INFO 6513 - Business Analytics and Data Visualization

Project Title

BUSINESS ANALYTICS TOOLKIT PORTFOLIO

Submitted To

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Business Analytics and Data Visualization

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Business Analytics Toolkit Portfolio

Chapter 1: Microsoft Excel Pivot Tables

1.1 About Excel Pivot Table

Microsoft Excel is a spreadsheet application that is used widely for analytical purposes. For analytical purposes, specially for data manipulation and business intelligence, Pivot Table plays an important role as an analytical tool. It allows users to summarize, filter, sort, and visualize large datasets efficiently. For sales reporting, trend analysis, and customer segmentation, business often use Pivot Table.

1.2 Data Set and Research Question

Data Set

For analyzing the data set for this analysis contains sales records from Global Bike Inc. (GBI) Excel Workbook (.xlsx) between 2007 and 2011. The data set was provided by the Professor to complete this analysis. It includes:
Country & Customer: Where the sales happened and who bought the products.
Product & Sales Quantity: What was sold and how many units were purchased.
Revenue & Costs: How much money was made and the expenses for each sale.
Time Period: The year and month of each transaction.

Research Questions

i. How do total revenues compare by country?
ii. What is the trend in annual revenues between 2007-2011 by country?
iii. Which products generates the highest revenue, and how does it compare by country?
iv. Who are GBI's largest and smallest customers in terms of total revenue?
v. Is there seasonality in sales quantity? In the month with the highest sales, which product sells the most?

1.3 Applying the Analytical Tool & Result

1.3.1 How do total revenues compare by country?

A Pivot Table is created here with “Country” in the Rows and “Revenue” in the Values field. The chart (Figure 1) shows that most of the revenue was generated from sales in Germany and the U.S.

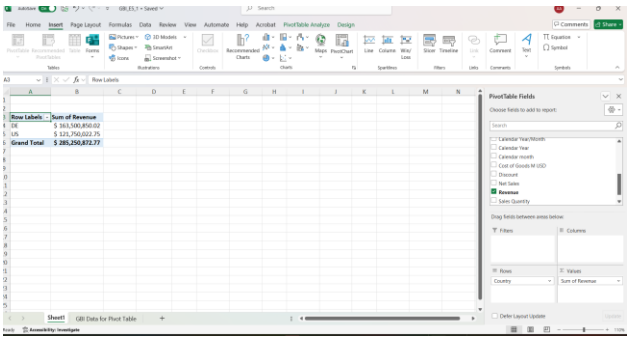

Figure 01

1.3.2 What is the trend in annual revenues between 2007-2011 by country?

Here, a Pivot Table is created with “Year” in the Columns and “Revenue” in the Values field. It shows that revenue slowly increased over time but stayed steady around 2011 (Figure 2).

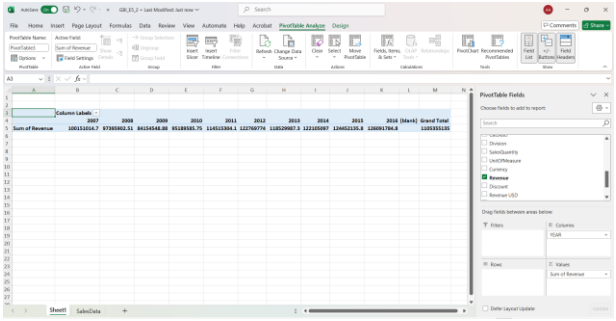

Figure 2

1.3.3 Which products generates the highest revenue, and how does it compare by country?

A Pivot table was created here with “Product” in the Rows and “Revenue” as the Values. It showed that the Men’s Off-Road Bike made most of the revenue in all countries (Figure 3).

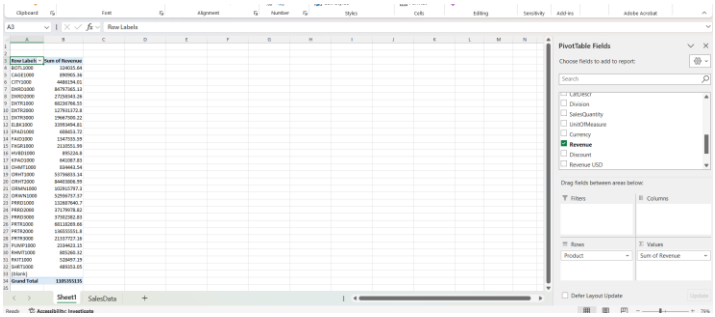

Figure: 3

1.3.4 Who are GBI’s largest and smallest customers in terms of total revenue?

Sorting “Customers” by Revenue from highest to lowest showed that, Bavaria Bikes spent the most, while Ostseerad spent the least (Figure 4).

