

# Capstone Project

# Assessments

In order to pass this course, students need to:

1. Pass a minimum of 3 MCQ tests  
**AND**
2. Pass their Capstone Project

S/N	Lesson	Item	Due Date	Minimum to pass
1	1	MCQ Quiz 1 (25 Questions)	Before Lesson 2	13
2	2	MCQ Quiz 2 (25 Questions)	Before Lesson 3	13
3	3	MCQ Quiz 3 (25 Questions)	Before Lesson 4	13
4	4	MCQ Quiz 4 (25 Questions)	Before Lesson 5	13
5	5	MCQ Quiz 5 (25 Questions)	Before Lesson 6	13
6	6	MCQ Quiz 6 (25 Questions)	Before Lesson 7	13
7	8	Capstone Project	Refer to instructor	Refer to Dashboard Rubrics

# Capstone Project

Choose ONE from the 3 case studies below to focus on:

## Case Study 1: **Banking Industry**

\* Data is provided (<https://archive.ics.uci.edu/ml/datasets/Bank+Marketing> )

### **Background Info:**

Marketing is one of the key ways to help a bank raise awareness on their services to the public. In this case study, we want to identify how effective the past marketing campaigns were in order to better strategize for future marketing campaigns.

### **Task:**

The data provided is related with direct marketing campaigns (phone calls) of a Portuguese banking institution. **Using the data provided, analyse the historical patterns of the effectiveness of previous marketing plans.**

Some helper questions:

- What is the profile of people who are responsive to the marketing campaigns?
- What is the profile of people who are not responsive to the marketing campaigns?

You may choose to supplement the existing data with additional data sources where applicable.

# Capstone Project

Choose ONE from the 3 case studies below to focus on:

## Case Study 2: **Stocks Analysis**

\*Data for this case study is not provided. Students are to follow lesson 4's API code within *'Notebook 4.0 - Solutions.ipynb'* to get the stocks data of their preferred company for the timeline they're interested in.

### **Background Info:**

Information is vital in the stock market. Some assume that knowing the statistics of a market lets us beat it and earn money. The reality can be quite different.

### **Task:**

Collect stock data of a preferred industry and conduct some basic analysis. **Using the data provided, analyse how the global pandemic, (i.e. COVID-19) can affect the stock market, and identify some key insights.**

Some helper questions:

- Which are the companies that have been harmed the most by the COVID-19 Pandemic?
- Which are the companies that have benefited the most from the COVID-19 Pandemic?
- How to invest during the COVID-19 Pandemic?

# Capstone Project

Choose ONE from the 3 case studies below to focus on:

## Case Study 3: **Insurance Premium Data**

\* Data is provided (<https://www.kaggle.com/simranjain17/insurance>)

### **Background Info:**

The insurance industry is driven by the simple fact that the capital spent by the insurance company in response to beneficiary claims should not exceed customer premium. The higher the difference between the approved customer claims and total premium received, equates to higher profits. Generally the more data we have on a customer, the better we are able to understand their needs, as well as assess the risks involved in insuring them.

### **Task:**

**Using the data provided, analyse the premium prices charged to customers.**

Some helper questions:

- Who is charged a higher premium?
- Who is charged a lower premium?
- Who are the main customers?

You may choose to supplement the existing data with additional data sources where applicable.

# Capstone Project

For your final capstone project you should

- Prepare a 10 page slide deck in response to one of the three case studies, and show how you address them through your data analytics techniques.
- Your slide deck should cover the following:
  1. Define your business objective or problem statement and identify relevant metrics
  2. Identify clearly the sources of data and steps taken extract the data from the sources
  3. Collect, consolidate and organise the data
  4. Exploratory data analysis to ensure the data integrity and data quality is sufficient to conduct analysis
  5. Working Tableau Dashboard with a minimum of 2 different chart types that help address the problem statement
  6. Show proper data analysis to approach the chosen case study
  7. Using the dashboard, demonstrate how you can derive data driven decisions
- Design a dashboard that can visualize your data. The dashboard should show at least two different charts (line charts, maps, bar charts, etc.) and identify 2 recommendations or 2 insights based on your defined problem statement. Focus on the organization of the dashboard, the use of colors, the labeling of the axes, to ensure it looks professional.

# Dashboard Rubrics

s/n	Criteria	Fail (4)	Pass (5)	Merit (7.5)	Distinction (10)	Score (Out of 10)
1	<b>Problem Statement and Insights Derived</b> Ensure the insight drawn at the end answer the defined problem statement	The problem statement not well defined, i.e. too vague or too specific. No clear insights drawn that tackles the problem statement.	Problem statement is clear, and there is an attempt to draw insights to tackle the problem.	Clear conclusions are given that satisfy the requirements of the assignment and require data analysis in their argument.	Problem statement defined shows deep insight into the dataset by drawing specific data driven decisions that require a very careful or multi-level analysis of the data. Results may be particularly surprising or interesting.	
2	<b>Data Source(s), Data Collection and Organisation</b> Ensure the data is properly collected without gaps	Source of data was wrongly identified, data was not extracted using any data techniques.	Source of data was correctly identified, data was extracted but not in the most optimal manner and lack of organisation in data.	Source of data was correctly identified, all data was extracted using the right techniques but not organised well.	Source of data was correctly identified, all data was extracted using the right techniques and was organised cleanly.	
3	<b>Data Cleaning, Data Sufficiency and Data Quality</b> Data is appropriate and sufficient for the analysis	Data has little or no relation to the topic being explored, errors will lead to incorrect conclusion, and/or data issues make the analysis unusable.	Data is related but not sufficient to support the analysis, or significant data issues prevent a clear reading of the results.	Data is appropriate with minor data cleaning issues present or enhancements may be needed for a proper analysis.	The data set is appropriate, exploratory data analysis has been conducted. Data has been cleaned properly, and sufficient to support the analysis.	

# Dashboard Rubrics

s/n	Criteria	Fail (4)	Pass (5)	Merit (7.5)	Distinction (10)	Score (Out of 10)
4	<b>Data Visualisation</b> Basic visualization rules and best practices are consistently applied and demonstrated	Difficult to understand what is intended with the chart and data. Color actively distracts and confuses. Chart junk dominates the visualization and the meaning is unreadable.	Charts incorrectly used for the purpose intended. Axes are difficult to read and detract from understanding. Color used in a distracting or unsuitable manner.	Chart types chosen are acceptable, but axes may be cluttered or have rotated text. Color choices communicate meaning but can be improved.	Chart types are suitable and best options for the analysis. All axes and texts are treated appropriately. The application of color is correct and clearly conveys meaning.	
5	<b>Data Analysis</b> The visualization allows the user to conduct the intended analysis	The visualization is completely inappropriate and cannot be used to conduct the intended analysis.	The visualization does not directly address the topic or relies on presentation support.	Additional study is required to interpret the data and how it applies to the thesis of the analysis.	The visualization facilitates quick cognition and leading to a fact based conclusion or assertion.	

**The passing criteria for the Capstone Project is to attain at least a Pass grade for each criteria stated in the Dashboard Rubrics.**