

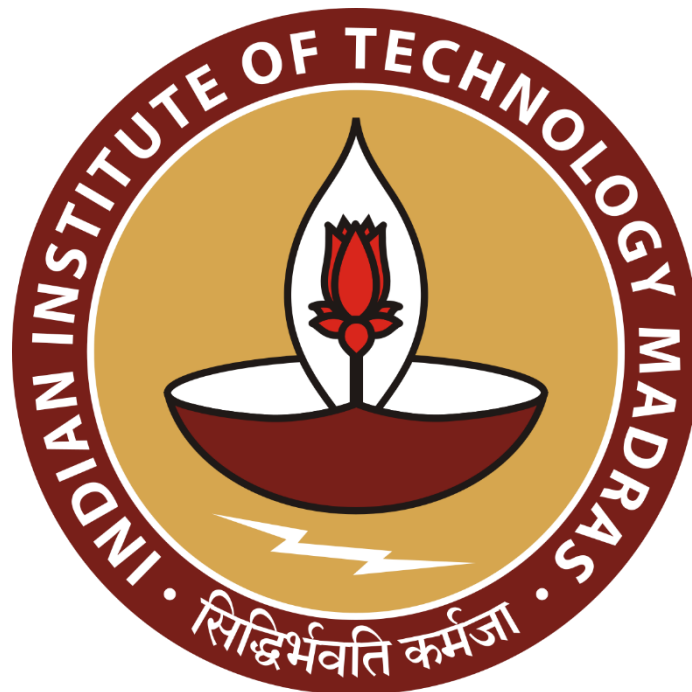
Stock Optimization and Demand Analysis for a Local Puma Store

A Proposal report for the BDM capstone Project

Submitted by

Name: Aaryan Choudhary

Roll number: **23F2003700**



IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai, Tamil Nadu, India, 600036

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Declaration Statement

I am working on a Project Title “Stock Optimization and Demand Analysis for a Local Puma Store”. I extend my appreciation to **Puma franchise Store Owner Mr. Sunil** , for providing the necessary resources that enabled me to conduct my project.

I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered through primary sources and carefully analysed to assure its reliability.

Additionally, I affirm that all procedures employed for the purpose of data collection and analysis have been duly explained in this report. The outcomes and inferences derived from the data are an accurate depiction of the findings acquired through thorough analytical procedures.

I am dedicated to adhering to the information of academic honesty and integrity, and I am receptive to any additional examination or validation of the data contained in this project report.

I understand that the execution of this project is intended for individual completion and is not to be undertaken collectively. I thus affirm that I am not engaged in any form of collaboration with other individuals, and that all the work undertaken has been solely conducted by me. In the event that plagiarism is detected in the report at any stage of the project's completion, I am fully aware and prepared to accept disciplinary measures imposed by the relevant authority.

I agree that all the recommendations are business-specific and limited to this project exclusively, and cannot be utilized for any other purpose with an IIT Madras tag. I understand that IIT Madras does not endorse this.

Signature of Candidate:

A handwritten signature in blue ink that reads "Aaryan".

Name: **Aaryan Choudhary**

Date: **January 30, 2025**

1 Executive Summary –

I will be working on a local **Puma store**, a retail outlet specializing in sportswear, footwear, and accessories. As a part of Puma's extensive retail network, this store caters to customers looking for high-quality athletic and casual products.

The store struggles with **inefficient stock management**, leading to issues such as **overstocking of slow-moving products** and **understocking of high-demand models**. Overstocking results in blocked capital and excess inventory costs, while understocking leads to missed sales opportunities and dissatisfied customers.

I will analyze **sales and inventory data** to identify demand trends, optimize stock levels, and improve the overall supply chain efficiency. Using **Microsoft Excel**, I will:

- Perform **sales trend analysis** to determine high and low-demand products.
- Utilize **forecasting techniques** to predict future demand.
- Implement **stock optimization models** to balance inventory levels.

The expected outcome will help the store **reduce excess inventory costs** while ensuring **better product availability**, ultimately **boosting profitability and customer satisfaction**.

2 Organization Background –

The store I will be working with is a local **Puma franchise**, operating under the globally recognized sportswear brand **Puma SE**. Established in 1948, Puma is one of the world's leading manufacturers of athletic footwear, apparel, and accessories.

This store follows a **B2C (Business-to-Consumer)** model, directly selling Puma products to customers. It primarily serves sports enthusiasts, casual wear customers, and professional athletes, offering a wide range of footwear, clothing, and accessories, including **running shoes, football cleats, sneakers, hoodies, t-shirts, and sports gear**.

Despite Puma's strong global presence, this local store faces challenges in **stock optimization** due to fluctuating customer preferences, seasonal demand changes, and supply chain delays. Through this project, I aim to **enhance the store's inventory management** by leveraging data analytics to create a smarter restocking system.

By addressing these challenges, my project will contribute to **reducing stock-related costs and increasing sales efficiency** in the store.

3 Problem Statement –

3.1 Overstocking of Slow-Moving Products

The store frequently holds excess stock of products that have low demand, leading to blocked capital, increased storage costs, and potential markdown losses.

