TECHNOLOGY PARK MALAYSIA

Individual ASSIGNMENT

CT122-3-2-BIS

Business Intelligence System

Submitted By:

NAME	**:**	**MOHAMMAD ABU HUZAIFA**
TP NUMBER	**:**	**TP070586**
INTAKE	**:**	**APD2F2309CS(DA)**

Submitted To:

LECTURER NAME	**:**	**Ts. MOHAMMAD NAMAZEE BIN MOHD NIZAM**
HAND OUT DATE	**:**	**3rd Week**
HAND IN DATE	**:**	**10th June 2024**
WEIGHTAGE	**:**	**30%**

Table of Contents

Table Of Figures

1.0 Introduction

Software and services used in business intelligence (BI) can turn data into insights that can help with making smart decisions. Richard Millar Devens came up with BI for the first time in 1865. Its goal is to enhance decision-making by displaying, integrating, analysing, and recording business data. BI is the collection of techniques, instruments, and procedures that transform unprocessed data into insights, enabling businesses to find trends, boost output, streamline operations, and obtain a competitive advantage. BI helps businesses to foresee trends, generate growth, and make well-informed strategic decisions in today's data-driven environment.

1.1 Company Profile

Fusion Bikes Corporation was established in China in 2002 and has since expanded to become a prominent bicycle manufacturer, gaining a 55% market share in the country with its cutting-edge designs and superior goods. It is a significant OEM for related equipment in addition to manufacturing. Fusion Bikes, with an emphasis on resellers and e-commerce channels, is putting in place a Business Intelligence System to thoroughly analyse its performance in many regions in order to promote expansion globally. Building on its home success, this system will support the company's global expansion.

1.2 Aims and Objectives

The principal objective of the new initiative undertaken by Fusion Bikes Corporation is to acquire an in-depth comprehension of its worldwide business performance. By conducting an analysis of data sourced from resellers and e-commerce platforms, among others, a comprehensive understanding of the company's sales performance and operational effectiveness can be achieved. The purpose of utilising this information is to inform strategic decisions that will facilitate the expansion of the organisation into global markets. Through the implementation of a Business Intelligence System, Fusion Bikes Corporation aims to optimise operations, strengthen its competitive stance globally, and improve its decision-making processes.

1.3 Problem Statement

Fusion Bikes Corporation is confronted with several obstacles as it gets ready to expand worldwide. The business has to understand performance indicators by thoroughly analysing its data warehouse in order to solve issues. Data from several sources will be integrated to a business intelligence system, providing a single perspective of performance to address important issues:

1. **Data Consolidation:** Integrating disparate data sources to create a cohesive and comprehensive dataset that reflects the company's overall performance.
2. **Performance Insights:** Using historical and current data to gain insights into sales trends, identify performance gaps, and highlight opportunities for improvement.
3. **Informed Decision-Making:** Equipping senior leadership with the information needed to make strategic decisions that enhance operational efficiency and support global growth.
4. **Global Expansion:** Identifying potential markets and optimizing strategies for international expansion to ensure sustained growth and competitiveness.

Fusion Bikes Corporation endeavours to attain a prosperous international expansion by capitalising on the emerging prospects and capitalising on its inherent advantages while confronting these obstacles. The strategic direction of the organisation and its ongoing prosperity in the fiercely competitive bicycle manufacturing sector will be significantly influenced by the knowledge obtained from the Business Intelligence System.

2.0 Methodology (CRISP-DM)

Chapman et al. (2000) say that the Cross-Industry Standard Process for Data Mining (CRISP-DM) is a tried-and-true way to run data mining projects. The CRISP-DM framework was utilised to direct the research process in this study. The CRISP-DM methodology comprises the subsequent six phases:

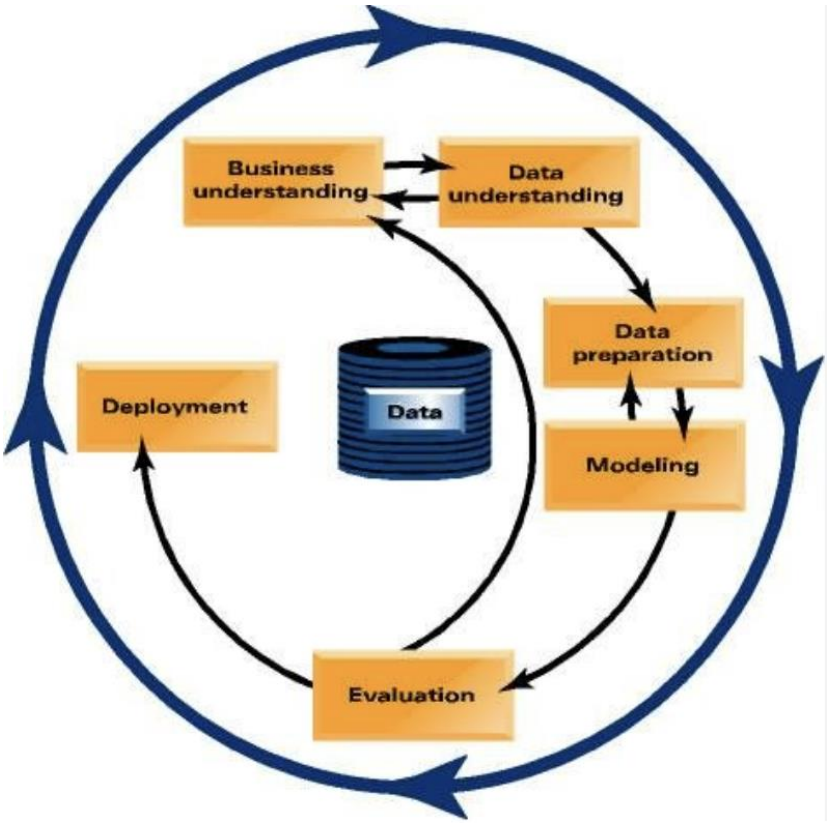


Figure 1: CRISP-DM diagram

2.1 Business Understanding

Understanding the project's goals and requirements from a business standpoint is the main goal of this first stage. It include figuring out the project's objectives, success criteria, and major business issues. Project stakeholders are consulted at this phase to get their opinions and expectations. Establishing the company objectives, evaluating the existing state of affairs, determining the data mining objectives, and creating an extensive project plan are primary responsibilities. By ensuring that the data mining activities are in line with the company strategy and objectives, this phase lays the groundwork for the whole project.

2.2 Data Understanding

Understanding the project's accessible data becomes the main emphasis of this phase. Through a variety of exploratory tasks, the first data is gathered and familiarised with. Data description, which involves analysing the data to understand its structure and content, data exploration, which involves using statistical and visualisation techniques to find patterns and relationships in the data,

and data quality verification, which involves evaluating the data for completeness, consistency, and accuracy, are the main tasks. Before conducting any more analysis, this step aids in detecting any problems with the quality of the data.

2.3 Data Preparation

In this stage, the raw data is processed and formatted so that it can be analysed. This stage usually takes the longest since it calls for careful data processing. Data integration, which combines data from various sources into a cohesive dataset, data transformation, which entails normalising and aggregating data to create new variables or features, and data reduction, which eliminates unnecessary or redundant data to simplify the analysis, are the primary tasks. Data cleaning, on the other hand, entails removing or correcting erroneous data and handling missing values. This phase's objective is to provide a top-notch dataset that can be applied to modelling successfully.

2.4 Modelling

Many modelling approaches are chosen and used on the prepared data during this stage. Building the models by applying the chosen modelling algorithms to the data, adjusting the model parameters to maximise performance, and choosing the best modelling algorithms based on the project objectives and data characteristics are the primary responsibilities. To determine which strategy works best, several models may be created and evaluated. During this stage, models' performance is evaluated using validation procedures to make sure they work well when applied to fresh data. Making dependable and accurate models that can offer insightful information is the main goal.

2.5 Evaluation

The validity and efficacy of the models that were developed in the previous phase are assessed during this stage. Examining the models in light of the established success criteria, confirming that the outcomes satisfy the company's goals, and recognising any possible problems or enhancements are the principal responsibilities. Using a variety of performance criteria, this step compares the model output to actual results in order to assess the model's efficacy. It might be required to go back and improve the data or modelling strategy at earlier stages if the models don't function well. Getting reliable models that offer insightful information for decision-making is the aim.

2.6 Deployment

Subsequently, the models are put into practice and stakeholders are presented with the results. To communicate the results to stakeholders, the primary responsibilities involve deploying the models into a production environment for continuous analysis, producing reports and visualisations, and developing dashboards or other tools to help decision-makers apply the insights. During this stage, it is made sure that the learnings and suggestions from the data mining procedure are properly shared and applied to advancement the company. Together with making any necessary improvements, it also entails keeping an eye on deployed models to make sure they keep performing properly over time.

3.0 Business Intelligence System

3.1 Introduction to Business Intelligence System

The processes, tools, and technology used to convert unstructured data into useful insights for efficient corporate operations are collectively referred to as business intelligence (BI) (OLAP.com, 2021). By promoting fact-based decision-making based on historical data, it promotes tactical, strategic, and operational choices (Gurjar, 2021). Given that 59% of companies prioritise "better decision making," which improves customer satisfaction, staff satisfaction, and data-driven efficiency, business intelligence is essential (Yell, 2013; Tabesh, 2021). BI systems enhance operational effectiveness and strategic decision-making by combining data from several sources and displaying it through reports, dashboards, and visualisations (Gurjar, 2021; OLAP.com, 2021). In today's data-centric economy, business intelligence (BI) provides advantages over competitors and propels success (Tabesh, 2021).

3.2 Different types of Business Intelligence (BI) tools

In the process of transforming unprocessed data into practical and implementable insights, Business Intelligence (BI) tools are essential. The discipline employs a multitude of instruments, each of which offers unique functionalities and characteristics. Power BI, Tableau, Microsoft Visual Studio, and SQL Server Management Studio, four of the most prominent BI products, are discussed in this article.

3.2.1 Power BI

Using information from databases, web services, and spreadsheets, users may generate dynamic reports and dashboards with Microsoft's robust BI tool, Power BI. Together with a collection of pre-made images and the option to generate bespoke ones, it enables a variety of visualisations, including charts, graphs, and maps. When it comes to organisations utilising Microsoft's ecosystem, one of its main advantages is that it integrates seamlessly with other Microsoft products like Excel, SQL Server, and Azure (Microsoft, 2021).

3.2.2 Tableau

Another popular BI application that is well-known for its potent data visualization features is Tableau. It converts data into interactive, shareable dashboards that make data easier to view and comprehend for consumers. Without requiring in-depth technical expertise, creating sophisticated visualizations is simple using Tableau's drag-and-drop interface. It offers real-time data analytics and allows users to construct live dashboards. It can link to many data sources, such as databases, spreadsheets, and cloud services. Moreover, Tableau offers Tableau Server and Tableau Online to enable sharing and user collaboration. Tableau is a great option for companies who value data exploration and visualization because of its user-friendly interface and strong visualization features (Tableau, 2021).

3.2.3 Microsoft Visual Studio

Microsoft Visual Studio is an integrated development environment (IDE) used for creating computer programmes, websites, online applications, web services, and mobile apps. Additionally, it includes tools for business intelligence and data analysis. Visual Studio provides a wide range of tools for the creation, distribution, and troubleshooting of programmes. The SQL Server suite includes SQL Server Integration Services (SSIS) for integrating data and workflow applications, SQL Server Analysis Services (SSAS) for online analytical processing (OLAP) and data mining, and SQL Server Reporting Services (SSRS) for creating, managing, and delivering reports. Visual Studio primarily serves as a programming tool. However, its strong business intelligence (BI) capabilities make it suitable for developers that need to include BI elements into their applications (Microsoft, 2021).

