Business Intelligence & Automation Projects

This folder contains a comprehensive suite of projects developed during my role as a Data Analyst. This initiative was designed to create a robust data pipeline and a series of automated analytical reports to support multiple departments, including Sales, Marketing, and Supply Chain.

The primary achievement was the development of a system that programmatically collects, cleans, processes, and analyzes complex sales data to generate high-impact operational and strategic reports. This work directly supported senior management by providing clear, data-driven insights for business strategy.

Key Achievements & Impact:

- **Automation of Core Business Reporting:** Developed many reports that automated a critical and previously manual reporting process, **reducing the time for generation by over 80%**.
- **Supply Chain Optimization:** Created automated reports such "Stuck Stock" and "Discontinuation" to identify slow-moving or underperforming inventory, enabling proactive stock management and reducing waste.
- **Advanced Sales & Pricing Analytics:** Built tools for deep-dive sales analysis, and automated price adjustment reporting to guide sales and marketing strategy.

Project Notebooks Overview

Below is a description of the key project notebooks, organized by their function within the overall data workflow.

1. Core Data Pipeline & Automation

These notebooks form the backbone of the data processing and reporting engine. They handle the entire ETL (Extract, Transform, Load) process and generate key operational reports.

- **Getting Prices.ipynb**: A specialized data extraction script used to retrieve detailed product information, including pricing and attributes, which is then merged with sales data.
- **Collect and Reprocess.ipynb**: The foundational script of the pipeline. It automatically collects raw sales and inventory data from multiple sources, performs extensive cleaning and preprocessing, and consolidates it into a master dataset ready for analysis.
- **Rolling Sales Report (RSR).ipynb**: The primary automation script. This notebook uses the processed data to generate the main "Rolling Sales Report," a critical tool for tracking

business performance over time.

- **Price Adjustments Reports.ipynb**: An advanced analytical report that monitors and evaluates product pricing strategy. It automatically gathers pricing data based on pre-configured KPIs and compares current prices against historical reports. The output provides a clear recommendation on whether a product's price needs adjustment (increase or decrease) based on its performance as tracked by the Rolling Sales Report (RSR).

2. Strategic & Supply Chain Analysis

These notebooks leverage the processed data to answer deeper, more strategic business questions and optimize inventory.

- **Sales analysis.ipynb**: A comprehensive deep-dive into sales performance. This notebook segments sales by various dimensions (product, region, time) and calculates key performance indicators (KPIs) to identify trends and opportunities.
- **Stuck Stocked .ipynb**: A crucial supply chain analysis tool. This script identifies "stuck stock" (slow-moving or obsolete inventory) by analyzing sales velocity and stock levels, helping to optimize inventory management.
- **Discontinue Report.ipynb**: An analytical model that scores products based on their sales performance, profit margin, and other metrics to provide data-driven recommendations on which items should be discontinued.
- **MB.ipynb**: Implements pricing analysis for knowing our pricing options. The insights from this model are used to inform cross-selling, marketing promotions, and product bundling strategies. This notebook used as base information for many other reports