3.2 Understocking of High-Demand Models

Popular Puma products often run out of stock during peak shopping seasons, resulting in **missed revenue opportunities and dissatisfied customers**.

3.3 Inefficient Demand Forecasting

The store lacks a **data-driven inventory strategy**, leading to guesswork in stocking decisions rather than insights based on sales trends and customer preferences.

4 Background of the Problem –

Inventory mismanagement is a common issue in **retail businesses**, particularly in franchise stores like Puma. The primary challenge is ensuring that the right products are available at the right time while minimizing inventory costs.

A **major cause of overstocking** is the ordering of large quantities without accurately predicting customer demand. Products that do not sell quickly lead to **unsold inventory**, tying up capital and requiring promotional discounts to clear stock.

Conversely, **understocking occurs when high-demand products sell out too quickly**, especially during **festive seasons, sports events, or promotional campaigns**. This results in lost revenue and frustrated customers who may turn to competitors.

Internal challenges include **inconsistent restocking strategies** and a **lack of historical sales data analysis**. External factors such as **changing fashion trends, new product launches, and competitor pricing** also impact sales.

By **analysing sales and stock data**, I will provide actionable insights to help the store **predict demand more accurately, optimize inventory levels, and reduce financial losses**.

5 Problem Solving Approach –

Step 1: Data Collection

- I will gather **historical sales data** from the Puma store, including **product categories, purchase quantities, and sales volumes** over a 6 month period.
- Identify **seasonal trends** (e.g., higher sales during festive seasons).
- Collect data on **stock levels and supplier restocking timelines**.

Step 2: Data Cleaning & Pre-processing

- I will use **Microsoft Excel** to clean the data, removing errors, duplicates, and missing values.
- Categorize products into **fast-moving, slow-moving, and seasonal items**.
- Standardize data formats for easier analysis.

Step 3: Sales & Demand Analysis

- I will use **pivot tables** to analyse product-wise and category-wise sales trends.
- Identify **high-demand and low-demand products** by calculating sales velocity.
- Perform **ABC analysis** to classify inventory into high-value (A), medium-value (B), and low-value (C) products.

Step 4: Forecasting & Stock Optimization

- I will use Excel's **FORECAST function** to predict future sales based on historical trends.
- Implement **reorder point calculations** to ensure timely restocking.
- Optimize stock levels using **Excel's Solver tool**, reducing excess stock while ensuring availability.

Step 5: Visualization & Reporting

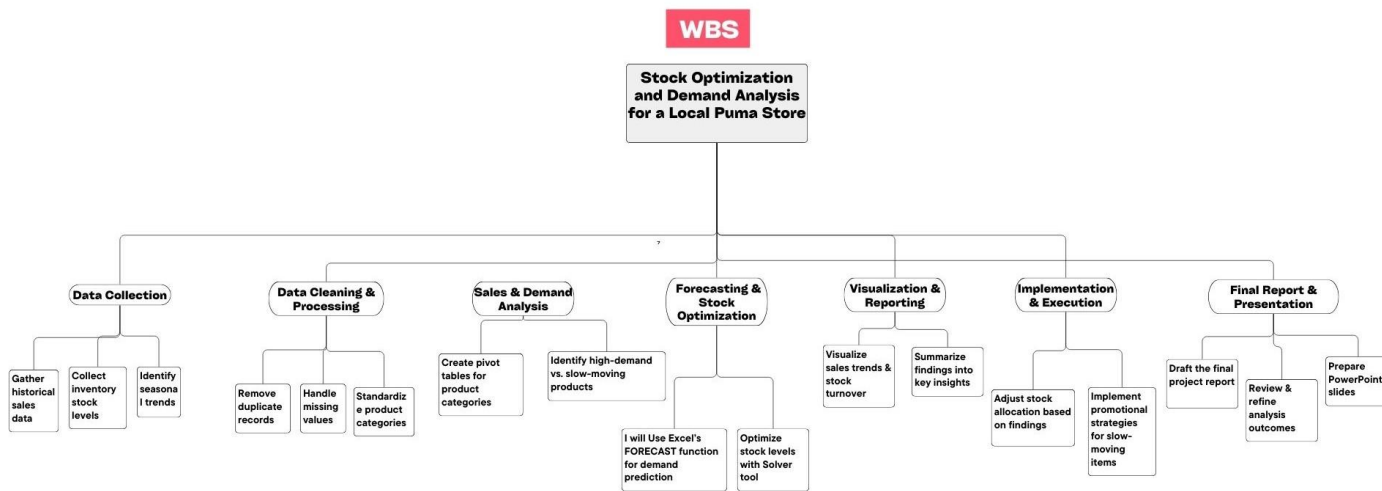
- I will create **interactive dashboards** using Excel's charts and graphs.
- Display sales trends, stock turnover rates, and restocking recommendations.
- Provide a summary report with **key recommendations for inventory optimization**.

Step 6: Implementation Strategy

- Recommend **stock allocation adjustments** based on demand forecasts.
- Develop a **restocking policy** that aligns with seasonal sales trends.
- Suggest promotional strategies to **clear slow-moving inventory efficiently**.