3.2.4 SQL Server Management

SQL Server Management Studio (SSMS) is a software programme developed by Microsoft for the purpose of configuring, managing, and administering all components inside Microsoft SQL Server. SSMS offers a wide range of tools for managing databases, such as composing, executing, and optimising queries. It smoothly combines with SQL Server, providing tools for database design, development, and management. SSMS offers powerful security management capabilities for managing user rights and responsibilities, as well as tools for monitoring and optimising the performance of SQL Server databases. SSMS is a crucial tool for database administrators and developers that deal with SQL Server. It offers a centralised interface for administering and communicating with SQL Server databases, guaranteeing efficient and safe database operations (Microsoft, 2021).

4.0 Business Intelligence Solution (BI Solution)

4.1 Data Source

A number of tables are present in the Fusion Bikes database, which has been published to Microsoft SQL Server Management Studio. These tables will be used to generate cubes and conduct analyses. These tables consist of the following: Customers, Orders, Products, Employees, Suppliers, Categories, OrderDetails, Shippers, and Territories. The specific information contained in each table is essential for the generation of insights and visualisations, which in turn facilitate strategic decision-making and business performance evaluation.

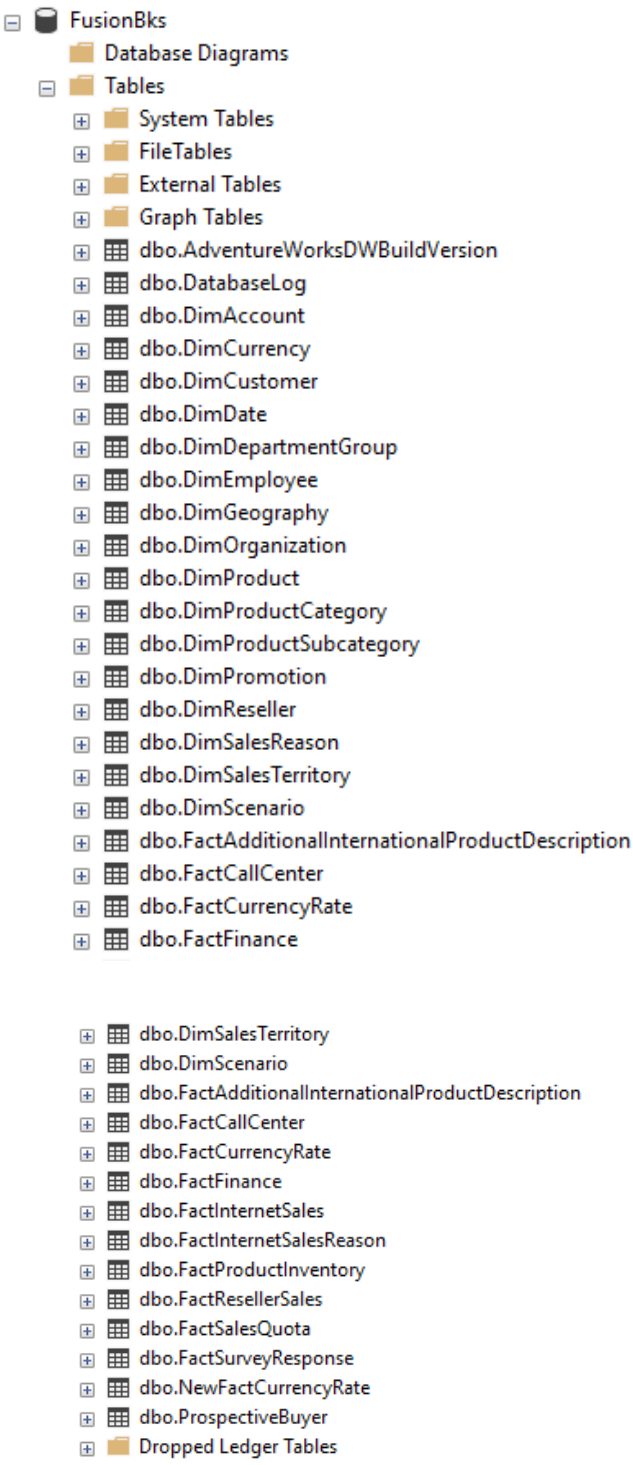


Figure 2: Figure of Data Source

For this specific undertaking, 12 tables have been chosen from the data source's available tables. The metadata necessary for analysis is presented in these tables in a combined and unified manner. DimDate, FactResellerSales, DimPromotion, DimCustomer, DimProduct, DimSalesTerritory,

DimEmployee, FactInternetSales, DimProductCategory, DimProductSubCategory, DimGeography, and DimReseller are the specified tables. These tables are selected in accordance with the business objectives and provide the requisite information for the development of cubes and the visualization of the relationships between the necessary tables.

4.2 Cube Structure

Cubes are crucial for data analysis, serving as the primary platform for conducting all analytics. Cubes may be seen as the structural basis for doing data analysis. When building a cube, it is customary to choose the Measure tables first, and then proceed with the supporting Dimension tables. The Measure Tables in the Fusion Bikes BI solution are shown by the yellow tables in the cube structure. The characteristics of measure tables are defined by quantitative values. The measure tables used for this particular solution are 'FastInternetSales' and 'FastResellerSales'. The diagram below depicts the characteristics of these tables, which provide a thorough summary of the data to be analysed.

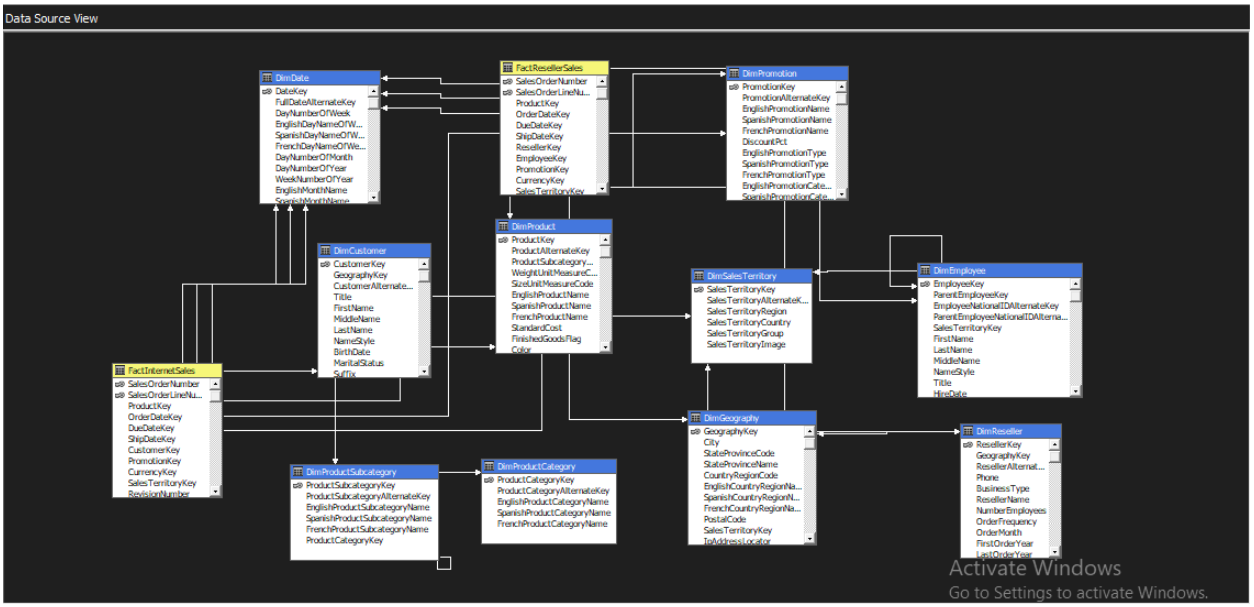


Figure 3: Cube Structure for Data Source View

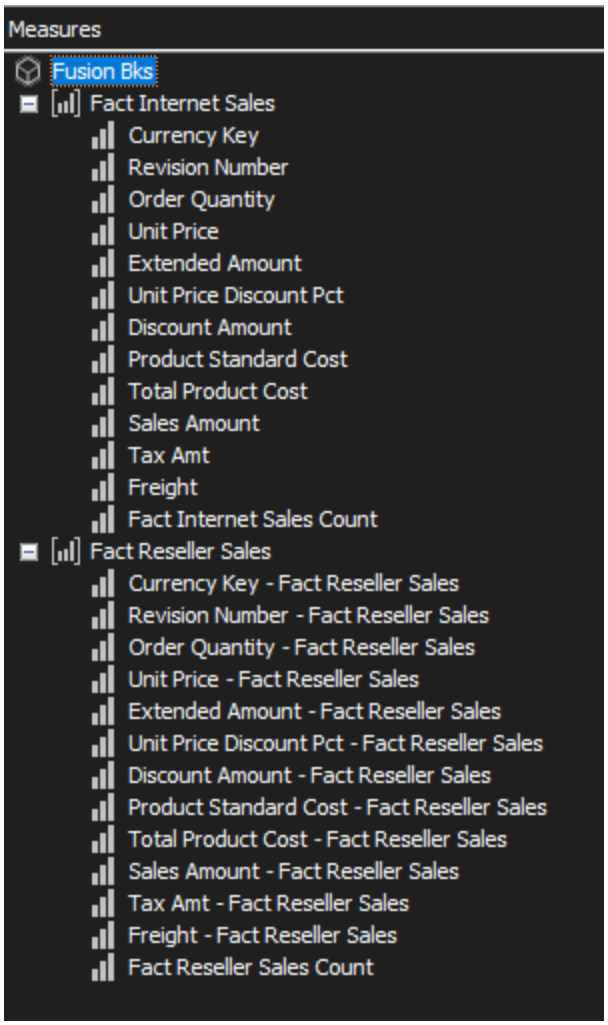


Figure 4: Measure Tables Attributes

4.3 Dimensions

The selected tables for visualisation are shown in Dimensions, which are essential for organising and categorising data in Business Intelligence (BI) systems. The attributes required for visualisation in this context are Dim Date, Dim Product, Dim Reseller, Dim Employee, Dim Customer, Dim Promotion, Order Date, Ship Date, Dim Customer - Sales Territory, Dim Employee - Sales Territory, Dim Reseller - Sales Territory, and Dim Sales Territory. Every dimension is essential in offering a thorough perspective of the facts for Fusion Bike Corporation. The diagram below depicts the dimensions used and provides more details on their significance in the business intelligence (BI) solution.

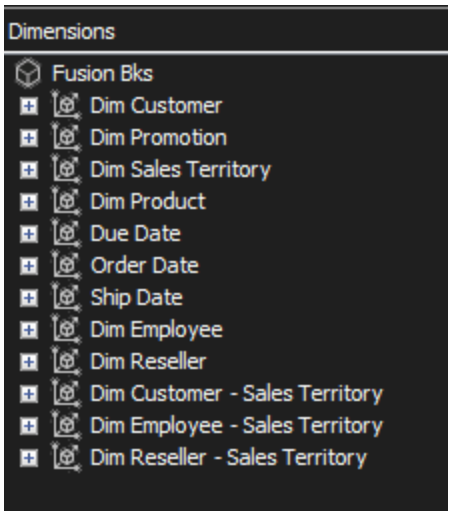


Figure 5: Figure of Dimensions

4.3.1 Dim Customer

The figures below show Data Source View and Dim Customer table characteristics. These parameters include Gender, Email Address, Yearly Income, and others dependent on project needs. The Dim Customer table analyses Fusion Bikes Corporation workers' performance based on product sales. It shows which gender sold the most and least things and helps assess the workforce's performance.

