Retail Automation & Analytics Projects (Retail and Ecommerce Company)

This folder contains a collection of Python-based projects developed during my tenure as a Data Analyst. The primary objective of this initiative was to address significant inefficiencies in the company's reporting and analysis capabilities, which were previously handled through a slow, manual, and error-prone Excel-based workflow.

By leveraging Python and its data science ecosystem, I developed a suite of automated scripts and analytical models that transformed raw ERP data into actionable business intelligence.

Key Achievements & Impact:

- **Drastic Time Reduction:** Reduced the time for daily report generation from **3+ hours to under 30 seconds**.
- **Elimination of Human Error:** Provided a single, reliable source of truth for business performance.
- **Enabled Strategic Decision-Making:** Freed up stakeholders in Finance, Sales, and Marketing to focus on strategy by providing them with on-demand operational and strategic reports.

Project Notebooks Overview

Below is a description of each Jupyter Notebook contained in this folder.

1. Automated Reporting Suite

These notebooks form the core of the automation engine, replacing the manual Excel process.

- **Daily Report.ipynb**: The main script that generates the daily sales and performance report. It connects to the data, performs calculations, and outputs a clean Excel file.
- **Monthly Report.ipynb**: An extension of the daily report, this script aggregates data to provide a comprehensive monthly overview, including trend analysis.
- **analysis by category.ipynb**: A specialized report that breaks down sales and performance by individual product categories, providing granular insights.
- **analysis by a word.ipynb**: An ad-hoc analysis tool to segment sales based on specific keywords within product descriptions, used for niche marketing insights.

2. Strategic & Marketing Analysis

These notebooks focus on deeper, more strategic questions to guide business decisions.

- **Market basket.ipynb**: Implements a market basket analysis using the Apriori algorithm. This model uncovers which products are frequently purchased together, providing

data-driven recommendations for cross-selling and promotional bundles.

- **Marketing Team.ipynb**: A dedicated analysis for the marketing campaigns. It tracks the performance of the marketing campaigns