

Analytics in Practice

Term One 2021 - 2022

WARWICK BUSINESS SCHOOL

40% Group Report & Presentation

Credit Risk Prediction

Background:

You are working for an analytics consultancy company. A private financial institution, “Universal Plus”, requested you to pitch to win a major contract with them to develop and deploy a credit risk management system.

Universal Plus loans money to their clients to be paid in a fixed term. In the past, some of their clients were unable to repay the loans on their debt obligations and their loans went into default. Lending money without considering the potential defaults can result in huge losses. Therefore, Universal Plus wants to proactively anticipate the defaults with a credit risk management system. This system is required to predict which customers is likely to default in their loan payment in the future. Having such a system will ensure that Universal Plus can identify their credible and not credible customers, and take proactive steps to control the risks. Several other consultancy companies have been approached as well, and the final decision on who will get the contract will largely depend on the outcome of a demonstration of the approach to this problem based on a dataset that Universal Plus provided.

The dataset¹ contains 31,375 instances of historic loan applications. For more information on what the data contains, see the attached txt file with definitions of the various fields.

Presentation:

You and your team will be required to pitch your results and recommendations in a presentation of 10 minutes to Universal’s “management board” impersonated by WBS staff. The pitch needs to be recorded and submitted as a video file. In the video, one should be able to see the slides (or other means of presenting) as well as the presenter – the latter is important since we also evaluate presentation skills. We leave it to you whether you want to have a single presenter or whether all of you would like to present; we will not penalise for changes of presenters (which in practice is not a good idea since it is apparently quite disruptive).

¹ The data has been adapted from UCI: <https://archive.ics.uci.edu/ml/index.php>

Keep it professional - business apparel is expected! Please note that this is not an exercise in professional video production; the evaluation will be based on the content of the presentation - to that end, make sure that you motivate the project properly such that it is very clear why we (as Universal Plus) should invest in your services. *Keep in mind in designing the presentation that the audience are your clients; they are managers who may not necessarily have technical knowledge so reflect carefully on what you present.* They will be interested in the meaning of your work for their business, and whether their investment in this project will be worth it.

Your team also needs to submit a report in document form. Technical considerations should be described in the report, see instructions below. The report is subject to a limit of 2,000 words.

Instructions:

Please read the instructions carefully and discuss with your colleagues and provide an outline of your approach.

[30 marks] Each team member should choose and review exactly one academic paper per member that is related to the data mining project. For instance, the paper can be related to the one of the machine learning techniques used in the project. Within a team, no two members should review the same paper. In your report, provide a brief discussion of these papers including the key ideas obtained from the papers. You are not expected to convey a full understanding of these papers; instead, the aim is to start working with academic literature. However, a justification should be given as to why you selected your chosen papers, and whether/how they may have influenced your data mining project.

[40 marks] Conduct data mining on the provided data to identify a suitable approach for predicting customers who will likely default. Outline your approach considering the steps in CRISP-DM methodology and justify the selected methods used in this project.

You do not need to provide every detailed step in the report, instead, focus on the big picture and justifications of the chosen approach and the chosen performance measures. The focus of this assignment is to give you a go at thinking about the business problem, implementing and interpreting several models using real data, describing your approach to the data mining project clearly and providing clear justification of the steps followed and the methods used. A working R script (or R Markdown file) should be submitted as well (of course without the data file).

[30 marks] These final marks are awarded for the sales pitch, where we will evaluate presentation style, content, managerial insights, media, and appropriateness for the audience and generally how convincing the sales pitch is.

There is no single correct approach to this assignment; the focus is on demonstrating proper management of a realistic analytics project using the CRISP-DM methodology and that you can extract and suitably present managerial insights to your client.

Submission Instructions:

Project report and presentation files should be submitted as pdf documents.

R code (R Markdown file or R script) should be submitted without the data file.

Please add your project report, presentation and R code to the same folder and bundle it as a Zip file.
The file should be named as:

group_number_X.zip

where X is your given group number.

Presentation video will be submitted separately and the instructions will be announced in due time.

REMEMBER THAT ALL TEAM MEMBERS MUST SUBMIT PEER ASSESSMENT MARKS BEFORE THE DEADLINE AS ADVERTISED ON MY.WBS.

SUBMISSION DEADLINE: before 20:00 (8pm UK time) Wednesday 8 December 2021

Word Count Policy and Formatting (found in your Masters Student Handbook)

<https://my.wbs.ac.uk/-/academic/37360/resources/in/381545,786874/item/786880/>

The submission deadline is precise and uploading of the document must be completed before 12.00 (UK time) on the submission date. Any document submitted even seconds later than 12.00 precisely will be penalised for late submission in line with WBS policy. Please consult your student handbook on my.wbs for more detailed information.

The online assignment submission system will only accept documents in portable documents format (PDF) files. Please note that we will not accept PDF files of scanned documents. You should create your assignment in your chosen package (for example, Word), then convert it straight to PDF before uploading. Please place your student ID number, NOT YOUR NAME, on the front of your submission as all submissions are marked anonymously.

PLEASE ENSURE YOU KEEP A SECURITY COPY OF YOUR ASSESSMENT

Group work submissions

Please agree in advance ONE person in your group who will submit the final document. Once a document has been submitted by one member of the group no other members within the group will be able to submit anything for the assessment. As with the individual work submissions, a coversheet must be submitted as part of the PDF.

By submitting the assignment on behalf of the group, you confirm that you agree with the following statement:

I declare that this work is being submitted on behalf of my group, in accordance with the University's [Regulation 11](#) and the WBS guidelines on plagiarism and collusion. All external references and sources are clearly acknowledged and identified within the contents.

No substantial part(s) of the work submitted here has also been submitted in other assessments for accredited courses of study and if this has been done it may result in us being reported for self-plagiarism and an appropriate reduction in marks may be made when marking this piece of work.