Assignment Brief

Submission Deadline	Marks and Feedback
Before 10am on: 10/11/25 (Week 6, Luton campus)	**20 working days after deadline (L4, 5 and 7)** **15 working days after deadline (L6)** **10 working days after deadline (block delivery)**

Submit assignment

Marks and feedback

Unit title & code	**CIS051-3: Business Analytics**
Assignment number and title	**Assignment 1: Data Mining Solutions for Direct Marketing Campaigns**
Assessment type	WR
Weighting of assessment	50%
Unit learning outcomes	1. Analyse a Data Mining technique capable of supporting practitioners to make reliable decisions which require predictive modelling, for example, in a Marketing scenario 2. Demonstrate results of using an efficient technique which is capable of finding a solution to a given predictive problem represented by a data set 3. Evaluate the accuracy of the technique in terms of differences between the predicted values and the given data

Completing Your Assignment

What am I required to do in this assignment?

Task

Students will develop a Data Mining (DM) solution for saving the cost of a direct marketing campaign by reducing false positive (wasted call) and false negative (missed customer) decisions. Working on this assignment, students can consider the following scenario. A Bank has decided to save the cost of a direct marketing campaign based on phone calls offering a product to a client. A cost efficient solution is expected to support the campaign with predictions for a given client profile whether the client accepts or rejects the offer.

Students can choose one of the roles (i) group manager, (ii) group member or (iii) work individually. The group manager will arrange comparison and ranking of solutions designed

in a group. Each student will run individual experiments to find an efficient solution and describe the obtained results.

Assignment Options
Students are welcome to explore possible assignment options within the unit scope.
An example: Warsaw Stock Market prediction (ICSEng'21 presentation, a paper, and a csv data file)

Method and Technology
Examples of cost-efficient technologies for direct marketing are provided on the UCI Machine Learning repository describing the Bank Marketing problem referenced in the following google links. Advanced students can be also interested to extend work on missing values existing in the Credit Approval task. To design a solution, students will use Data Mining techniques such as Decision Tree. Examples of solutions will be provided within an R Cloud or CoCalc online platform.

Project Data and Script
Download the Bank Marketing Data (bank-additional.csv) and R script (A1_bank_marketing.R) which are required for individual experiments.

Individual Report
Each solution will be evaluated in terms of the assignment requirements that are defined for the threshold and advanced levels described below. All submissions are made via BREO as word or pdf files. Students are recommended to use a template for reports. The plagiarism BREO score is expected < 20% excluding for the scripting codes, generated outputs, and references.

Is there a size limit?

2500 words on average, and not limited for advanced reports

What do I need to do to pass? (Threshold Requirements)

1. Create an R Cloud project account (5%)
2. Upload the project data and script to the project (5%)
3. Run the project script to build a Decision Tree on the data (10%)
4. Analyse and describe the Decision Tree and the project script outcomes (22%)
5. Total to pass 42%

How do I produce high quality work that merits a good grade? (Advanced Requirements)

6. Identify a set of parameters which are required to be adjusted within Decision Tree techniques in order to optimise the solution in terms of prediction accuracy
7. Explain how the parameters of Decision Tree technique influence the prediction accuracy
8. Run experiments in order to verify the solution on the given data set
9. Analyse and compare the results of the experiments in a group and with the known from the literature
10. For A grade (>70%) students should follow the Uni recommendations and need to demonstrate excellence of assignment reports at a publishable level (discuss ideas with Courage during practical sessions)

How does assignment relate to what we are doing in scheduled sessions?

Data Mining, Decision Trees and use cases developed in R Cloud will be considered in lectures and tutorials.

Marks and Feedback

How will my assignment be marked?

Your assignment be marked according to the threshold expectations and the criteria on the following page.

You can use them to evaluate your own work and estimate your grade before you submit.

#	Weight, %	Lower 2nd – 50-59%	Upper 2nd – 60-69%	1st Class – 70%+
1	Analysis (30)	Fair analysis of the basic approaches	Relatively good analysis of the relevant literature, mainly covering the state-of-art	Excellent analysis of the relevant literature, fully covering the state-of-art
2	Design (40)	Fair design of a basic solution providing a reasonable performance within a single set of parameters	Design of a solution providing a fair performance in a series of experiments with different sets of parameters	Design of a solution providing a performance, competitive to known from the literature, in a series of experiments with different sets of parameters
3	Conclusion (30)	Fair conclusion on the experimental results obtained within a single set of parameters	Conclusion on and comparison of the experimental results obtained within two different sets of parameters	Conclusion on and comparison of the experimental results obtained within multiple sets of parameters, demonstrating a solution which provides a competitive performance