MIS272 – Predictive Analytics – Trimester 2 2024
Assessment Task 1 – Report (Analytical) – Individual

DUE DATE:	**Friday, 9 August 2024, by 8:00pm (Melbourne time)**
PERCENTAGE OF FINAL GRADE:	**20%**
WORD COUNT:	**A maximum of 600 words. A page limit applies to this assignment (students must use the provided template & follow the instructions; font & size must be: Arial 10 points)**

Description

Purpose

This task provides you with opportunities to learn the knowledge and skills required in the study and practice of applying key statistical theories and data mining concepts to support evidence-based business decisions of an organisation. By completing this task, you will develop a specialised and integrated understanding of the application of business analytics to research, by designing and implementing projects with creativity and initiative.
The aim is to learn how to ...

- Articulate problems and solutions in business terms
- Gain insights from data
- Prepare data for different models
- Develop certain models
- Assess and report model performance.

Context/Scenario

The business context for this assignment is the insurance sector, focusing on identifying fraudulent claims. Personal injury insurance fraud is defined as any act performed with the intention to cause an insurance company to compensate you for a non-existent, exaggerated or unrelated injury to the accident covered by your policy.

Specific Requirements

A legal firm, DAX Compensation Lawyers, approached you to assist them with identifying fraudulent claims. The firm have provided you with a historic dataset of over 3000 claims.
The list includes the following information:

- some information about the claimant
- injured body part
- the nature and cause of injury
- adjustor notes taken by the insurance employees after contacting the claimants or their employers
- whether a witness was present
- whether the injury involved a vehicle
- whether the claim was detected as fraudulent

The firm would like you to use AI Studio (RapidMiner) to address the following:
Task A: Explore various aspects of the claims, e.g., are fraudulent claims more prevalent when certain body parts are indicated? Use appropriate visualisations to demonstrate your findings.
Task B: Develop different classification models that can be used by the firm managers to predict which cases will likely be fraudulent, using appropriate attributes in the dataset (note: you may need to transform some of the attributes). Evaluate the performance of each model, indicating the best predictive model (maximising the correct identification of future fraudulent claims).

- **The dataset, report template, and additional important notes (A1 Notes) for this assignment are available on the unit site (under Content->Assessment Resources).**
- **You must use the provided template for your report**. Your final report must adhere to the page limits as only pages within the limits will be marked. It is essential that the executive summary section of your report is written for a non-technical reader (e.g., a senior manager) and that the remaining parts of the report are written for a technical reader (e.g., a business analyst or data scientist).
- **You must only use AI Studio (RapidMiner) for your analytical process modelling.**
- The consistency of your RapidMiner file(s) will be checked against the results in your report. **You must not modify the data file provided for this assignment before importing it into AI Studio (RapidMiner)**.

Learning Outcomes

This task allows you to demonstrate your achievement towards the Unit Learning Outcomes (ULOs) which have been aligned to the Deakin Graduate Learning Outcomes (GLOs). Deakin GLOs describe the knowledge and capabilities graduates acquire and can demonstrate on completion of their course. This assessment task is an important tool in determining your achievement of the ULOs. If you do not demonstrate achievement of the ULOs you will not be successful in this unit. You are advised to familiarise yourself with these ULOs and GLOs as they will inform you on what you are expected to demonstrate for successful completion of this unit.

The learning outcomes that are aligned to this assessment task are:

Unit Learning Outcomes (ULOs)		Graduate Learning Outcomes (GLOs)
ULO1	Apply key statistical theories and data mining concepts to selected business scenarios.	GLO1: Discipline-specific knowledge and capabilities GLO4: Critical thinking

Submission

You are required to submit **partial submissions and your final submission** of your report and AI Studio (RapidMiner) process files.
You must submit your assignment in the Assignment Dropbox in the unit CloudDeakin site on or before the due date. **No email submissions will be accepted.**
The files and format for all submissions are:

- Your **report** according to the submission template saved and submitted **as a PDF file.**
- all **AI Studio** (**RapidMiner) process files** (in the RMP format) **combined as a single ZIP file**.

Submitting a hard copy of this assignment is not required. You must keep a backup copy of every assignment you submit until the marked assignment has been returned to you. In the unlikely event that one of your assignments is misplaced you will need to submit your backup copy.