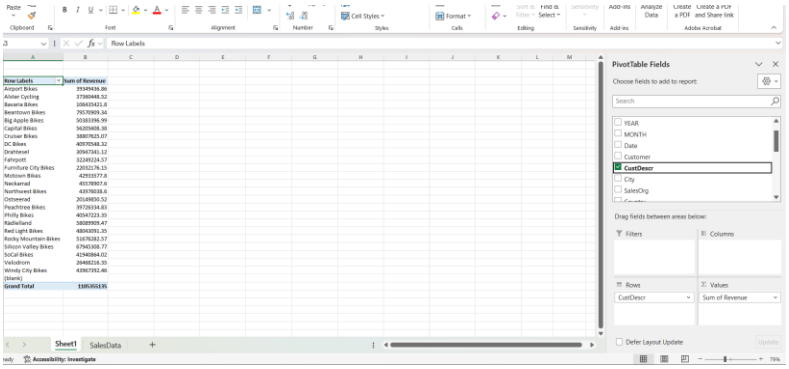

Figure: 4

1.3.5 Is there seasonality in sales quantity? In the month with the highest sales, which product sells the most?

The highest sale occurred in June, and the best-selling product during that month was the Air Pump (Figure 5).

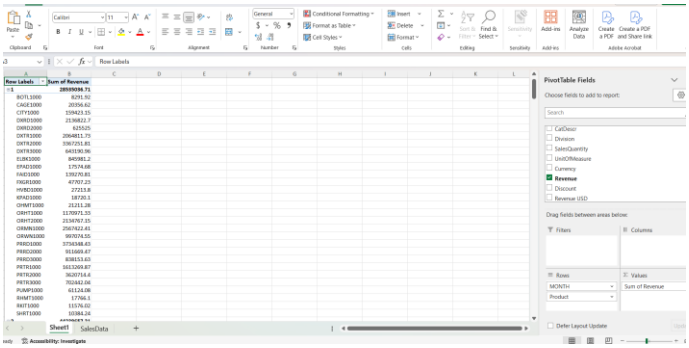

Figure: 5

1.4 Analysis and Critique of the Tool

Pivot Table in Excel make it very easy to analyze and understand the business data. There are some advantages and disadvantages also. Pivot Table's advantages include easy to use, flexibility and customizable. This is very easy to use, just drag and drop to organize data. It works well with large datasets for quick insights. Also, it allows sorting, filtering and formatting as well.

Pivot Table's limitations include limited advance analytics and manual adjustments. Pivot Table can not do advance predictions and need extra formatting for better visuals.

1.5 Conclusion

In conclusion, we can say that Pivot Table is great for basic business analysis and reporting. It provides quick insights, but for advance level analytics, tools like Tableau or SAP Analytics Cloud are needed.

Chapter 2: SAP Analytics Tools

2.1 About SAP Analytics Tools

It is a powerful tool that helps business analyze and plan using data. It allows users to easily see and understand large amount of information with interactive charts, heatmaps, and filters. SAC is widely used for making quick decisions and finding important insights.

2.2 Data Set and Research Questions

Data Set

The dataset used for this analysis comprises records from Global Bike Inc. (GBI) GB_AnalyticsData3 Workbook (.xlsx) that was provided by the Professor. The data includes details as: City, Product and Product Category, Revenue (USD) and Discount (USD), Year and Month etc. It includes:

City: Where the sales happened.

Product and Category: What was sold and it's type

Revenue and Discount (USD): Sales income and discount given etc.

Research Questions

i. How do total revenues compare by city in Germany?
ii. Which products generate the highest revenue in Berlin and Hamburg?
iii. What are the top-performing products overall?
iv. What is the distribution of discounts by product?

2.3Applying the Analytical Tool & Result

2.3.1 How do total revenues compare by city in Germany?

This section examines revenue from different cities in Germany. A bar chart shows that Munich generates the most revenue, followed by Stuttgart and Hamburg, while Anklam and Bochum have the lowest.

Here, Munich leads with over $183 million in revenue. Stuttgart and Hamburg also perform well. Anklam has the lowest revenue among the cities analyzed. (Figure: 06)

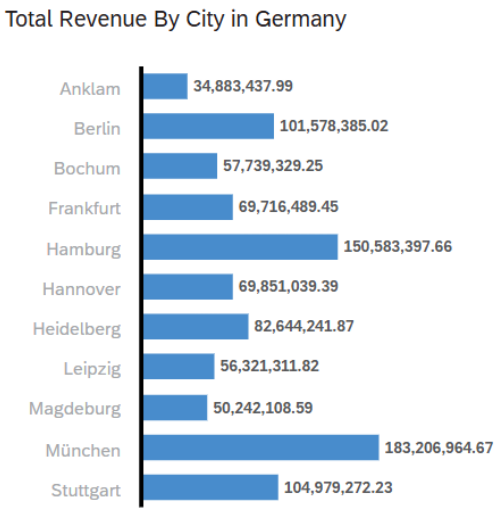

Figure 06: Germany Revenue Analysis

2.3.2 Which products generate the highest revenue in Berlin and Hamburg?

A bar chart compares the revenue of different products in Berlin and Hamburg to identify top-performing items.