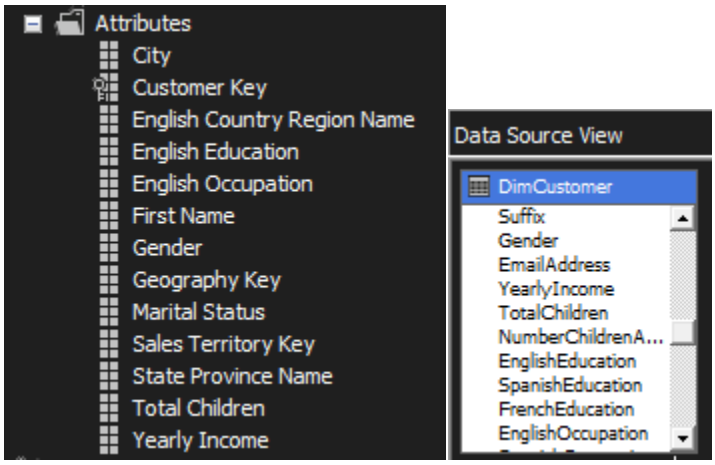


Figure 6: Dim Customer table

4.3.2 Dim Promotion

The following figures show the characteristics of the Data Source View and Dim Promotion table. These properties include English Promotion Name, Type, End Date, Maximum and Minimum Quantity, and others dependent on project needs. The Dim Promotion chart evaluates Fusion Bikes Corporation workers based on their sales. It shows which workers performed best and worst based on promotion-related criteria, helping companies evaluate promotional methods.

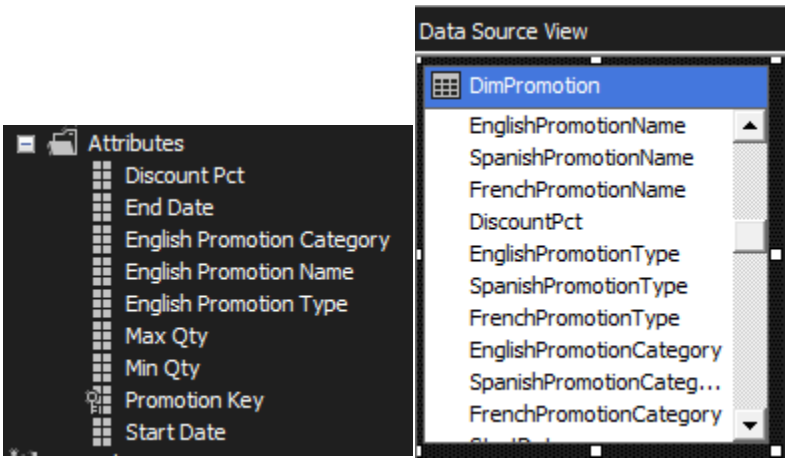


Figure 7: Dim Promotion table

4.3.3 Dim Sales Territory

The attributes selected from the Dim Sales Territory table and the Data Source View are illustrated in the following figures. These attributes may include Sales Territory Country, Sales Territory Region, and other components, contingent upon the project's specifications. The Dim Sales Territory table is employed to identify the geographic market of Fusion Bikes Corporation by country, region, and group. A more comprehensive understanding of the company's market reach and performance in various geographic regions, as well as insights into the sales distribution, are provided.

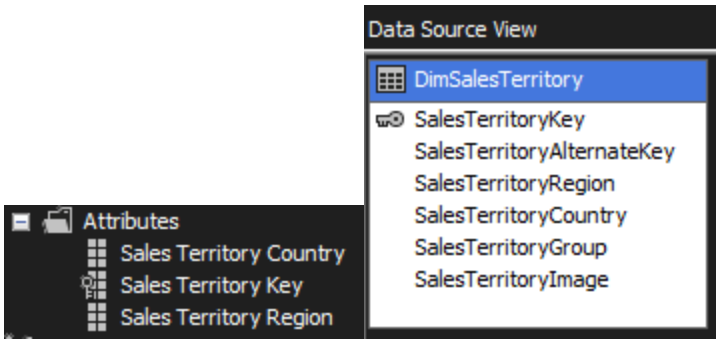


Figure 8: Dim Sales Territory table

4.3.4 Dim Product

The Data Source View and the specific characteristics selected from the Dim Product table are illustrated in the subsequent graphics. Product Name, Product Category, Product Subcategory, Model Name, and other characteristics were chosen in accordance with the project's specifications. The Dim Product table is employed to assess the success of Fusion Bikes Corporation by concentrating on the items that have been sold. It enhances the understanding of the company's product performance by providing valuable information on the top-performing and underperforming models.

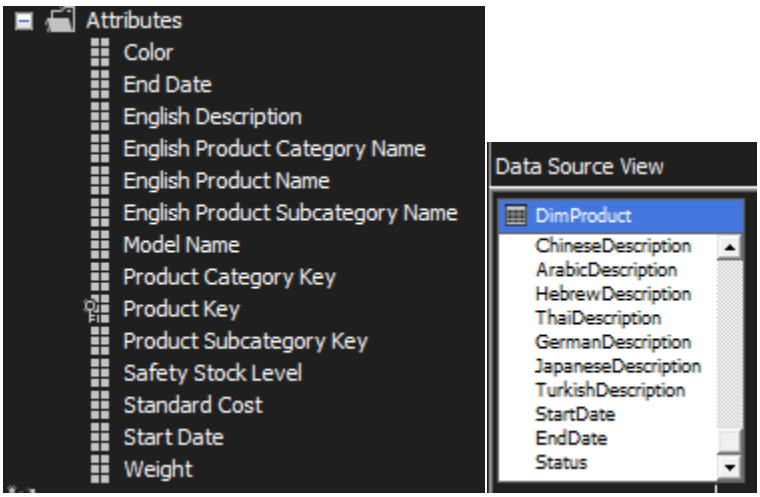


Figure 9: Dim Product table

4.3.5 Dim Date

The following figures illustrate the Data Source View and the attributes that were selected from the Dim Date table. The following attributes have been chosen in accordance with the project's specifications: Calendar Year, Date Key, English Day Name of the Week, Month Name, and Fiscal Year. The Dim Date table is implemented to assess Fusion Bikes Corporation's performance over a diverse range of years and months, thereby providing valuable insights into the organization's trajectory.

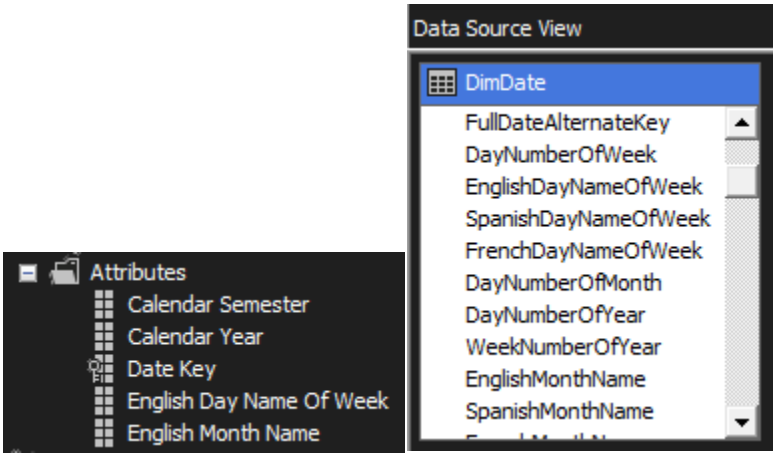


Figure 10: Dim Date table

4.3.6 Dim Employee

The figures below show Data Source View and Dim Employee table properties. These qualities include First Name, Gender, Last Name, Status, and others dependent on project needs. Based on product sales, the Dim Employee table evaluates Fusion Bikes Corporation workers. It shows which gender sold most and least things and helps assess the workforce's performance.

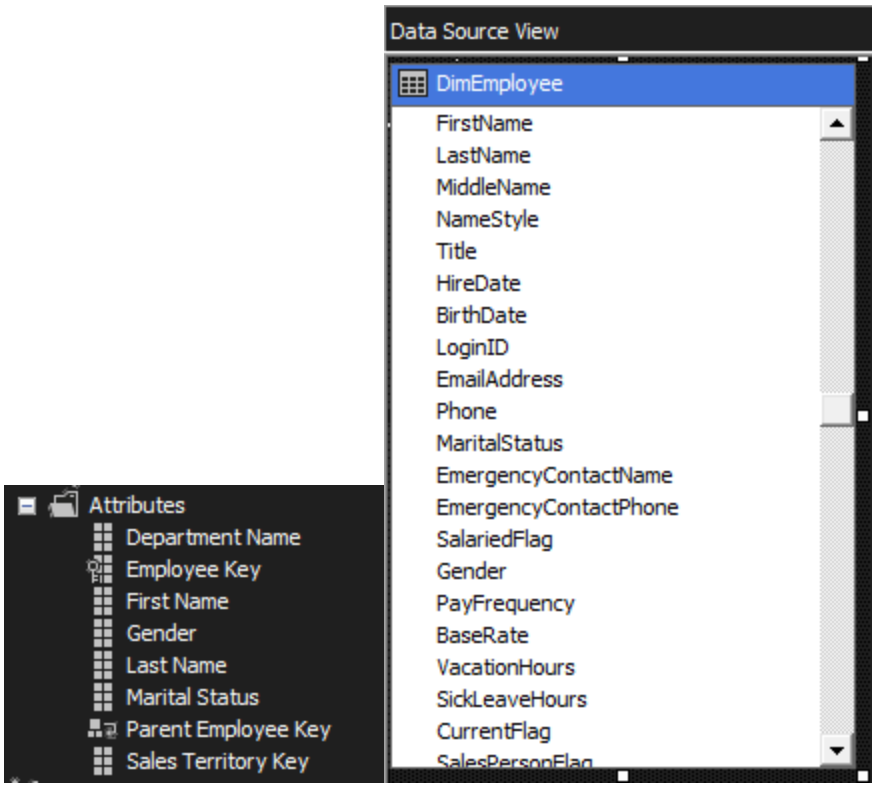


Figure 11: Dim Employee table

4.3.7 Dim Reseller

The following figures illustrate the attributes and Data Source View that were selected from the Dim Reseller table. The project's specifications dictate the selection of annual sales, annual revenue, country region, and other attributes. The Dim Reseller table, which is derived from the products sold to Fusion Bikes Corporation's resellers, is used to evaluate the company's performance. The company's annual revenue and sales are disclosed, which enables the visualisation of their market performance.

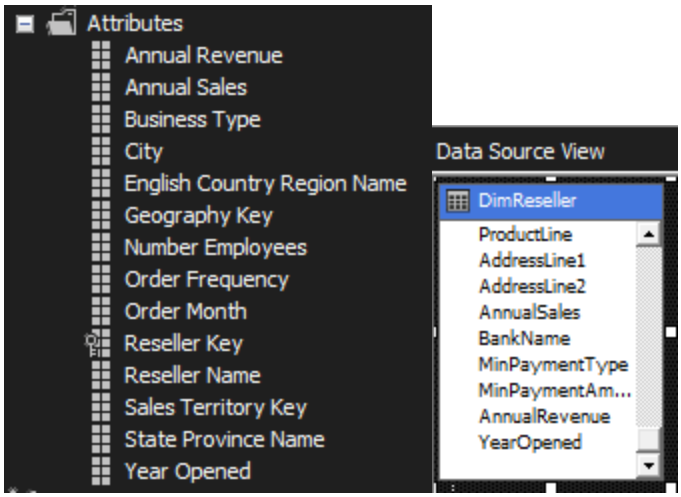


Figure 12: Dim Reseller table

4.4 MDX Calculation

An MDX query was used to generate a multidimensional cube for calculating the total sales amount. This was accomplished by combining the Internet Sales Amount with the Reseller Sales Amount. This query efficiently combines data, providing useful insights into the overall sales performance of Fusion Bikes Corporation.

