ECO 32500: Python for Business Analytics
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Project Proposal

Problem Statement:
The VP of Sales is looking to improve performance in the next quarter, but the specific areas where performance can be optimized remain unclear. This project will leverage the available SQL data and other relevant datasets to identify patterns, trends, and opportunities for improvement. We will provide suggestions based on our findings for increasing sales, improving customer satisfaction, and maximizing profitability.

Objective:
To analyze the sales data from the company's SQL server and other possible sources to identify factors that will drive improved performance in the next quarter. The main goal is to provide data-driven insight information that will help the VP of Sales implement more effective strategies for revenue growth and customer retention.

Data Sources:

Will collect data from internal and external sources.

- SQL Data:
    - Primary data source which includes historical sales, customers, performance, etc
- External Data:
    - Mostly used to compare to similar businesses within the industry
    - Find out what works and what doesn't work

Key Areas of Analysis:

- **Sales Trends/Forecasting:** Analyzing past sales performances in order to identify patterns in seasonal sales, what items are in demand, and market behavior in order to forecast potential performance for the next quarter
- **Customer Targeting:** Find all the customer data, in order to understand the relation of purchasing behaviors across demographics, geographies, and types of customers in order to provide insights to which the VP of Sales should prioritize
- **Product Performance:** In order to have a successful product, we need to understand how it is performing. We need to find how well a product is performing/underperforming, and find potential reasons for the success/failure of certain products and suggest strategies for improvement.
- **Pricing Strategy:** Review pricing trends and determine whether adjusting the pricing of products could increase profitability without affecting demand.
- **Sales Location:** Analyze the performance of where the product is being sold (online vs retail) and recommend improvements or shifting focus in order to optimize results.

Potential Tools and Methods:

- **SQL:** Extracting data for detailed analysis
- **Python:** Most of the heavy lifting data analysis to calculate statistics, forecasting, and some data visualization (using Matplotlib and Pandas)
- **PowerBI:** Creating interactive dashboards to visualize sales trends, product performance, and customer information. User-friendly helps to easier understand data.
- **Excel:** Supplemental analysis with easier modeling and understanding the scenario
- **Powerpoint:** Creating visualizations to highlight key findings and summarize the analysis and recommendations