Any work you submit may be checked by electronic or other means for the purposes of detecting collusion and/or plagiarism and for authenticating work.

When you submit an assignment through your CloudDeakin unit site, you will receive an email to your Deakin email address confirming that it has been submitted. You should check that you can see your assignment in the Submissions view of the Assignment Dropbox folder after upload and check for, and keep, the email receipt for the submission.

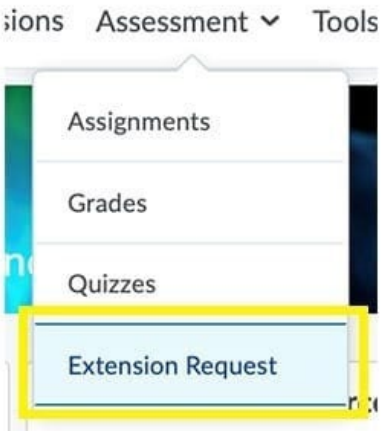
Marking and feedback

The marking rubric indicates the assessment criteria for this task. It is available in the CloudDeakin unit site in the Assessment folder, under Assessment Resources. Criteria act as a boundary around the task and help specify what assessors are looking for in your submission. The criteria are drawn from the ULOs and align with the GLOs. You should familiarise yourself with the assessment criteria before completing and submitting this task.

Students who submit their work by the due date will receive their marks and feedback on CloudDeakin approximately 3 weeks after the assignment deadline.

Extensions

Extensions can only be granted for exceptional and/or unavoidable circumstances outside of your control. Requests for extensions must be made by 12 noon on the submission date using the online Extension Request form under the Assessment tab on the unit CloudDeakin site. All requests for extensions should be supported by appropriate evidence (e.g., a medical certificate in the case of ill health).



Applications for extensions after 12 noon on the submission date require University level special consideration and these applications must be submitted via StudentConnect in your DeakinSync site.

Late submission penalties

If you submit an assessment task after the due date without an approved extension or special consideration, 5% will be deducted from the available marks for each day after the due date up to seven days*. Work submitted more than seven days after the due date will not be marked and will receive 0% for the task. The Unit Chair may refuse to accept a late submission where it is unreasonable or impracticable to assess the task after the due date. *'Day' means calendar day for electronic submissions and working day for paper submissions.

An example of how the calculation of the late penalty based on an assignment being due on a Thursday at 8:00pm is as follows:

- 1 day late: submitted after Thursday 11:59pm and before Friday 11:59pm– 5% penalty.
- 2 days late: submitted after Friday 11:59pm and before Saturday 11:59pm – 10% penalty.
- 3 days late: submitted after Saturday 11:59pm and before Sunday 11:59pm – 15% penalty.
- 4 days late: submitted after Sunday 11:59pm and before Monday 11:59pm – 20% penalty.
- 5 days late: submitted after Monday 11:59pm and before Tuesday 11:59pm – 25% penalty.
- 6 days late: submitted after Tuesday 11:59pm and before Wednesday 11:59pm – 30% penalty.
- 7 days late: submitted after Wednesday 11:59pm and before Thursday 11:59pm – 35% penalty.

In this example, the Dropbox closes the Thursday after 11:59pm AEST/AEDT time.

Support

The Division of Student Life provides a range of **Study Support** resources and services, available throughout the academic year, including **Writing Mentor** and **Maths Mentor** online drop ins and the SmartThinking 24 hour writing feedback service at **this link**. If you would prefer some more in depth and tailored support, **make an appointment online with a Language and Learning Adviser**.

Referencing and Academic Integrity

Deakin takes academic integrity very seriously. It is important that you (and if a group task, your group) complete your own work in every assessment task Any material used in this assignment that is not your original work must be acknowledged as such and appropriately referenced. You can find information about referencing (and avoiding breaching academic integrity) and other study support resources at the following website: http://www.deakin.edu.au/students/study-support

Your rights and responsibilities as a student

As a student you have both rights and responsibilities. Please refer to the document ***Your rights and responsibilities as a student*** in the Unit Guide & Information section in the Content area in the CloudDeakin unit site.