

Module Outline

Module Code : MKT4415G/MKT4761B
Module Title : SIM: Customer Analytics & Visualization
Semester : Semester II, AY2122
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Overview

Today's businesses are bombarded with data. It is a key skill to be able to tell a story from this data so that businesses can leverage on market intelligence for marketing effectiveness. To achieve this objective, this module is designed with two integrated components: 1) data visualisation, and 2) communication. We will start with understanding how humans interpret and perceive visual cues. Then, we introduce various tools and techniques for visualisation. Subsequently, we apply these insights obtained to learn how to maximise the impact on communication to win the buy-in of the relevant decision makers within the organisation.

Module Objectives

Upon completion of this module, you will be able to:

- Understand principles and practice of data visualisations in Customer Analytics
- Translate customer data into visuals, and observe patterns, trends & relationships
- Discover hidden insights in visualisations and inform marketing decisions
- Communicate to target business users through data storytelling

General Guide & Reading (e.g., Case preparation guide, project report guide, main textbook & supplementary materials, etc)

- Learning materials and online videos developed by the instructor
- Software: Tableau, R or Orange.

Assessment

| Assessment Components | Weightage |
|-------------------------|-------------|
| Class Participation | 20% |
| Quiz (2 x 10%) | 20% |
| Team Assignments | 20% |
| Assessment (individual) | 10% |
| Project | 30% |
| Total | 100% |

Class Participation (20%)

- Attendance 5%
- Case Study Discussions (15%)

Quiz (20%)

MCQ, T/F, and Problem Solving

- Quiz 1 (10%)
- Quiz 2 (10%)

Assessment- Individual (10%)

- Sale Performance dashboard and data story

Team Assignment (20%)

1. Customer Analysis (10%)
2. Customer Segmentation (10%)
 - Your team will be given the datasets and tasked to solve related business problems
 - Your team should use appropriate data analytics and visualisations (including charts, dashboard and story) to answer those questions
 - Your team should identify the target audience and present your data story in class
 - Mini presentation: 5min
 - Submission: presentation slides, data analysis files.

Project (30%)

1. Identify real world business problems in marketing and find one or more relevant datasets (20~30 variables, data sources and references will be provided)
2. Perform necessary data preprocessing (handling missing values, outliers, duplicate, noises, etc.).
3. Create data visualisations to understand the data (checking distributions, correlations, etc.)
4. Use Customer Analytics techniques to solve the business problem
5. Communicate to your target audience using visualisations

Grading Criteria:

- Present the solution to your target audience (customers, management, or investors) in 15min
- Write a project report with no more than 10 pages excluding cover page, but including images, figures, tables, references, appendices (font sizes: 12 for the text and 14 for headings; spacing: 1.5)
- Peer Assessment: Evaluation of overall performance in team assignment and project by team members including quality of work, timeliness, task support, responsibility, involvement and leadership

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’ own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

Schedule and Outline

| Lesson/ Week | Topic | Chapter | Activity |
|-----------------|--|--|--|
| 1 | Data Visualisations and Communication in Marketing: <ul style="list-style-type: none"> Why communicating data matters Principles of Data Visualisation Visualisation Critiques | Lecture notes and workshop guides in LumiNus | |
| 2 | <ul style="list-style-type: none"> Marketing Metrics: Measures, Metrics and KPIs Dashboard Design and Data Storytelling Tableau Fundamentals Data Visualisation and Storytelling: Sales performance dashboard and story | | |
| 3 | <ul style="list-style-type: none"> Advanced Analytics with Tableau Data Visualisation and Storytelling: Customer Analysis dashboard and story | | |
| 4 | Guest Lecturer: Data Visualisations in the Real World | | Quiz 1 (10%) |
| 5 | Visualise Customer Segments <ul style="list-style-type: none"> Cluster Analysis: Theory, Modelling and Visualisation Case Study: Using RFM scores to create customer segments | | Assessment-Individual (10%) |
| 6 | Sales Forecasting in Visualisations: <ul style="list-style-type: none"> Forecasting in Marketing: Theory and Practice Create sales forecasting | | |
| Recess Week | | | |
| 7 | Team Assignments Presentation: Data Visualisations and Storytelling | | Team Assignments: Customer Analysis (10%) Customer Segmentation (10%) |
| 8 | Customer Churn Prediction and Visualisations: <ul style="list-style-type: none"> Predictive Analytics Case Study: Customer Churn Analysis | | |
| 9 | Measure and Visualise Customer Retention <ul style="list-style-type: none"> Latency Analysis Survival Analysis | | |
| 10 | Detect Customer Sentiments: Text Mining and Visualisations <ul style="list-style-type: none"> Text Analytics and Sentiment Mining Modelling and Visualisation of Customer Sentiments Case Study: Using Sentiment Analysis to Identify Customer Service Innovation Opportunities | | |

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| 11 | Recommender System and Visualisations <ul style="list-style-type: none"> • Set Theory • Association Rules • Market Basket Analysis • Case Study: Supermarket Product Recommendations | | |
| 12 | Conversation with Data Scientists | | Quiz 2 (10%) |
| 13 | Team Project Presentation: Customer Analytics and Visualisation | | Team project (30%) |