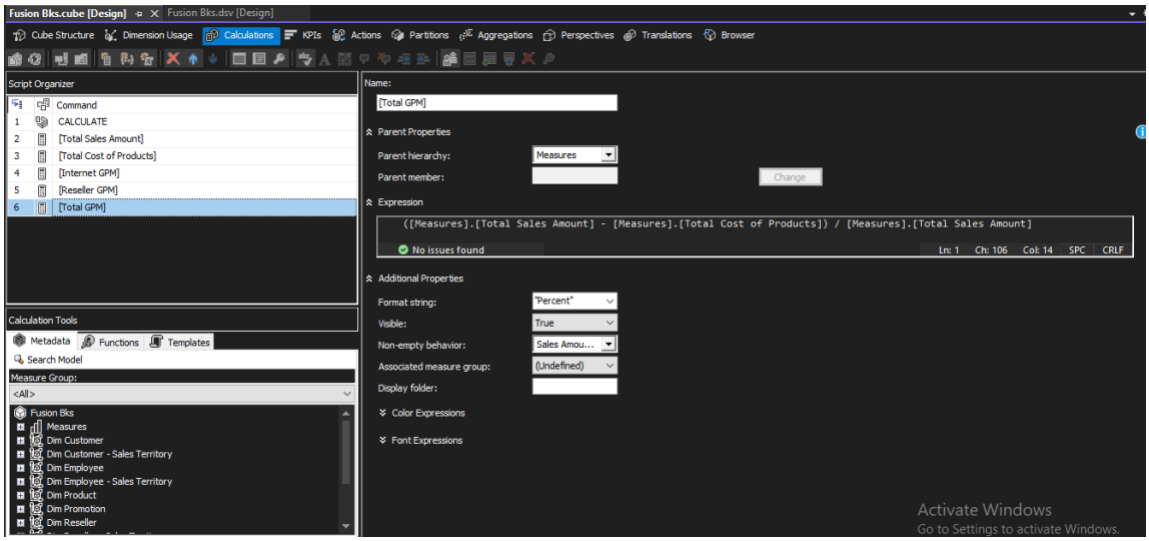


Figure 13: Implementation of MDX Query

After creating the data source view, cube structure, dimensions, and MDX Query, the project should be built and deployed.

5.0 Business Intelligence Report (Analysis)

It was evident that Fusion Bikes Corporation sells their products in two distinct methods, with the majority of them being bicycles, after analyzing the report and reviewing the company's information. The two methods are reselling and retailing online through the internet.

5.1 Report-1 (Top Sales Report)

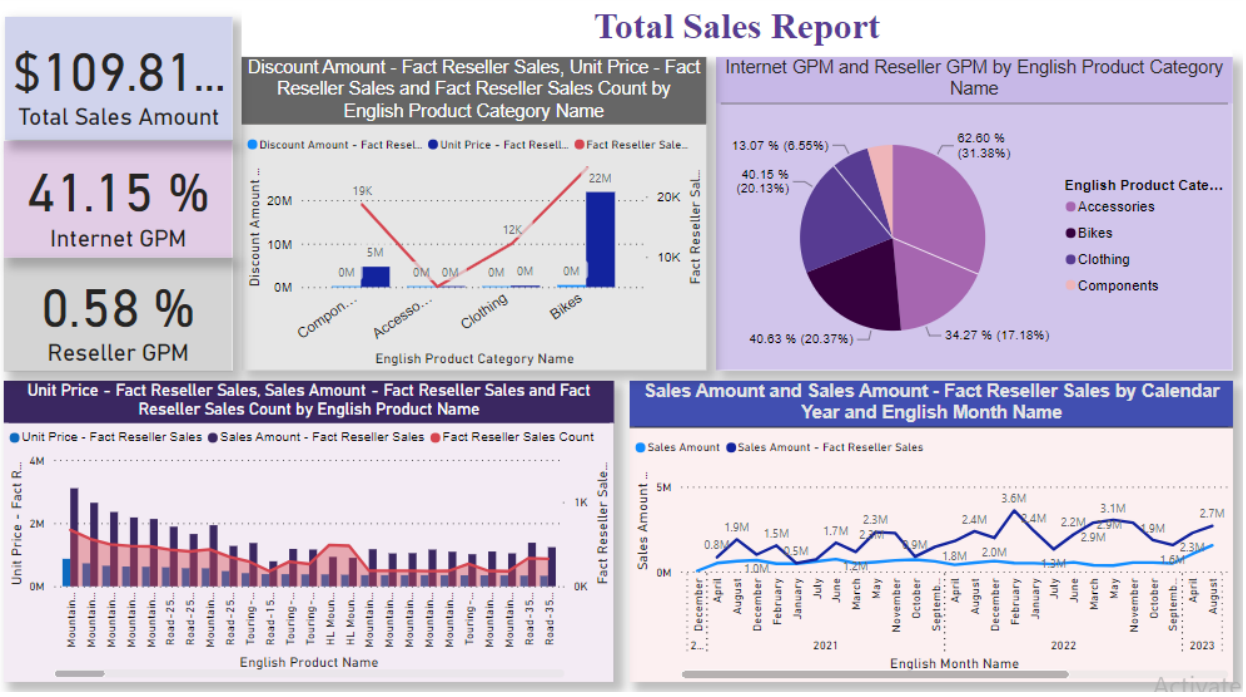
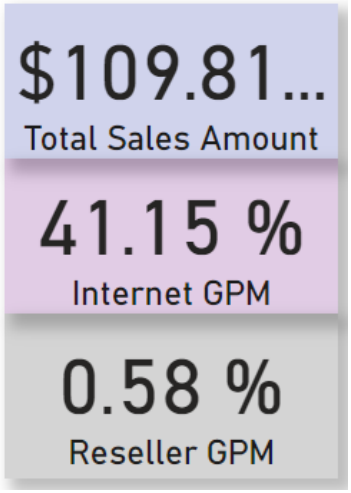
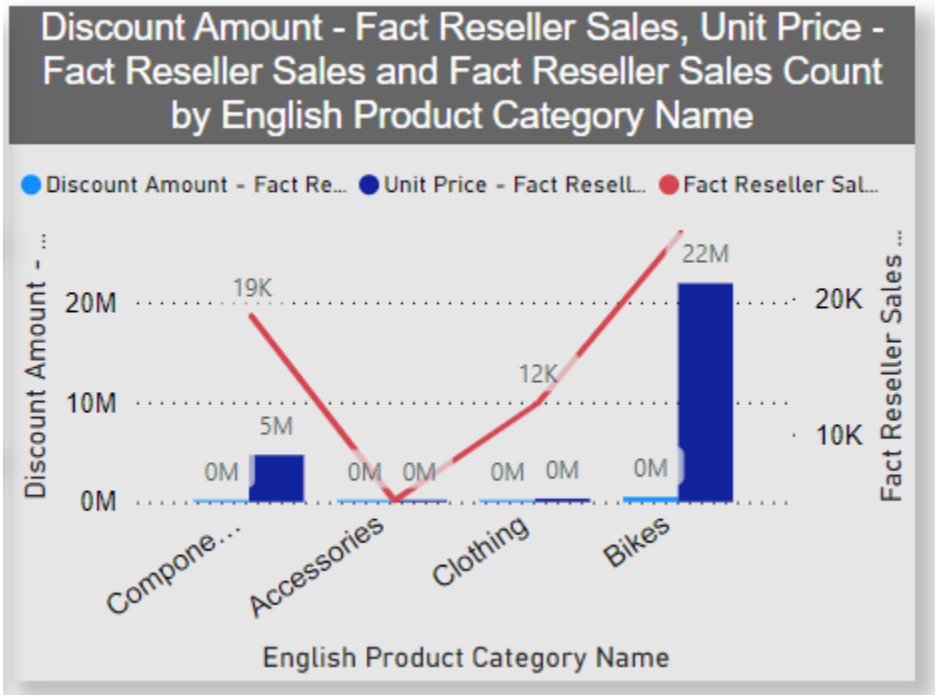


Figure 14: Dashboard 1 (Top Sales Report)

Following a study of the Total Sales Report, Fusion Bikes Corporation should concentrate on streamlining marketing tactics and inventories for high-grossing items like bikes. It should also enhance reseller performance by offering more incentives and assistance. Improved visibility and focused advertising may also increase sales in weak areas like components and accessories. While using data analytics and customer segmentation to drive personalised marketing efforts and improve overall sales performance and operational efficiency, seasonal sales trends analysis may help shape efficient sales tactics.



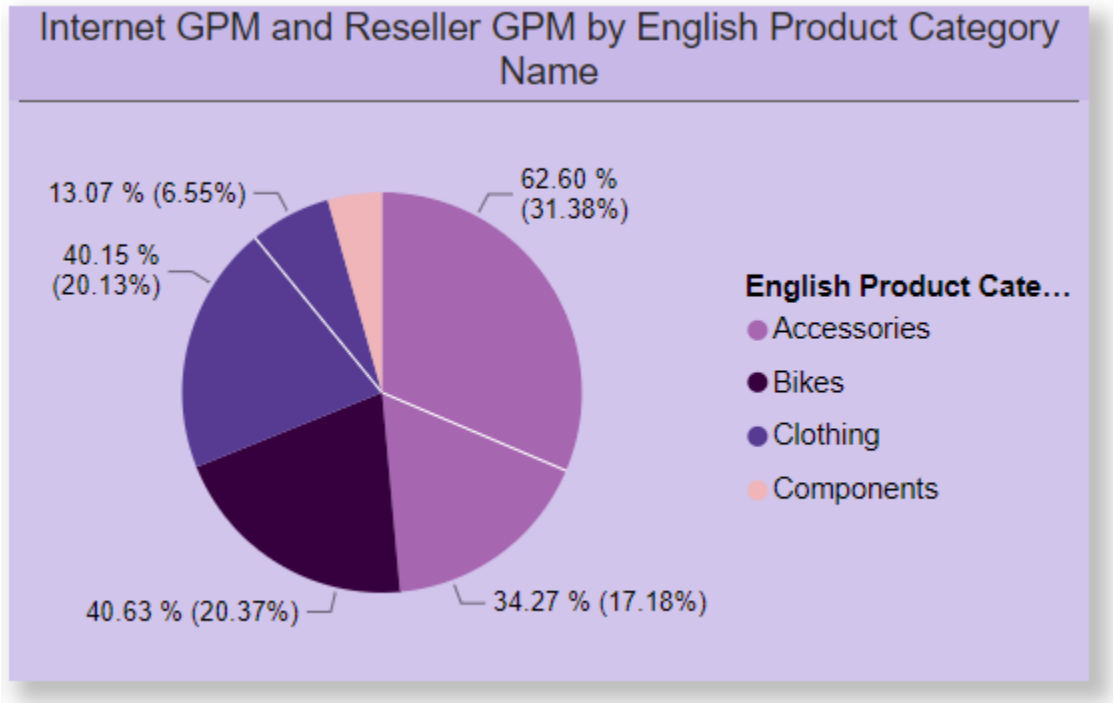
The chart shows the total sales amount, internet gross profit margin (GPM), and reseller GPM of a company.

