



CT045-3-M-ABAV

ADVANCED BUSINESS ANALYTICS AND VISUALIZATION INDIVIDUAL ASSIGNMENT

TECHNOLOGY PARK MALAYSIA

CSSE_CT045-3-M-ABAV_L__2022-11-04__PT

Understanding Revenue and Profit of GBI bike company

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Student's name : Muhammad Arif Bin Jamaluddin

Student's ID number:TP067696

Lecturer's name : Raheem Mafaas

INSTRUCTIONS TO CANDIDATES:

- 1 This assignment should be submitted through outline facilities made available to the students.**
- 2 Students are advised to underpin their answers with the use of references(cited using the Harvard Name System of Referencing).**
- 3 Late submission will be awarded zero (0) unless ExtenuatingCircumstances (EC) are upheld.**
- 4 Cases of plagiarism will be penalized.**
- 5 You must obtain 50% overall to pass this module.**

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1.0 Introduction

Business problem in today is geared towards digitalization as more company generated and recorded huge amount of data in their organizations and thus with the rise of big data, data science can provide tools and solutions to solve the business problems. The datasets selected for Advanced Business Analytics and Visualization is GBI bike company datasets whereby it fills the criteria which is the business domain GBI bike company involves in manufacturing and sells bicycle. As the business domain for GBI bike selling bikes for touring and off-road racing, the problem that can be further studied is regarding the revenue, profits, trends, products, discounts for the customers and more.

Hence using data analysis method software such tableau, it can help to do business understanding of the GBI bike company as the business visualization tools such as tableau provide detail insights on the business problem. Thus, data science can be beneficial for GBI bike company to use data driven decision making to solve and improve business problem as data analytics can be implemented to catch any trends or information that normal humans missed.

1.0.1 Business domain

As stated previously, the business domain of this company is selling bicycle products and before that lets explore regarding the business process of GBI bike company. It is known that for the raw materials part GBI buy from the vendors and at the same time parts such as seat cover, lamp also buy from vendors. The only parts that made by GBI is finished goods and for trading good, GBI buy and sell together along with the finished goods. GBI sell wholesales

products to its customers as it is not a typical retail business company as its customers are bulk buyers and not end users.

1.1 Problem Statement

GBI bike company datasets have many variables and features that can be further explored for example descriptive analytics to describe the datasets and also business understanding of the datasets. Thus, tableau can be used to do descriptive analysis using data visualizations method and to derive insights. For this assignment revenues and profits is the main core of understanding the problem faced by GBI bike company and thus dashboard visualizations in tableau in part B will be further explained later on. Business is socio-economic part of organization and hence GBI involve in selling goods or services such as bicycle to customers for profit as the main core of business is to make profit.

Business needs production process to achieve sales of goods and services and GBI bike company operate their business in a dynamic environment where often business or company faced challenges due to environmental factors. The challenges maybe due to overall trying to understand the revenue trend, revenue from the customers, discount percentages, revenue by products and more. Some of the challenges are understanding the business climate of the GBI bike company for example, next is to predict the sales forecast for the bike products, study and analyze customer churn, GBI customer segmentation, analyze the KPI of the company and the last one is recommendations.

1.2 Aim

The aim of this assignment is to study the descriptive analytics of sales done by the GBI company in terms of revenue and profit so that GBI can identify which products that make the most profit.

1.3 Objectives

The objective of the assignment is shown as below

1. To study the development of revenue and profit over the time for the GBI bike sales
2. To study the profit made by GBI bike company by product and sales organization
3. To get region view or the demographics sales by region or country.

1.4 Scope

The scope of this assignment is very broad as the datasets is huge and the variables or the parameters of the datasets is quite large and thus lot of business insights or data analysis can be done. The variables that can be studied or analyzed are cost of goods, price, profit, revenue, quantity, and many more and the GBI datasets is created by Epistemy Press books to understand business process using SAP ERP (<https://medium.com/codex/global-bike-inc-is-in-need-of-help-d1b9abf411ce>)

The final deliverables of this advanced business analytics visualization are to create dashboards visualized the sales and revenue of the GBI bike company and also do comparison of profit, sales and revenue of the country and region. Further understanding of the business visualization will be explained using the Tableau software as it provides charts, graphs, trend line and more to have detailed business understanding.

2.0 Methodology

The methodology selected is CRISP-DM (Cross-industry Standard Process for Data Mining) where, it is selected to analyze data mining part of GBI company due to its open standard process model, widely used analytics model and it is often used in industry. The process flow of CRISP-DM starts with business understanding, data understanding, data preparation, modelling, evaluation and eventually deployment.

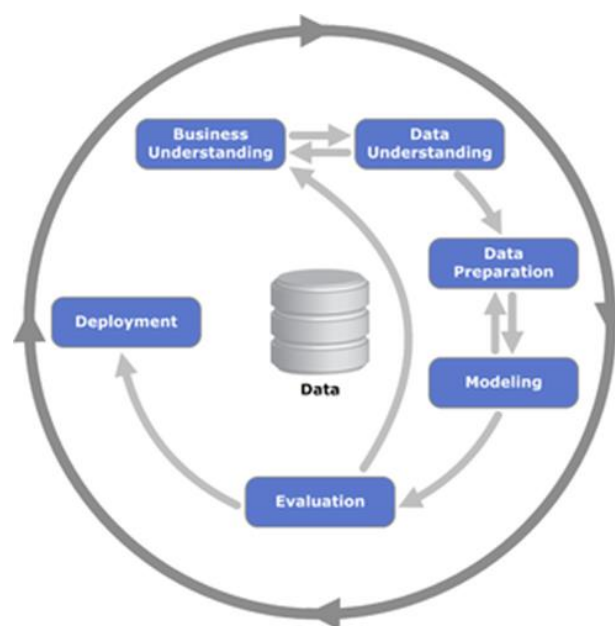


Figure 1

The business understanding includes identify business objectives, accessing the company situation, determine data mining goals, and produce project plan. Thus, this part already explained in the problem statement section. Next for data understanding, its starts with data collection, descriptive analytics, data exploration and data quality. For data understanding, this section will be explained using Tableau as dashboard visualization to study the profit and revenue of the bike sales

Data preparation on the other hand starts with data selection, data cleaning, constructing the data, data integration and formatting data. For modelling, it starts with technique selection, train, and test, building the model and assess the model. This part will be using SAS Enterprise Miner for further understanding of the modelling process as this part applied the algorithms such as time series, linear regression, k-nearest neighbors, k-means, hierarchical clustering and more.

Next is evaluation where the results are evaluated and reviewed for next step as this section the results are being verified to make sure it is valid and correct. For example, with supervised machine learning the method and technique to verify the result is using confusion matrix meanwhile for unsupervised machine learning, the evaluation is difficult as there is no static value to isolate between correct and incorrect. The last one is deployment where for this assignment dashboard of visual presentations of the insights of the GBI bike datasets is presented analytically as a business intelligence solution.