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**Project Portfolio**

**E-commerce Sales and Customer Analysis**

**Project Title:**

Unveiling Consumer Insights and Regional Dynamics in E-commerce

**Problem Statement:**

The e-commerce industry is rapidly evolving, and understanding customer behaviour and regional sales dynamics is crucial for strategic decision-making. Our project aims to analyse sales data to uncover insights that can drive growth and expansion strategies for an online retail platform.

**Project Description:**

**Objective:**

To analyse customer behaviour, discount impact, and regional sales performance to identify growth opportunities.

**Scope:**

Analysis of e-commerce sales data encompassing customer orders, payment methods, demographics, and regional sales across various categories.

**Deliverables:**

Detailed reports on customer preferences, sales trends by region and category, recommendations for pricing strategies, and insights for potential offline expansion.

**Methodology:**

**Tools and Technologies Used:**

* Python (Pandas, NumPy, Matplotlib, Seaborn)
* Excel for data manipulation
* Jupyter Notebook for analysis
* Tableau for Data Visualization

**Process:**

* **Data Cleaning and Preparation:** Handling missing values, outliers, and ensuring data integrity.
* **Exploratory Data Analysis (EDA):** Visualizing sales trends, customer behaviour, payment methods, and discount impacts.
* **Statistical Analysis:** Calculating average discounts, revenue by category, and regional sales performance.
* **Reporting:** Generating insights, recommendations, and preparing visualizations for presentations.

**Role and Responsibilities:**

* **Team Collaboration:** Collaborated with team members to divide tasks and ensure comprehensive data analysis.
* **Data Analysis:** Conducted exploratory and statistical analysis to derive meaningful insights.
* **Report Preparation:** Compiled findings into comprehensive reports and presentations for stakeholders.

**Results and Impact:**

**Outcome:**

Identified significant regional variations in sales performance, highlighted the impact of discounts on revenue, and showcased the popularity of traditional payment methods.

**Impact:**

Provided actionable insights for pricing strategies, inventory management, and potential offline expansion, contributing to business growth and customer satisfaction.

**Challenges and Solution:**

**Challenges Faced:**

* Managing and interpreting ambiguous data fields such as order statuses and billing statuses.
* Ensuring data privacy compliance, especially with sensitive customer information.

**Solutions Implemented:**

* Conducted thorough data cleaning and validation processes.
* Implemented anonymization techniques for sensitive data fields to adhere to privacy regulations.

**Conclusion and Learnings:**

**Summary:**

The project successfully analysed e-commerce sales data to uncover consumer insights and regional dynamics, providing strategic recommendations for business growth.

**Learning Experience:**

Enhanced skills in data analysis, visualization, and presenting actionable insights. Learned to navigate challenges in data interpretation and privacy compliance in real-world datasets.

**Link for the file:**

<https://drive.google.com/drive/folders/1om9XaoVTIPMFFlqeF0E5qa38fYd-MLZS?usp=sharing>