- The total sales amount is $109.81.
- The global penetration rate of the internet is 41.15%.
- The reseller's gross profit margin (GPM) is 0.58%.
- 

The graph displays the discount amount, fact reseller sales, unit price, and fact reseller sales count by the English name of the product category. The red line suggests that the discount value exceeds

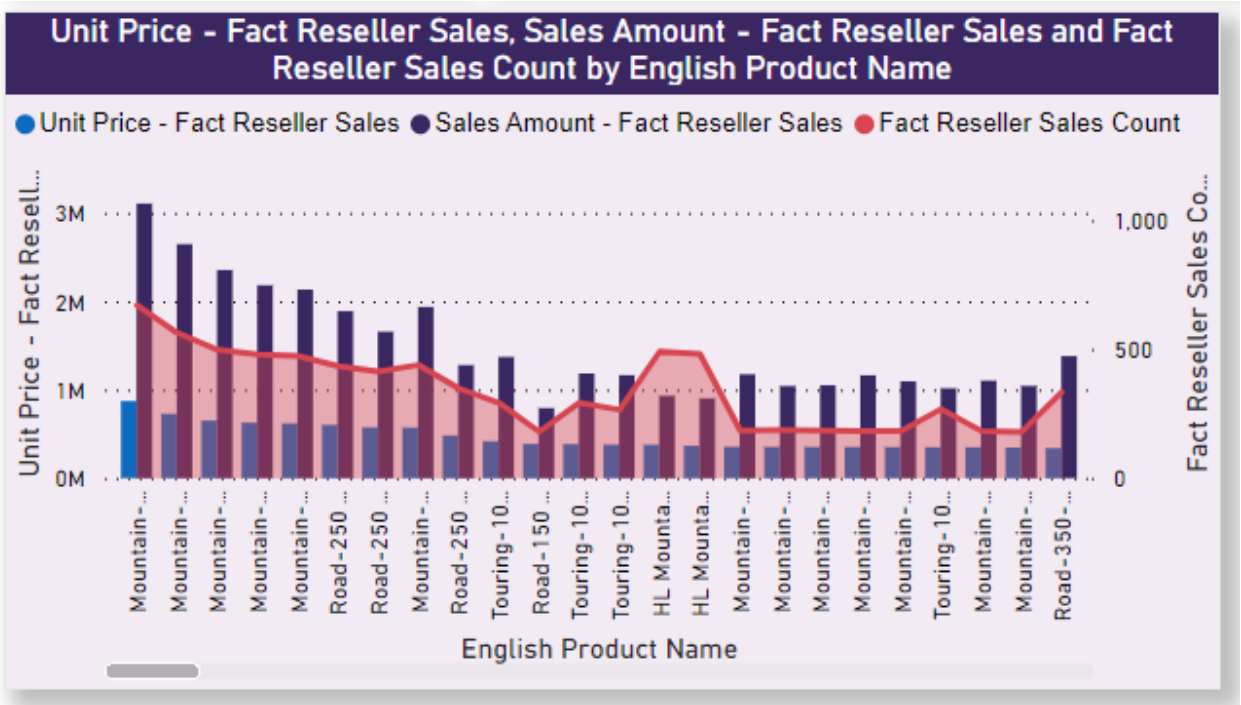
the actual reseller sales for the majority of categories. This implies that the low sales of resellers occur.

I would suggest that conduct an analysis of the product categories that have low sales volume and high discounts in order to predict future sales. The company may wish to think about reducing the discounts for these categories or removing them from its product offerings entirely.



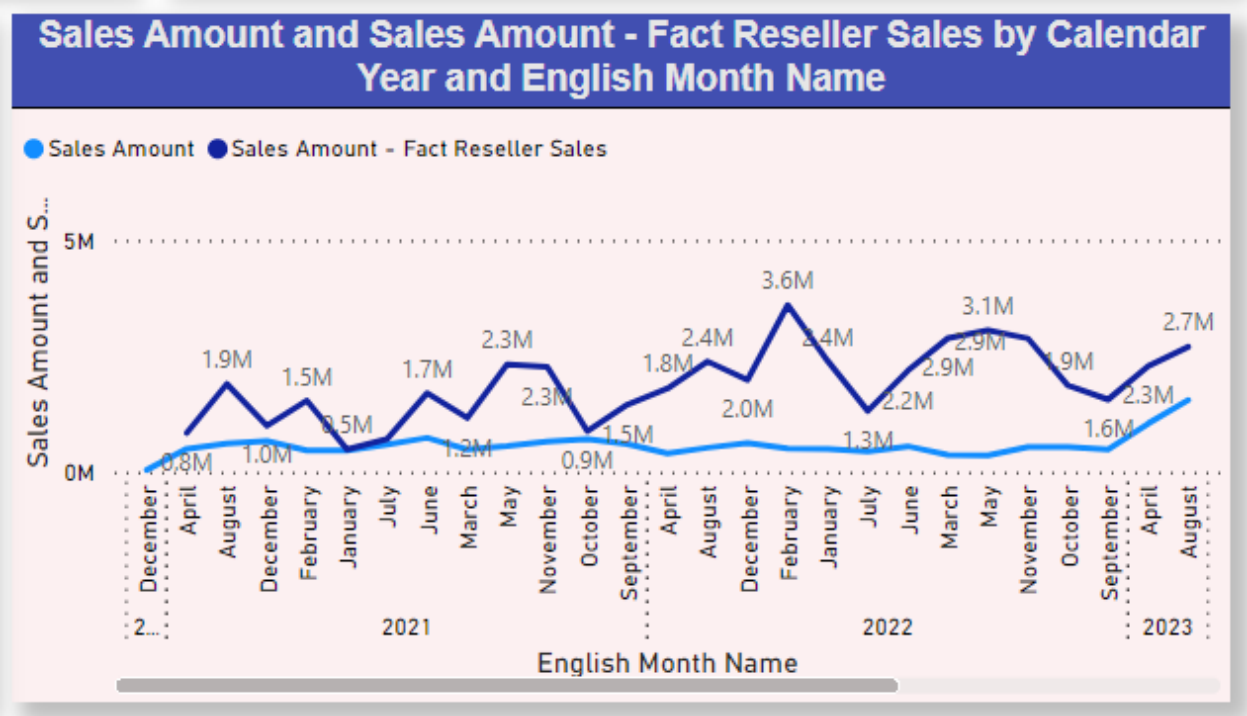
The pie chart illustrates the distribution of internet GPM (gross profit margin) and reseller GPM by English product category. Compared to the reseller GPM, the internet GPM is considerably higher (62.60% vs. 34.27%). This implies that the company generates a significantly higher profit margin by selling products directly through the internet than through resellers.

To make more money in the future, the business might want to think about putting more effort into promoting and selling things online. Plus, they could look into why the buyer GPM is so much smaller and find ways to make it better, like getting better deals with resellers.



By English product name, the chart shows the unit price, sales amount, and sales count. It looks like a small part of a bigger graph that probably shows this information for many items. From this small piece, though, it's not possible to see any trends or guess what will happen with sales in the future.

This could show similarities between different types of products or time periods in future visualisations. These changes would help us learn more about which goods sell well and at what prices. You could also divide the data into groups based on things like vendor or area to find big differences.



The line shows the number of sales and the number of sales minus the number of fact reseller sales for each English month and year. Over the course of three years, it seems to keep track of both total sales and sales from resellers. The most active sales months are May 2021 with a total of 2.3 million, February 2022 with a total of 3.6 million, and February 2023 with a total of 4.2 million. It looks like reseller sales are smaller and more stable throughout the year.

The company could potentially benefit from incorporating a breakdown of total sales by reseller in the future. This would enable them to determine which resellers are performing well and which ones may require additional assistance. Furthermore, reseller sales could be beneficially segmented by product category to determine whether specific products are more prevalent through reseller channels.

5.2 Report-2 (Top Internet Sales Report)

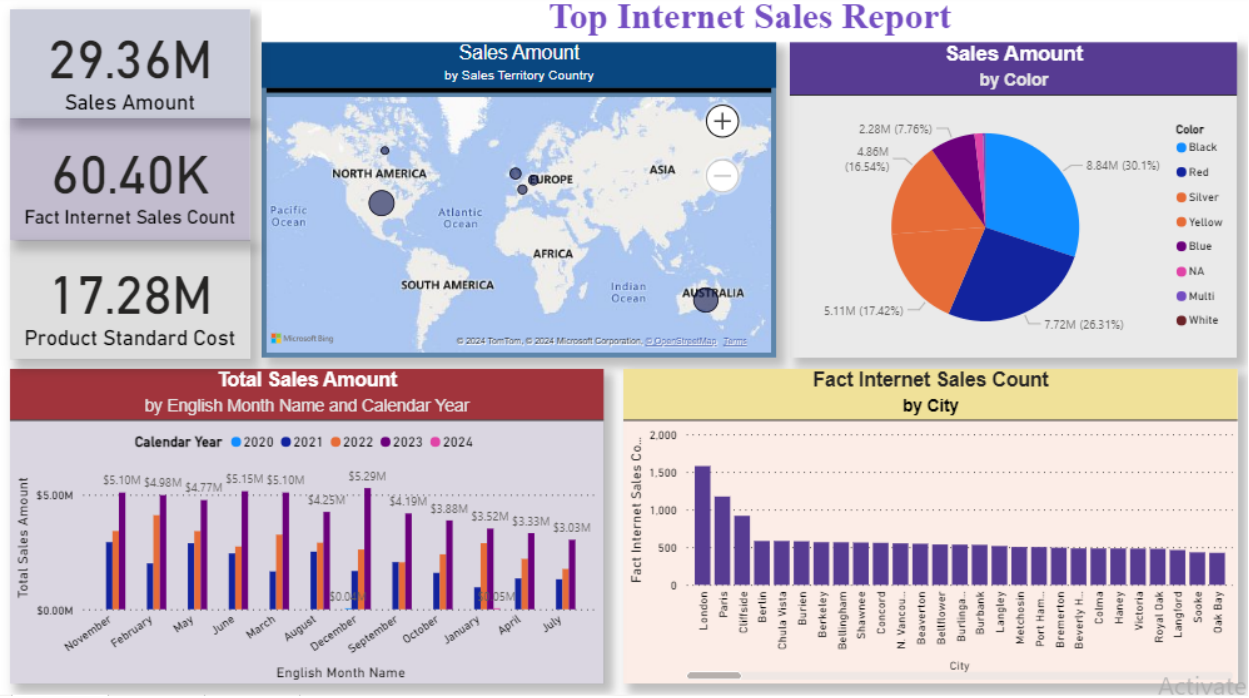
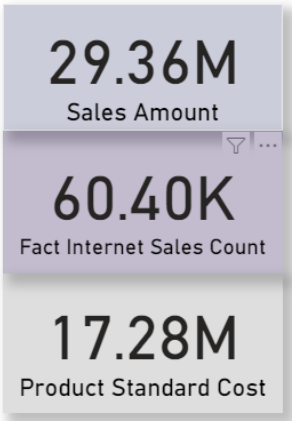


Figure 15: Top Internet Sales Report

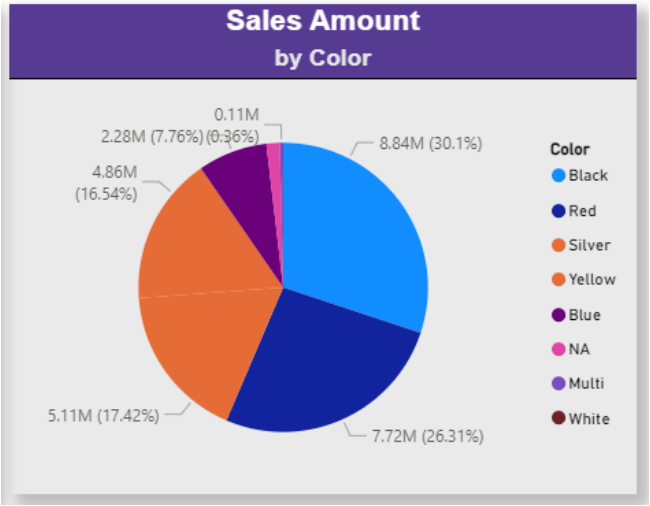
According to the Top Internet Sales Report, Fusion Bikes Corporation should concentrate on improving their online visibility in locations with strong sales volumes, such as London, and look into unrealized opportunities in lower sales areas. Sales may be increased by expanding the product's colour selection and highlighting well-liked hues like red and blue. Moreover, seasonal patterns may be watched to maximise inventory control and marketing initiatives. Last but not least, extending focused marketing initiatives into high-potential areas like North America and Europe will help increase sales and market penetration.



