

3SIGNET DATA ANALYTICS INTERNSHIP

PRESENTATION TOPIC: ADVENTURE WORKS

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INTRODUCTION

The Adventure Works report showcases the retailing, manufacturing and online sales of product across 2015, 2016 and 2017. Analysing this dataset, one can extract meaningful insights related to sales, customers, products and market trends. This report aims to present a comprehensive exploration of the dataset, focusing on specific research questions and drawing conclusions that can support business decision making.

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1.1 BACKGROUND

Adventure works is a dataset that provides bicycles, components, and accessories to retail customers and resellers. The company's business model covers manufacturing, distribution, and retail operations, making its dataset highly complex and multidimensional. The dataset is structured into several key areas, including sales, production, purchasing, human resources, and finance.

1.2 AIMS

The primary aim of this report is to investigate the sales performance and profitability of the company's product categories, identify customer purchasing patterns and preferences and to uncover trends that could be leveraged to boost revenue and operational efficiency.

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RESEARCH QUESTIONS

The research questions to be answered by this project are:

- What are the best-selling products, and how do their sales vary by region?
- What is the revenue contribution of different product categories, and which categories show the highest profitability?
- What are the key customer segments, and how do purchasing behaviours differ across these segments?
- How do global sales vary, and which regions or countries contribute most to the company's revenue?

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1.4 OBJECTIVES

The objectives of this analysis are:

- To provide a clear understanding of the company's sales performance, segmented by product category and geographic region.
- To analyse the effectiveness of different product categories in terms of profitability and revenue contribution.
- To uncover trends and insights that could inform strategic business decisions, including marketing strategies, product development, and resource allocation.

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METHODOLOGY

The following steps outline the methodology employed to analyse the Adventure Works dataset:

- Data cleaning involved handling missing or null values, removing duplicate entries, and correcting data types where necessary (e.g., ensuring that sales quantities and revenue are numeric).
- Data Joining/Data Merging: Using the Join function in SQL and Python and the Index and Match Function in Microsoft Excel, I combined all the Adventure Works tables into one central sheet using the Primary and Foreign Keys principle.
- Data Analysis: I used Python's IDE (Jupyter Notebook) for Data Analysis.
- Data Visualisation: I used Microsoft Power BI for Data Visualisation.

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3.0 CONCLUSION

This report has analysed the Adventure Works dataset to answer key research questions concerning the company's sales and operations. The analysis revealed that:

- **Top-selling products** include high-end bicycles and accessories, with significant variations in sales across different geographic regions.
- **Revenue contribution** varies by product category, with the "Bikes" category contributing the largest share, although certain accessories and components exhibit higher profit margins.
- **Customer segments** showed diverse purchasing behaviours, with frequent buyers and high-revenue customers clustered in specific regions.
- **The Home Owner status** also shows that people with homes generate more revenue than Homeless people.

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4.0 RECOMMENDATION

Based on the analysis of the Adventure Works dataset, the following recommendations can be made to improve the company's business performance:

- **Targeted marketing strategies:** Segmenting customers by purchasing behaviour and region can help the company create targeted marketing campaigns, offering personalized promotions to drive sales in less-developed regions.
- **Expand into underperforming regions:** Certain regions show untapped market potential. By increasing marketing efforts and distribution capabilities in these areas, Adventure Works could boost overall revenue.
- **Customer loyalty programs:** Introducing loyalty programs for repeat customers in high-revenue segments can help retain these valuable customers and encourage more frequent purchases.

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THANK YOU!!!