6 Expected Timeline

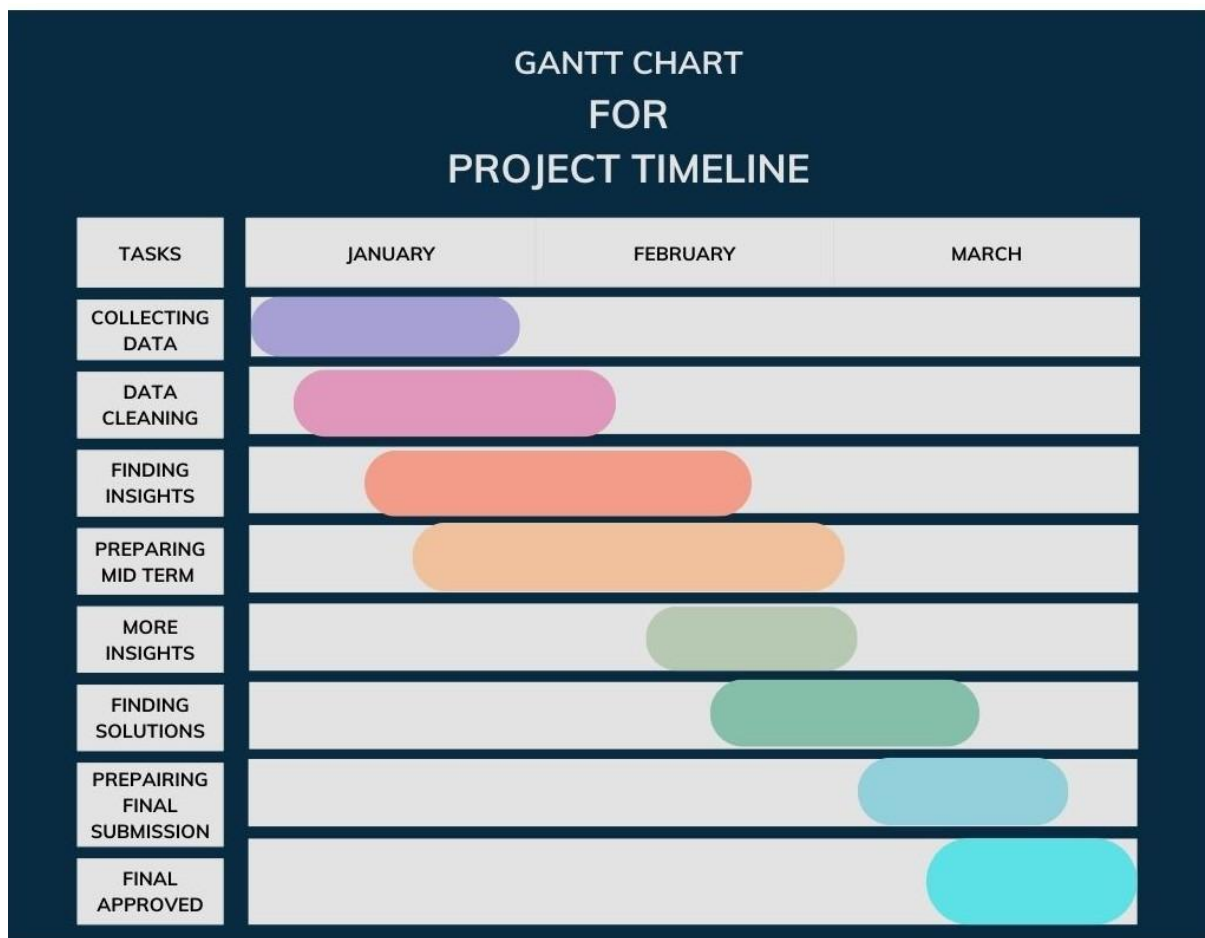
6.1 Work Breakdown Structure:



6.2

Gantt

chart



7 Expected Outcome –

- Reduce **overstocking by 15-20%** through data-driven restocking decisions.
- Increase **availability of high-demand products** by forecasting peak sales periods.
- Improve **profit margins** by reducing clearance markdowns and optimizing inventory.
- By implementing this project, I aim to optimize the inventory management system of the local Puma store, ensuring better stock availability while reducing excess inventory. Through data-driven analysis, the store will have a clear understanding of **sales trends, seasonal demand variations, and product performance** across different categories such as footwear, apparel, and accessories.
- Additionally, **understocking issues will be minimized**, ensuring that high-demand products remain available, particularly during peak shopping seasons.
- By leveraging **Excel-based forecasting and stock optimization techniques**, the project will provide an efficient restocking strategy, reducing reliance on guesswork. Interactive **dashboards and reports** will enable store managers to make **informed purchasing decisions** based on demand forecasts.
- Ultimately, this project will help the store **reduce inventory-related costs, increase revenue through better stock availability, and improve overall customer satisfaction** by ensuring that popular products are always in stock. This will position the store for **smoother operations, higher profitability, and better alignment with Puma's global inventory management standards**.