Group Project Requirements

BTMA 531: Data Analytics Tools for Business – Winter 2025

Timeline: Proposal due February 13th at noon. First draft due on March 20th at noon. Final submission due on April 10th at noon. Presentations on April 10th.

Class project is an important component of the class. By doing the project, you will exercise problem formulation and problem-solving using data analytics tools from the course. You will also practice group work and communication skills in the context of data analytics projects, both of which are crucial for your careers in business. Please allocate a high priority to the project and be responsible for it and towards your group members. I expect all group members to participate in all stages of the project. You can post your general questions about the project on D2L discussion board.

Instructions for forming groups

- Groups are of sizes 3 or 4 (preferred).
- You can use the D2L discussion board to look for a group or for other members to add to your group.
- Once you know your group members, you all can self-enrol into the same group on D2L.

Project requirements

Projects include finding a data sets or using your own, forming questions to ask from the data, solving the business problem and providing suggestions, and presenting it in the class. Students are required to communicate regularly with the instructor on what they are planning to do, as early as possible. Each team will submit the following:

- A written report. Please limit this to 8 single spaced letter size pages including tables and figures. You do not need to fill all pages to have a good project. In fact, if your project is unnecessarily long, it will reduce its clarity (one of the criteria for grading).
- Data used in the project, preferably in .csv format.
- Codes used to derive the results, properly commented and complete. It should be executable on the data without the need to change anything in the code using the dataset and get all the results in the report.
- Presentation file. You will present your project at the last class.

Please follow this general framework and guidelines for your report, presentation and other materials:

Problem formulation

- Consider factors and components that are important to the business to formulate the problem. Think about why people or companies should care about this problem, and why the problem is relevant.
- It should be clear what you are trying to solve, preferably within a few sentences.
- Make sure anyone without any previous knowledge on the topic can read and understand what you are trying to do.

Data

- You need to explain the data and variables in your report and presentation.
- You can use the data from your company or from other people in industry, but only if you have the permission from them to use the data and for others to see the data.
- There are many sources of data online, refer to the course page on D2L for some suggested sources of data.
- If you have found a source of data but need help for collection or transformation, talk to the instructor.
- You will need to submit the data as part of the project requirements. You don't need to share the data with the class, but you need to explain in your report and presentation what it looks like.

Analysis

- The steps taken in the analysis section should be thoroughly explained in the report and presentation, along with the justification of using that specific tool or framework.
- The analysis should be done in R and RStudio. You will submit the script used for data analysis as a part of your project. It is important that your code can be used to run the whole analysis in the project using the data. Please use commenting to make your code readable.
- Includes some basic testing of assumptions and exploration of data using EDA and other graphical and quantitative tools.
- You may want to clean or transform the data based on the initial findings.
- Use at least three models/methods to derive concrete results from the data. The tools should preferably be selected from ones that we use in this course. Consult the instructor if you want to use another model. You can use more than three models if deemed appropriate.

Results and Discussion

- You should provide your findings and provide a recommendation to the business problem (formulated at the beginning) that is coming directly from the analysis.
- Provide the challenges, shortcomings, and opportunities for future efforts relevant to your project. Focus on the tool that you used.

For the both the report and presentation, try to use graphs for better explanation. The presentations are limited to ~10 minutes. I expect all group members to present the project, for example, by dividing the presentation among yourselves.

The grade distribution is as follows: Written report: 70%. Presentation: 20%. Peer evaluation: 10%. Will deduct significant points if the data and script files are not properly submitted.

Criteria for grading

- Clarity: it is important that the report and your presentation is easy to understand, including the problem, analysis, findings, and discussion.
- Validity: it is important that the solution (tool) provided for the problem is relevant and valid, i.e. it actually provides a solution to the problem.
- Rigour: It is important that the analysis has some rigour, i.e. you have taken steps to make sure your analysis is not wrong. This includes the way you clean the data, how the tools are used, and if the results are connected to the analysis.
- Originality in the problem and solution are pluses but less important than the above criteria.
- Proper additional material: your data and code should be usable, and I should be able to run all the analysis in your project using the code and data.
- Peer evaluation: this is the only individual grade for group projects.

These criteria will be assessed on the group report and presentation; therefore, you should put an effort to make sure you have sufficiently justified how great your project is!

If referring to other articles, use proper referencing. Here is one guide from University of Calgary: https://libguides.ucalgary.ca/c.php?g=664585&p=4672589. There are other guides you can find online. Refer to the Course Outline and Code of Student Conduct for definitions of plagiarism and cheating. There is more information about this in the course outline.

Group nitty-gritty

There is a zero-tolerance policy on disrespectful behavior by anyone. You should always be respectful towards your group members. Respect includes the proper business attitude in communication and work-splitting, as well as being responsible for your tasks within the group by putting the effort needed. A good rule is to assess your group members based on effort, not skill.

Any issues within the group members should first be discussed by the individuals involved, then within the group, and then be discussed with the instructor only if previous efforts fail.