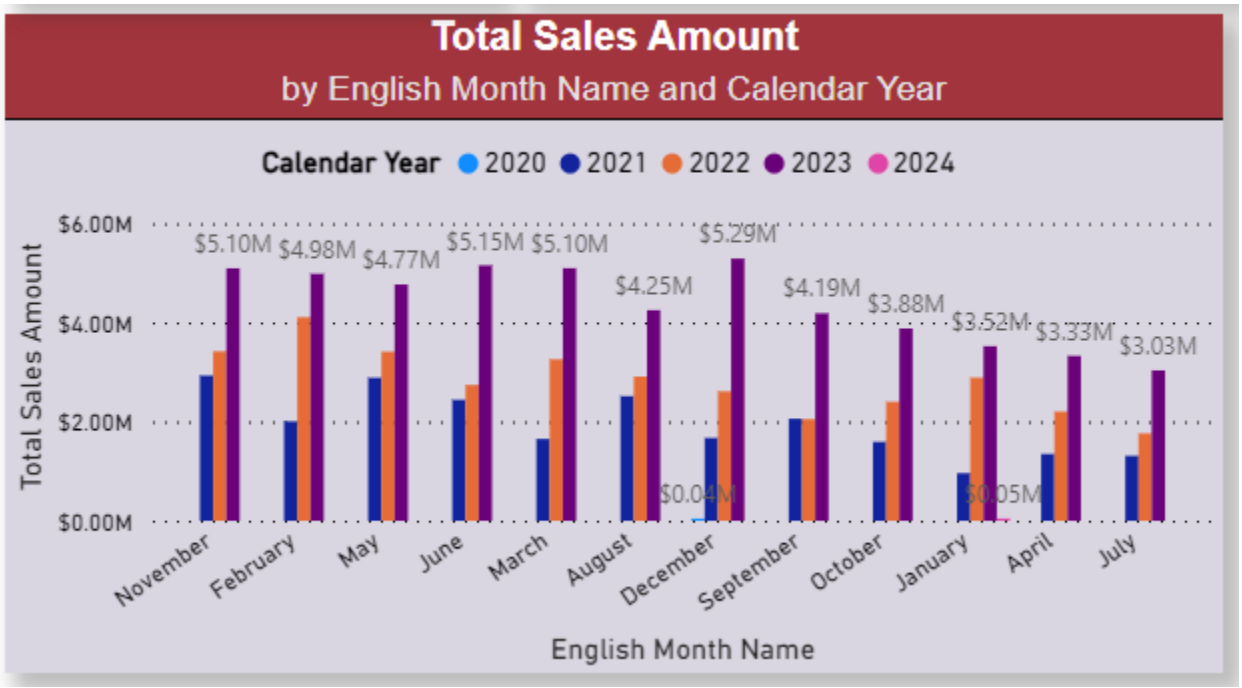
The chart shows the sales amount, fact internet sales count, and product standard cost of a product.

- The total sales amount is $29.36 million.
- There were 60,400 internet sales.
- The product standard cost is $17.28 million.

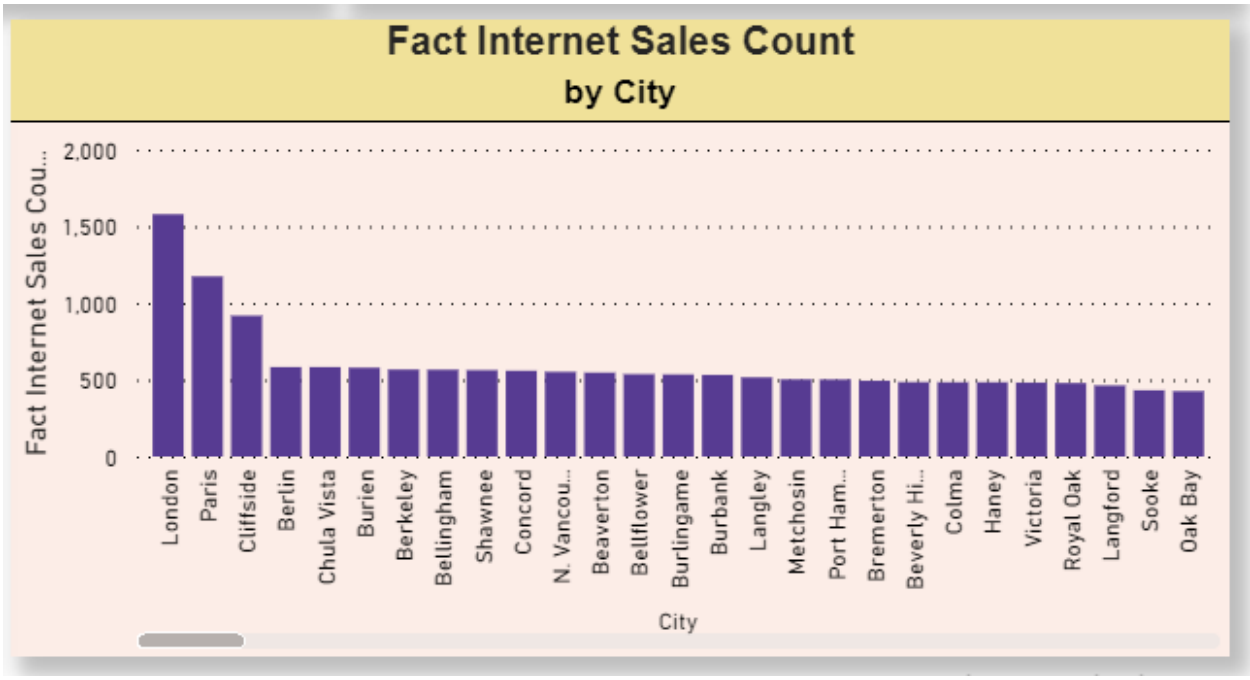
The globe map with the caption "Sales Amount by Sales Territory Country" is the one you supplied. It looks like a dashboard for sales performance that displays sales data for several nations. Businesses may find this kind of visualisation helpful in tracking their sales across international borders.



The pie chart visually represents the sales amount via the use of different colours. Black is the biggest portion of the pie chart, accounting for 30.1% of the total sales ($8.84 million). Red comes in second with a share of 26.31%, or $7.72 million.



The figure is a bar graph that displays the total sales amount broken down by calendar year and English month name. The graph indicates that throughout the previous five years, we see that there is no sell in 2020 and 2024. The total sales amount has increased, rising from $0.95M million in January 2020 to $5.29 million in December 2023. There's also a seasonal regularity, with sales seeming to peak every year around November and December.

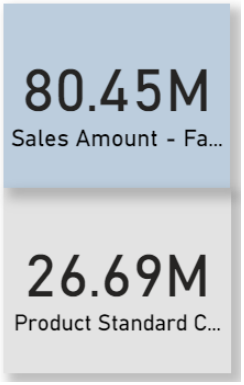


The chart is a bar graph that shows how many online sales there are in each US city. It looks like a small part of a bigger graph that probably shows this information for many places. We see that, London City had the most highest sales.

5.3 Report-3 (Top Reseller Sales Report)

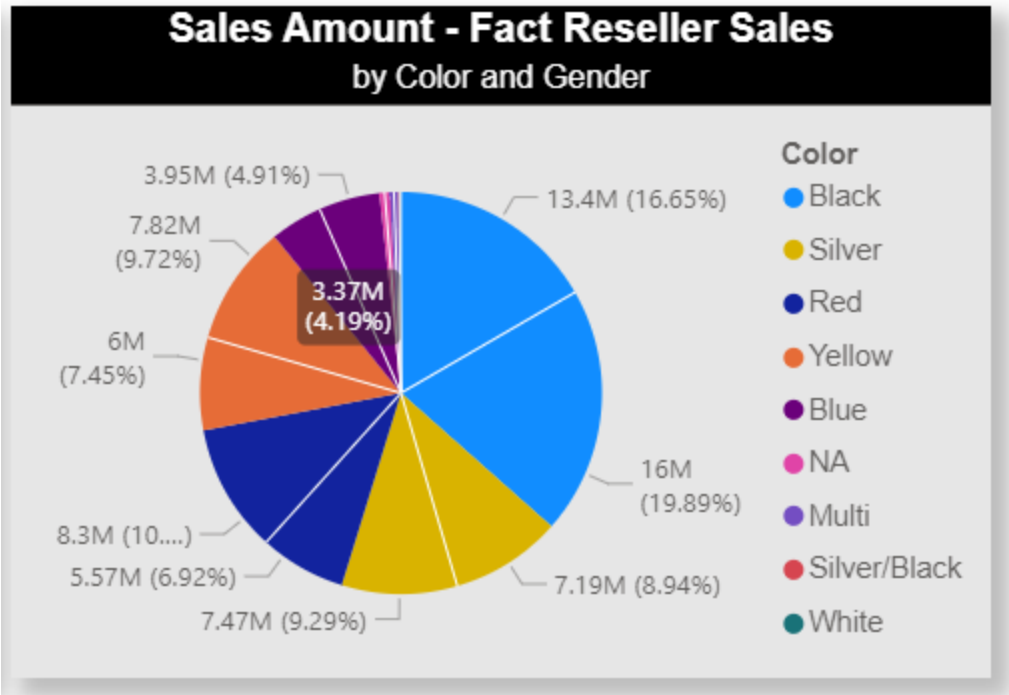
Figure 16: Top Reseller Sales Report

To identify high-performing areas and improve future reports, think about including a more thorough breakdown of sales by regions or nations. For improved pattern recognition, provide a line graph that displays sales trends over several years. Provide comprehensive product insights and end-user demographic data. Make distinctions across different sales channels to draw attention to variations in performance. To enable data filtering by categories like area, product category, or time, use interactive dashboards. Lastly, to support strategic planning, provide sales projections based on previous performance and market trends. Reports will become more informative and useful because of these enhancements.



