

## **BC2407 Project Requirements and Guidelines**

### **Project Objective:**

Able to research and explain a real-world application of Analytics (actual or potential) in Business, Government or Social Good to non-expert audience.

### **Project Deliverables:**

1. Project Report in Word Document Format.
2. Datasets, preferably in CSV format, or provide link to datasets if size is too big to upload.
3. Analysis Scripts (Rscript/Python script/SAS/Excel screenshots, etc...)
4. Presentation Slides in PowerPoint format.

### **Project Report General Requirements and Guidelines:**

1. Format: Microsoft Word document. Max 20 pages (excl. appendix and executive summary).
2. Report Structure is flexible. You may choose to follow <https://libguides.ntu.edu.sg/report-writing/Casestudy-Literaturereview-Survey>
3. The one-page executive summary should summarize most important findings.
4. Clearly define the Business problem (or opportunity) statement(s).
5. Explain the business outcome measures and desired targets. i.e. How would we know if the business problem/opportunity was solved successfully?
6. Explain the Analytics solution and how it solved the business problem or opportunity.
7. Define and explain the Analytics performance metrics.
8. Find suitable dataset(s) that can be used to explain at least one component of the Analytics solution.
9. Demonstrate and explain at least one permitted technique using a software. The script will need to be submitted too. The submitted dataset and analysis files/scripts must be sufficient for someone to reproduce and verify your work done.
10. Refer to Appendix A for Exclusions and Appendix B for Permitted Techniques.
11. The entire Analytics solution (if multiple components) must be explained. The dataset and demonstration can choose to focus on just one component of the solution due to limitations of time and access to actual data.

### **Presentation Slides General Requirements and Guidelines:**

1. A deck of PowerPoint presentation slides in PPTX format that summarize your important findings and recommendations.
2. All students must speak and present their slides.
3. State the slide speaker name in a corner of each and every content slide so that marks can be attributed to that speaker.
4. Screenshots of important visualization/dashboard in PowerPoint slides appendix section.
5. Show a live dashboard during project presentation i.e. not static screenshot. The dashboard can be done using Microsoft Power BI, Tableau, Excel Chart with Slicers, or R Shiny.
6. Duration: **max 25 minutes presentation.**

Notes:

- Visualization and Dashboard using Power BI (free to download and use) is our e-Learning topic. The eLearning instructions are already provided within NTULearn Main Site > Content folder.
- The presentation is during class time in either week 12 or 13. Your team will be randomly assigned a presentation timeslot and announced in NTULearn Class site.

### **Target Audience:**

The target audience for the report and presentation is **senior management who are typically not familiar with Analytics/Machine Learning/AI**. You may include the more technical details in appendix. The focus is on the business problem/opportunity and how the business problem/opportunity was/can be solved using Analytics/Machine Learning.

### **Submission:**

Put all the deliverables and supporting files/materials/datasets in a zipped file without password and submit your zipped file in NTULearn class site > Teams<sup>1</sup>. Include your class and team number in all the file names, including the zipped folder. If the dataset is too big, provide a download link.

List the names of all your project team members on the first page of the project report and the first slide in presentation slides.

The submitted file in NTULearn serves as the record of your submission time. If you need to make any corrections or edits after the deadline, you can submit a revised version within 24 hours of your team presentation time slot but do not delete the previously submitted file. Name those file(s) or new zipped folder with the word "REVISED".

Failure to comply with the instructions listed in this document may result in penalty.

For any graded work, if there is any requirement that you cannot fulfil, inform and seek approval from class instructor before the deadline.

### **IMPORTANT:**

**If any teammate did not contribute sufficiently to Team Assignment (Project Proposal) and Team Project, please inform your class instructor before last teaching week. Provide evidence to class instructor via email. This will trigger the Peer Evaluation process, and all teammates will be asked to submit peer evaluation.**

**If all your teammates contributed sufficiently, then you do not need to submit peer evaluation.**

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<sup>1</sup> Refer to How do Students submit team assignments and project in NTULearn.PDF for instructions and screenshots on how to submit team assignment and team project.

## Appendix A: Exclusion List

Do not use any of the below organization unless approved by instructor for exceptional reasons.

1. Airbnb
2. Amazon.com
3. All Bike sharing companies
4. All ride-sharing companies (e.g. Grab, Uber, Gojek, ...etc)
5. Netflix
6. Spotify
7. Target
8. Walmart
9. HDB
10. Any project/research/analysis/report already submitted or plan to be submitted for another course. Your project submission must be your team's original work and not submitted to any other course.

## Appendix B: Permitted Techniques List

You must use at least one technique in category A and may use techniques in category B.

Grading is mainly on your use and presentation of category A techniques.

Seek instructor approval if you want to use other technique(s) not in the lists.

### Category A:

1. Association Rules
2. Quantile Regression
3. MARS
4. Simple Neural Network
5. Random Forest

### Category B:

1. Any Descriptive Statistics taught in first course in Statistics.
2. Any Inferential Statistics taught in first course in Statistics.
3. Clustering.
4. Linear Regression.
5. Logistic Regression.
6. Lasso or Ridge Regression.
7. CART.
8. Text Mining.
9. Bootstrap.
10. Time Series Forecasting.
11. XGBoost.
12. Deep Learning.