PRTR2000 is the best-selling product in both cities. Other strong performers include DXTR3000 and DXRD2000. BOTL1000 and SHRT1000 generate the least revenue (Figure: 07)

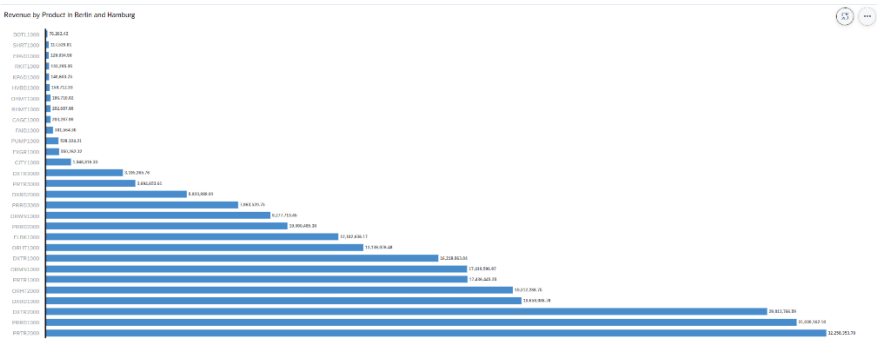

Figure 07: Revenue by Product in Berlin and Hamburg

2.3.3 What are the top-performing products overall?

A horizontal bar chart shows revenue for each product, highlighting the top and lowest earners.

PRTR2000 has the highest total revenue, followed by DXRD2000. BOTL1000 and SHRT1000 have the lowest revenue. (Figure: 08)

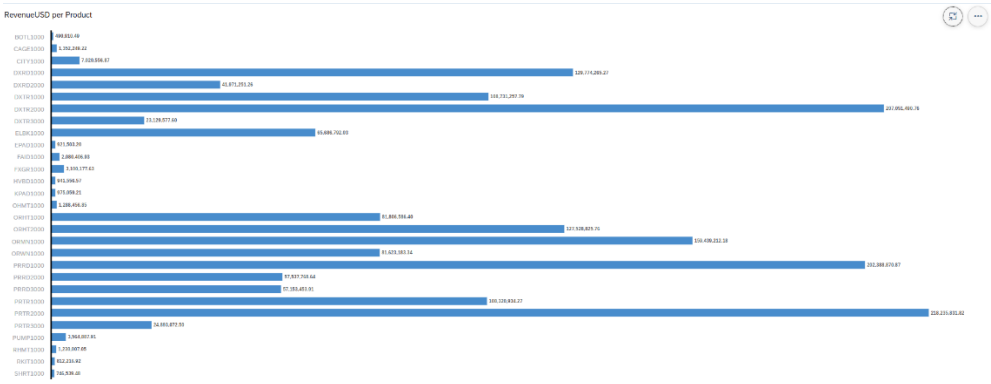

Figure 08: Revenue USD Per Product

2.3.4 What is the distribution of discounts by product?

A pie chart visualizes how discounts are distributed across different products.

DXTR2000 gets the most discounts (35.5% of total discounts). DXTR1000 and DXRD1000 also receive large discounts. EPAD1000 has the least discount amount. (Figure: 09)

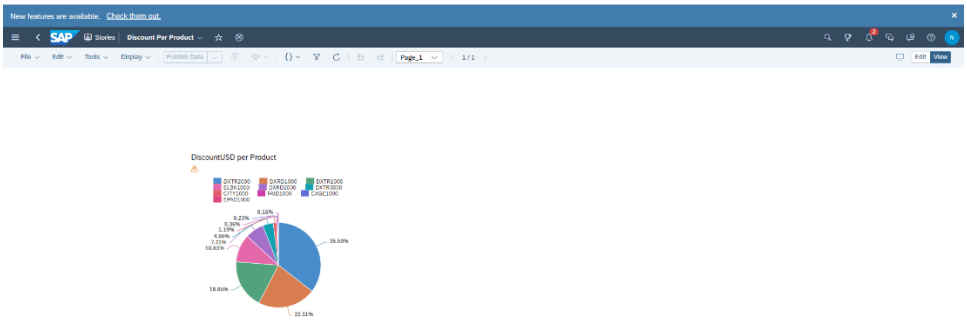

Figure 09: Discount USD Per Product

2.4 Analysis and Critique of the Tool

SAP Analytics Tool is highly effective tools with lots of advantages including interactive visualization where charts and filters help explore data easily. For comprehensive analytics it is also helpful to supports advanced data breakdowns and analysis. Scalability works well with large datasets without performance issues.

It has some limitations as well including learning curve, that requires some training to use effectively. It has also customization limits, advanced visual design may need extra tools.

2.5 Conclusion

SAP Analytics Cloud was highly effective in analyzing GBI's sales data, providing insights into city revenues, product performance, and discount trends. While its interactive features make it user-friendly, using advanced functions requires expertise. For companies needing detailed and scalable analytics, SAC is a strong choice.