General description of the project, its applications, any background or related studies.

C) Dataset: Describe the characteristics of your dataset in terms of features, input, output, etc. in this section. If you need to do any data preparation on your dataset including feature selection (and dimensionality reduction), you should describe it here. The division of dataset to training, cross validation and test sets should be discussed as well. Include direct links or any references (if applicable) to your dataset, so it can be accessible by others.

D) Methodology: Describe your applied machine learning technique(s) and provide justification on why chosen method is preferred over the other methods. If your method has not been described in the class, you need to provide technical details for the method. Include a block diagram (or flowchart) which outlines entire implementation steps of your project.

E) Results & Discussion: Describe the output of your implemented algorithm(s). Discuss (and compare if used multiple algorithms) the efficiency of your system through running experiments on test data and any new input data if applicable.

F) References: List the references you have cited in the report (IEEE referencing style).

Bonus 1: Using hypothesis evaluation techniques and demonstrating the results.

Bonus 2: Discussing bias/variance problem on your task by plotting training and cross validation cost functions based on model complexity.

Each group should upload only one report into Moodle through Turnitin module (either

MS Word file or PDF document). Names of group members should be included on the first page of the report.

The report should be between 4000 to 5000 words including references (font: size 11-12, Times family, single space).

Please note that codes of your assignment should be uploaded as well (a separate Moodle module would be available for this).

<u>Report Notes</u>

1. Organise your report for readability and integrity, and create Appendices wherever appropriate.
2. Report should follow Unitec's standard format (less than 10% quoted) and should include following sections:
   a. Title Page
   b. Table of Contents
   c. Abstract
   d. Introduction
   e. Dataset
   f. Methodology
   g. Results & Discussion
   h. References (in **IEEE style**)

3. Please use MS Word or PDF and submit the soft copy into the Moodle.

4. The soft copies of the reports should be uploaded into **Moodle** through Turnitin Assignment Submission module (provided under Assessments, "**Final Reports**") before the due date. The similarity excluding references should be less than 10%.

5. Code and Presentation Slides of project should be uploaded into Moodle (Assessments, "**Source Code, Presentation Slides**") as one zipped file.

Marks will be deducted if you fail to draw upon appropriate professional and academic literature in your writing and if the assignment is not written and presented in a professional manner. You can quote other people's work (websites, conference proceedings, industry magazines, journals, and books) provided that you cite and reference them correctly in your report. However, most of your report should be written in your own words. **Each quotation or table or diagram from another source must be accompanied by a discussion in your own words**. For example, if you have included a table from another source then you must write about what you think the table shows, why you have included it, why it is relevant and so on. Please remember to format your report so that it is easy to discern your word, thoughts and ideas from your sources' thoughts and ideas.

When choosing sources please check that they have passed some form of quality assurance (for this reason, books, journal articles and conference articles are a good choice). Also bear

in mind that if it is difficult to identify the author, year or title of an article then it has not been subject to quality assurance.

Marks will be deducted for failure to follow the School of Computing Guidelines for Writing and Presenting Assessment Items, in particular, sections 7 and 8 (referencing and plagiarism). Plagiarism will be reported to the Programme Authorities who may award zero marks or refer the matter to the School Discipline Committee, which has powers of suspension/exclusion. Your report must end with a section giving references – this will show where you got your source material from. Please use **IEEE referencing style**, examples can be found in the following link
http://libguides.murdoch.edu.au/IEEE/sample

Presentation of the Report:

1) Make sure you have a table of contents.
2) Make sure your sections/subsections have numbers.
3) Make sure each page has a number.
4) Make sure your table of contents, section numbers and page numbers all correlate.
5) If figures are used, then put captions on all figures (diagrams).
6) Make sure that new page breaks are at appropriate places (i.e. NOT just after new sections or in the middle of a figure or diagram or table row/column.
7) Cite all work that has come from other sources.
8) Make sure that all sources cited are listed in your list of references.

Grading:

Your report will deserve an A grade when above requirements are met in full. Your reports will be marked on content, report style, and appropriate and correct English. While I will be concentrating on the quality of your report, weakness in one area will result in a B grade. Poor analysis & writing will receive a score no more than C grade.

Marking Criteria for Report:

Report: 60 marks		
Organisation & Writing	15	
Feature Selection/Dataset	5	
Methodology	20	
Programming & Implementation	5	
Results and Discussion	15	

Your report will be marked based on coverage, relevance, clarity, degree of your input, and quality of your writing.

Late Submission of Assignments

Assignments submitted after the due date and time without having received an extension through Affected Performance Consideration (APC) will be penalised according to the following:

- 20% of marks deducted if submitted within 24hrs of the deadline
- 30% of marks deducted if submitted after 24hrs and up to 48hrs of the deadline
- No grade will be awarded for an assignment that is submitted later than 48hrs after the deadline

Assignments handed in more than 48 hours late will not be marked unless Special Assessment Circumstances apply. So, it is better to hand in an incomplete assignment on time.

Part B: Presentation   **40 Marks**

Prepare a PowerPoint presentation summarising your report and implementation for presentation in class. Be ready to discuss and demonstrate your implemented algorithms and results. The presentation should be completed within 20 minutes covering the main aspects of the project.

Marking Criteria for Presentation:

Presentation: 40 marks		
Good overview of the project	5	
Fluency	5	
Quality of slides	5	
Interaction & engagement	5	
Clear discussion of methods/algorithms	5	
Q & A	15	

Affected Performance Consideration (APC)

We understand that circumstances beyond your immediate control can happen. To ensure your academic progress is not impacted by these circumstances, you can apply for an Affected Performance Consideration (APC). Note that this was previously known as Special Assessment Circumstances (SAC).

You can apply for Affected Performance Consideration (APC) if:

1. You are/were unable to attend an examination, compulsory assessment or fixed time and place assessment activity due to illness, injury, bereavement or other critical circumstances.
2. Your preparation for, or performance in an examination or any summative assessment has been seriously impaired due to circumstances beyond your control.

You must apply within five working days after the due date of your assessment for it to be considered. Further information and application procedure is available through: https://www.unitec.ac.nz/current-students/study-support/affected-performance-consideration

<u>Assistance to other Students</u>

Students themselves can be an excellent resource to assist the learning of fellow students, but there are issues that arise in assessments that relate to the type and amount of assistance given by students to other students. It is important to recognise what types of assistance are beneficial to another's learning and also what types of assistance are unacceptable in an assessment.

Beneficial Assistance
- Study Groups.
- Discussion.
- Sharing reading material.
- Testing another student's programming work using the executable code and giving them the results of that testing.

Unacceptable Assistance
- Working together on one copy of the assessment and submitting it as own work.
- Giving another student your work.
- Copying someone else's work. This includes work done by someone not on the course.
- Changing or correcting another student's work.
- Copying from books, Internet etc. and submitting it as own work. Anything taken directly from another source must be acknowledged correctly: show the source alongside the quotation.

Do you want to do the best that you can do on this assignment and improve your grades? You could:
• Talk it over with your lecturer
• Visit Te Puna Ako for learning advice and support