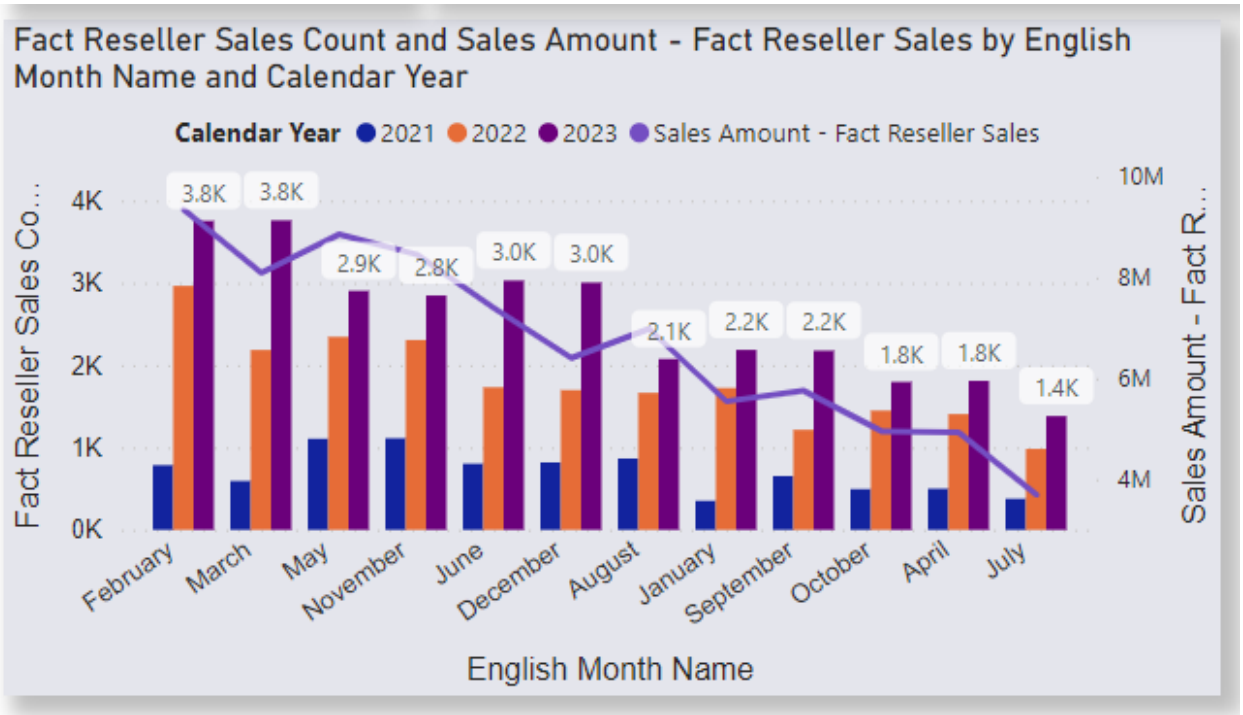
This map illustrates the transaction amount distribution across various regions for a reseller company. The blue circles' magnitude is indicative of the sales volume in the region, with larger circles indicating higher sales. Africa and Australia exhibit relatively reduced sales volumes, while North America, Europe, and portions of South America appear to account for the highest sales.

The company may wish to consider expanding its marketing and sales efforts in regions with smaller circle diameters, such as Africa and Australia, in order to increase its market share and access potentially underserved markets for future growth. In addition, analysing the factors that contribute to increased sales in their top-performing regions could offer valuable insights for the replication of successful strategies in other regions.



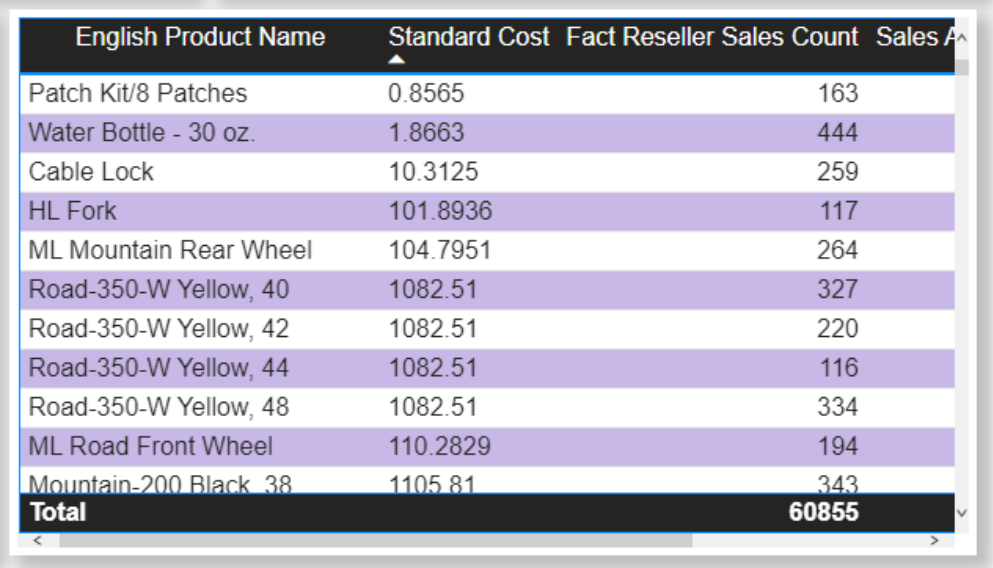
The sales amount for a reseller company is depicted in this pie chart, which is further broken down by product colour and gender demographics. The black-colored products comprise the largest portion, accounting for 16.65% of the total sales. The subsequent most popular colours are blue, red, yellow, and silver. In addition, there are product categories designated as "Multi," "Silver/Black," and "White."

The company could contemplate cross-referencing the colour data with other factors, such as pricing, marketing campaigns, or regional preferences, in order to conduct a more comprehensive analysis of sales performance. Furthermore, the collection of consumer feedback regarding colour preferences could be beneficial in guiding future product development and inventory decisions. In the future, it will be essential to continuously monitor and adjust to market trends in order to drive sales growth.



This graph illustrates the sales count (bars) and sales amount (line) of a reseller company from 2021 to 2023, segmented by the names of English months. The sales count seems to exhibit a cyclical pattern, with an apex near February or March and a low point in the summer months of July. The sales amount trend is generally consistent with the sales count, albeit with less severe fluctuations.

The company has the option of examining the factors that contribute to the observed seasonal trends in order to enhance its future sales performance. For example, are there particular product lines or marketing campaigns that are responsible for the holiday season spikes? Comprehending these variables could assist in devising strategies to maintain higher sales volumes throughout the year. Furthermore, the observed declines during the summer months could be alleviated by investigating strategies to increase sales, such as targeted promotions or new product introductions.



English Product Name	Standard Cost	Fact Reseller Sales Count	Sales A
Patch Kit/8 Patches	0.8565	163	
Water Bottle - 30 oz.	1.8663	444	
Cable Lock	10.3125	259	
HL Fork	101.8936	117	
ML Mountain Rear Wheel	104.7951	264	
Road-350-W Yellow, 40	1082.51	327	
Road-350-W Yellow, 42	1082.51	220	
Road-350-W Yellow, 44	1082.51	116	
Road-350-W Yellow, 48	1082.51	334	
ML Road Front Wheel	110.2829	194	
Mountain-200 Black, 38	1105.81	343	
Total		**60855**	

This image depicts a table that contains a diverse selection of products that are provided by a reseller company. It comprises the English product name, standard cost, sales count, and potentially sales amount (although the header is cut off). The products encompass a wide selection of items, including bicycle components such as wheels and forks, as well as more general items such as cable clamps and water bottles. The data enables the examination of inventory costs and sales performance across various product divisions.

5.4 Report-4 (Top Sales by Gender, Income, and Education)

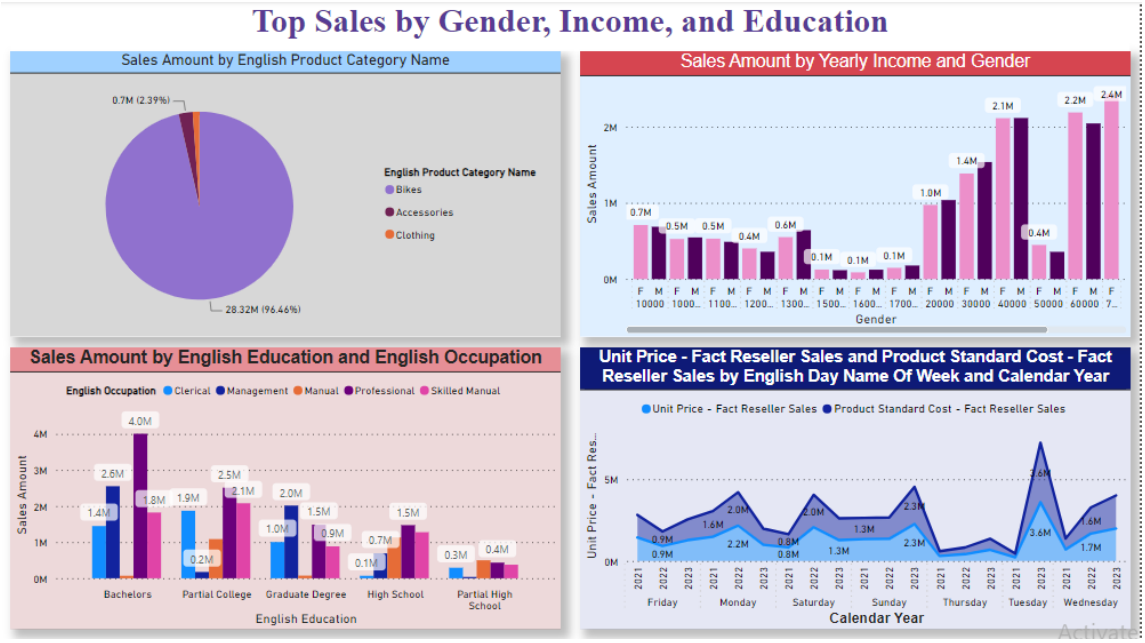
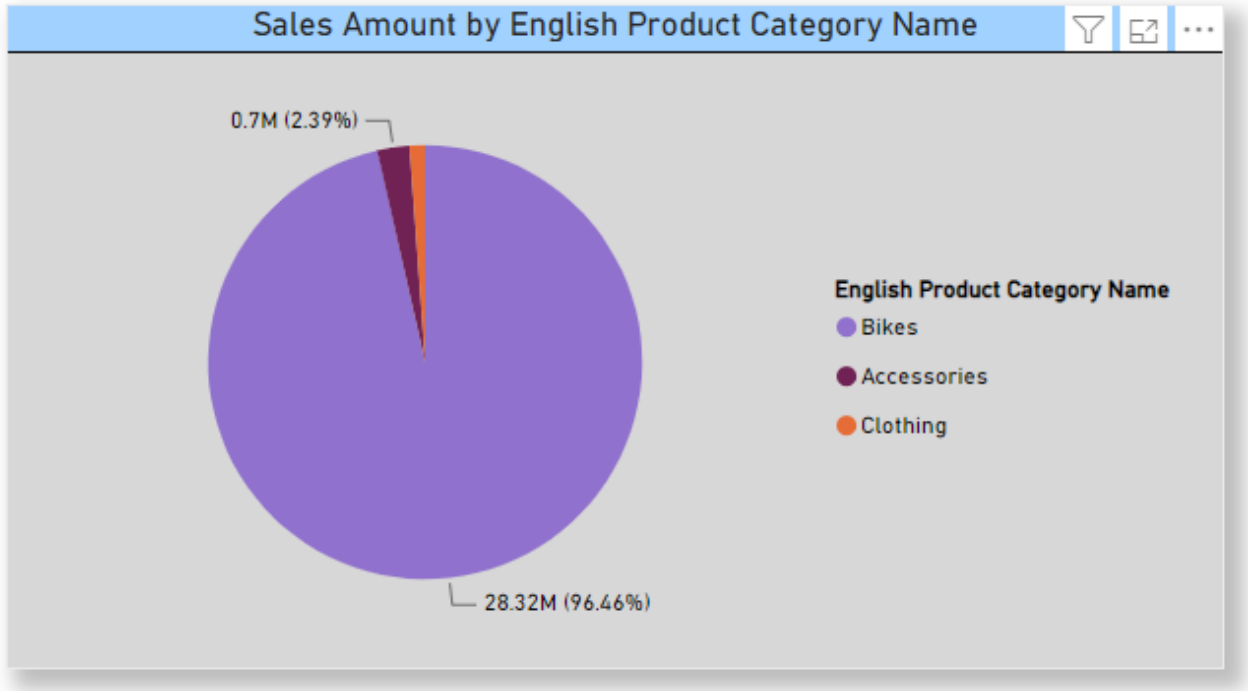


