Ecommerce Sales Analysis

Project Title: Ecommerce Sales Analysis in the US

Project Overview

The Ecommerce Sales Analysis project focuses on evaluating sales performance, customer behavior, and profitability trends within an ecommerce business operating in the United States. The project leverages transactional data to provide insights that can guide strategic decisions in sales optimization, marketing efforts, and inventory management.

Objective

The primary objective of this project is to analyze sales data to uncover patterns and trends that can help:

1. Identify top-performing products and categories.
2. Understand customer segmentation and purchasing behavior.
3. Evaluate the impact of shipping modes on sales and profitability.
4. Examine regional sales performance and profitability.
5. Explore the effect of discounts on sales and profit margins.

Dataset Description

The dataset used for this project includes the following key features:

- **Row ID:** Unique identifier for each transaction.
- **Order ID:** Unique identifier for each order.
- **Year, Order Date, Ship Date:** Temporal information regarding the placement and shipment of orders.
- **Ship Mode:** Shipping method used (e.g., Standard Class, First Class).
- **Customer ID, Customer Name:** Unique identifiers for each customer.
- **Segment:** Customer segment (e.g., Consumer, Corporate, Home Office).
- **Country, City, State, Postal Code, Region:** Geographical data about the orders.
- **Product ID, Product Name, Category, Sub-Category:** Product details, including category classifications.
- **Sales, Quantity, Discount, Profit:** Sales performance metrics, including revenue, units sold, applied discounts, and profit margins.

Analysis Approach

1. **Data Cleaning and Preparation:**
   - Removal of duplicate entries and handling of missing data.
   - Conversion of date fields into a consistent datetime format.

2. **Exploratory Data Analysis (EDA):**
   - Trend analysis over time to track sales and profit fluctuations.
   - Identification of top-selling products and categories.
   - Customer segmentation analysis to evaluate purchasing patterns.
   - Geographical analysis to identify high-performing regions and states.

3. **Data Visualization:**
   - Creation of dynamic dashboards using tools like Excel
   - Graphical representation of sales trends, profit margins, and customer demographics.
4. **Insight Generation:**
   - Analysis of the relationship between discounts and profitability.
   - Identification of the most and least profitable products and regions.
   - Exploration of shipping modes' impact on sales performance.

Tools and Technologies

- **Data Manipulation and Cleaning:** Excel Tools and Technologies.
- **Data Visualization:** Excel Charts.
- **Descriptive and Comparative Analysis:** Pivot tables, statistical analysis.

Key Insights (Examples)

- Identification of regions with the highest sales and profitability.
- Evaluation of how different customer segments contribute to revenue.
- Assessment of the effectiveness of various discount strategies.

Some Query about the data for analysis Ecommerce Sales:

1. **What is the Growth in Sales in 2014?**
   - The Growth in Sales in 2014 is 733,947$.
2. **What is the Growth in Sales in 2014 in East Region?**
   - The Growth in Sales in 2014 in East Region is 213,239$.
3. **What is the largest net profit in any year?**
   - The largest net profit in 2014 = 93,507$.
4. **What is the best selling month compared to other months?**
   - the best selling month compared to other months is November.
5. **What is the company's best-selling product over the past four years and what is the sales value?**
   - Phones = 330.01K $

6. What is the best selling category in the last 4 years as a percentage?

- Technology = 36.4%