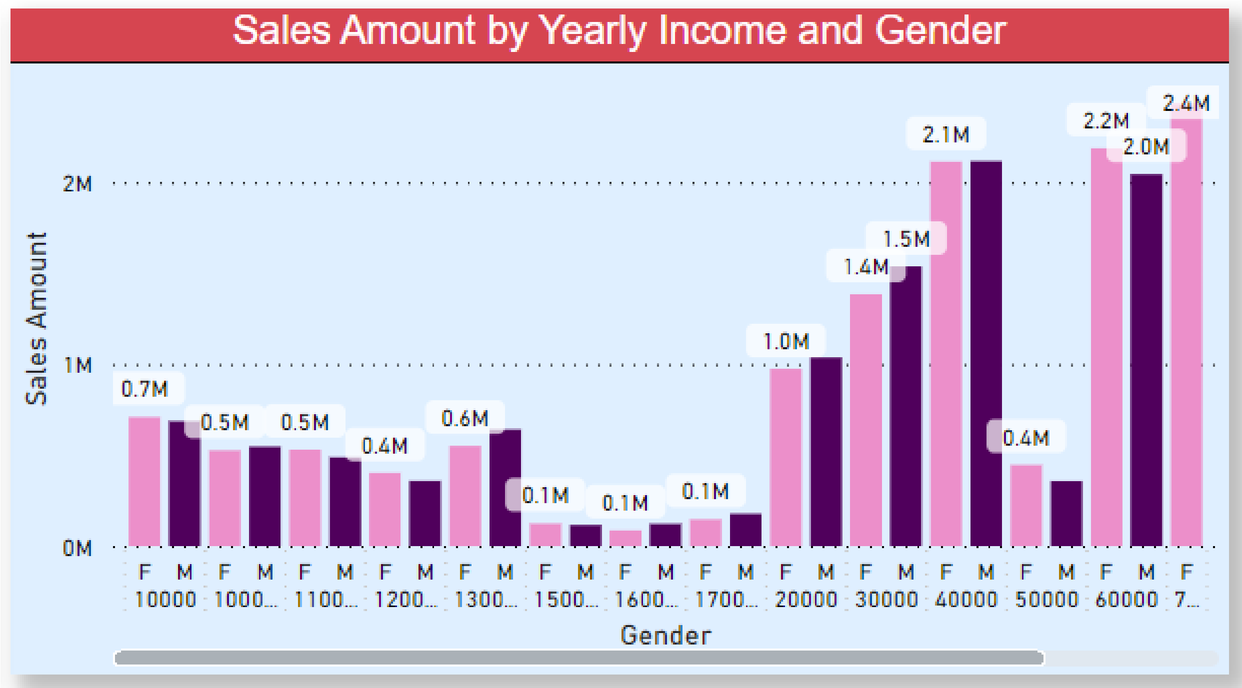
Figure 17: Top Sales by Gender, Income, and Education

To enhance future reports, consider providing a more granular breakdown of product categories and their sales contributions. Include comparative analysis between different education levels and occupations to identify specific high-performing segments. Incorporate demographic trends over multiple years for a clearer picture of long-term changes. Use interactive elements to allow filtering by income brackets, gender, and other demographics for more customized insights. Adding visual aids like heat maps or flow charts to show relationships and trends between variables can also be beneficial. Finally, integrate predictive analytics to forecast future sales based on current demographic trends.

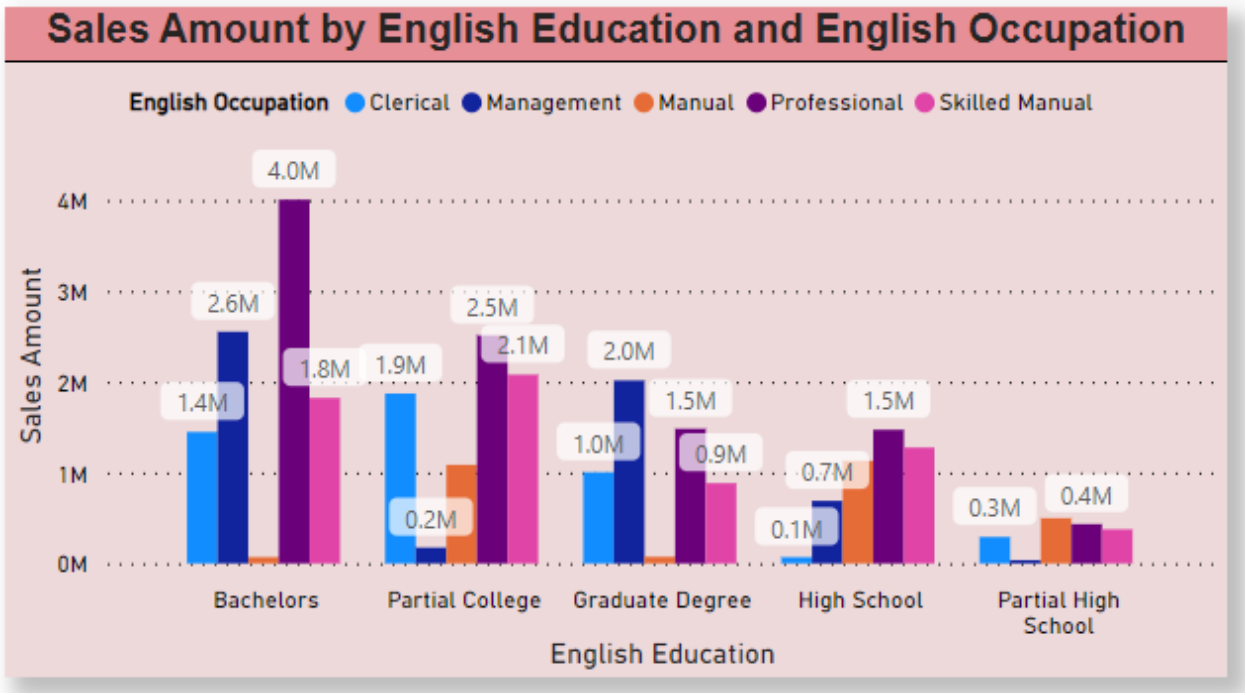


The sales amount division for a company is depicted in this pie chart, which is based on various English product category names. The "Bikes" category comprises the greatest portion, which accounts for 96.6% of sales. The "Clothing" and "Accessories" categories account for a significantly lesser percentage of sales, at 0.74% and 2.39%, respectively.

The company's principal focus and expertise appear to be in the bicycle/cycling market, as indicated by this data. In order to further stimulate growth, they may wish to consider diversifying their cycle product line by introducing new models or entering complementary categories such as cycling tools and equipment, which extend beyond accessories and clothing. Furthermore, targeted marketing strategies could be informed by an examination of the specific consumer segments and regional markets that drive bike sales. Nevertheless, it is likely that the primary focus should continue to be on the core cycling business, as it accounts for the majority of their sales figures.

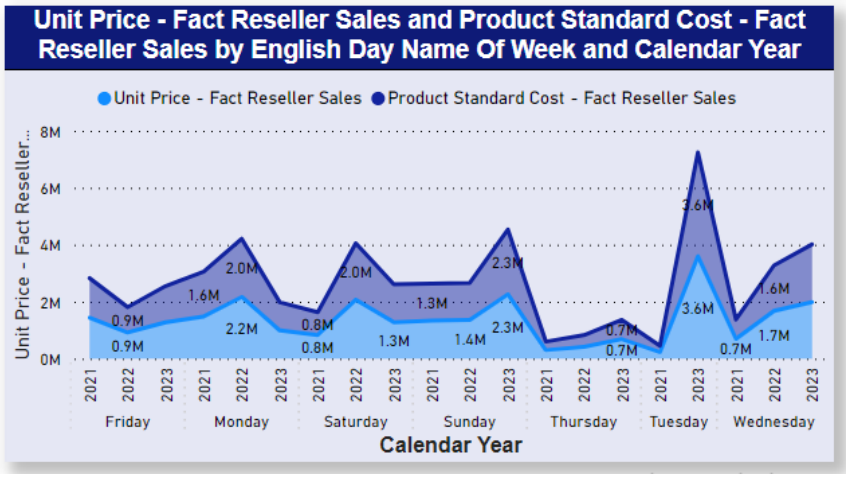


In this graph, the yearly income level and gender are used to represent the sales amount. It demonstrates that sales to males are larger than sales to females at the majority of income levels. The largest disparity is observed at the greatest income level of 70,000 and above, as the spread between male and female sales widens. In order to promote greater inclusivity and equality, the organisation should investigate the fundamental factors that contribute to this sales pattern across income groups and genders. The potential biases and the creation of more balanced sales opportunities could be mitigated by implementing targeted marketing strategies, developing product offerings that are customised to diverse customer segments, and cultivating an organisational culture of diversity and inclusion.



The chart shows the sales amount by English education and English occupation. It appears to show that people with higher levels of English education tend to have higher sales amounts across most occupations. For example, those with a graduate degree tend to have the highest sales amount in all professions shown, while those with a partial high school education tend to have the lowest sales amount. Here are some recommendations for the future:

In the future, I would advise funding programmes for English language instruction and training, especially for those working in manual labour and other skilled manual jobs. Gaining more fluency in the language may make it possible to progress professionally and earn more money in a variety of sectors and professions.



The graph shows the unit price, fact reseller sales, and product standard cost for a product over a three-year period by English day of the week. There seems to be a pattern where the unit price is highest on Fridays and Saturdays, and reseller sales are also highest on these days. This suggests that customers are willing to pay more for the product on weekends, and that resellers may be selling more on these days as well.

In the future, the company may want to consider running targeted promotions or advertising campaigns on weekdays to try to boost sales and even out the sales curve throughout the week. They could also investigate why reseller sales are higher on weekends and see if there are any opportunities to partner with resellers for weekend sales promotions.

6.0 Conclusion

In conclusion, business intelligence (BI) tools such as Tableau and Power BI are essential for turning unstructured data into insights that can be used to inform tactical, strategic, and operational choices. With an eye towards becoming worldwide, Fusion Bikes Corporation may use these technologies to gather information, understand performance, and aid in well-informed decision-making. Together with Tableau's robust data visualisation and real-time analytics features, Power BI's user-friendly interface and connection with Microsoft applications provide complete solutions for data analysis and reporting. Fusion Bikes Corporation can keep a competitive advantage in the worldwide market, find growth possibilities, and improve operational efficiency by deploying these BI tools.

References

BI Brief History. (2020, September 17). https://analyticabi.app/Blog/BI-brief-history

Hotz, N. (2024, April 28). *What is CRISP DM?* Data Science Process Alliance. https://www.datascience-pm.com/crisp-dm-2/

A Process Model for Data Mining—CRISP-DM. (2012). In *Chapman and Hall/CRC eBooks* (pp. 43–56). https://doi.org/10.1201/b12040-8

Wirth, R., & Hipp, J. (2000). CRISP-DM: Towards a Standard Process Model for Data Mining.

Data Analysis. (2001). In *SAGE Publications, Inc. eBooks* (pp. 109–122). https://doi.org/10.4135/9781452233239.n9

Power BI - Data Visualization | Microsoft Power Platform. (n.d.). https://www.microsoft.com/en-us/power-platform/products/power-bi/

Visual Studio: IDE and Code Editor for Software Developers and Teams. (2024, June 7). Visual Studio. https://visualstudio.microsoft.com/

Markingmyname. (2023, March 31). *SQL Server Management Studio (SSMS) - SQL Server Management Studio (SSMS)*. Microsoft Learn. https://learn.microsoft.com/en-us/sql/ssms/sql-server-management-studio-ssms?view=sql-server-ver16

Biswal, A. (2024, June 6). *What is Tableau: Power-packed Tutorial For Beginners*. Simplilearn.com. https://www.simplilearn.com/tutorials/tableau-tutorial/what-is-tableau