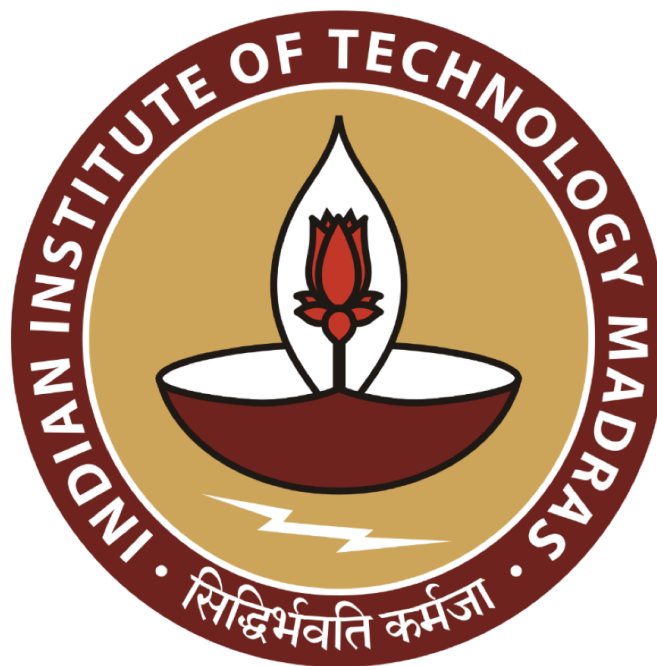**Optimizing Retail Operations at VeggieBell Exotics through Data-Driven Insights**

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project Title **Optimizing Retail Operations at VeggieBell Exotics through Data-Driven Insights**.

I extend my appreciation to VeggieBell, 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 analyzed 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: (Digital Signature)

Name: Soni Dhriti Harshadkumar

Date: 10/6/2025

1. Executive Summary and Title

Title: Optimizing Retail Operations at VeggieBell Exotics through Data-Driven Insights

This project aims to address the operational and customer-related challenges faced by VeggieBell Exotics, a hybrid B2C business operating both online and offline in Ahmedabad. The company specializes in selling exotic vegetables, fruits, juices, and salads. Despite its diverse product range and dual-channel delivery model, the business faces issues such as unstructured inventory management, inefficient delivery timelines, and a lack of customer segmentation, which negatively affect growth and profitability.

To resolve these issues, a data-driven approach will be applied, involving the collection and analysis of transaction, inventory, and customer data. The study will employ time series forecasting for inventory planning, RFM and clustering analysis for customer segmentation, and delivery log evaluations to streamline logistics. Tools like Python, Google Colab and Excel will be used for analysis and visualization.

The outcome will be actionable insights and a set of operational strategies to improve stock management, personalize customer outreach, and enhance delivery efficiency. This will empower VeggieBell to make informed business decisions, boost customer retention, and scale operations more effectively.

2. Organisation Background

Firm's Name: VeggieBell Exotics

Sector of Business: Retail – Fresh Produce and Health Foods

Founder and Owner: Ms. Kesha Solanki

Address of Business: VeggieBell Exotics, Shop 1, SKY CITY ARCADE, B Block, Club O7 Rd, Shela, Gujarat 380054

VeggieBell Exotics is a retail business based in Shela, Ahmedabad, offering a curated selection of fresh produce and health-focused products like juices and salads. It operates through an integrated online and offline platform, serving both walk-in customers and subscribers. The business model includes one-time purchases and monthly subscription plans tailored for health-conscious consumers.

With a focus on quality, freshness, and customer satisfaction, VeggieBell provides convenience through home delivery and pre-packed subscriptions. However, as the business scales, operational bottlenecks and the lack of insight-driven strategies are hindering optimal performance. To remain competitive and responsive to customer needs, VeggieBell is seeking data-backed improvements in operations and marketing.

3. Problem Statement

VeggieBell Exotics, while successful in offering high-quality products and flexible service models, faces several operational inefficiencies. These include overstocking and wastage due to poor inventory planning, lack of targeted customer engagement, and delivery delays that affect customer satisfaction.

3.1 Lack of optimized inventory planning leads to excess stock, wastage, and cash flow issues.

3.2 No clear understanding of customer segments and their purchase behavior hampers targeted marketing and retention.

3.3 Inefficient delivery timelines affect customer satisfaction and repeat business.

4. Background of the Problem

In businesses like VeggieBell Exotics, which handle perishable goods and cater to a varied customer base, managing inventory and understanding customer needs is vital. However, VeggieBell currently struggles with both. The lack of real-time demand forecasting and structured data analysis has led to over-purchasing of slow-moving items and stockouts of popular products.

The business also misses out on opportunities to retain and upsell to its most profitable customers due to insufficient segmentation and targeting. Subscription-based data remains underutilized, and customer satisfaction suffers due to irregular deliveries. These problems can be traced back to the absence of systematic data tracking, integration, and analysis.

Addressing these gaps through modern data management techniques will help streamline operations, improve profitability, and drive customer satisfaction. This project will focus on building a data framework to support these goals.

5. Problem Solving Approach

5a. Details about the methods used:

To address the key challenges faced by VeggieBell Exotics—like stock mismanagement, inconsistent deliveries, and limited customer targeting—a practical and thoughtful approach will be followed. The goal is to keep it simple and relevant, using tools the business can actually apply going forward, like Excel and Google Colab.

Quantitative Methods:

- Sales and Trend Analysis: By exploring historical sales data in Excel, I'll identify which vegetables, juices, and salads are in high demand during certain periods. Using basic trend lines and moving averages, this will help the business stock smarter and waste less.
- Customer Segmentation: RFM (Recency, Frequency, Monetary) analysis will be used to group customers into segments—like loyal customers, occasional buyers, or inactive

users. This will be done using a mix of Excel formulas and Python scripts in Google Colab to add clarity and depth.

- Delivery Insights: Delivery timing data will be reviewed to highlight any recurring issues—such as frequent delays, areas with late deliveries, or time slots that need better planning. Charts will be used to visualize patterns that can be easily acted upon.

Qualitative Methods:

- Conversations with the Team: I plan to speak with the VeggieBell team to understand the real-time challenges they face—how they decide what to stock, what customer expectations are, and where they feel operational stress.
- Learning from Similar Businesses: I'll also informally explore how similar fresh produce stores or health food businesses operate, especially those using subscriptions, to gather practical ideas and best practices that could work for VeggieBell.

5b. Details about the intended data collection:

- Sales Records: To track which products are performing best and how pricing aligns with volume.
- Inventory Logs: Including restocking frequency and spoilage data, which will help optimize stock levels.
- Delivery Data: To understand the timeliness and efficiency of order fulfillment.
- Customer and Subscription Data: To assess buying behavior, order frequency, and product preferences.

5c. Analysis Tools that will be used:

- Excel & Google Sheets: For cleaning, analyzing, and visualizing core data like sales trends, inventory turnover, and delivery delays.

- Google Colab (Python): For tasks like RFM-based segmentation and creating simple visual summaries using Pandas and Seaborn.
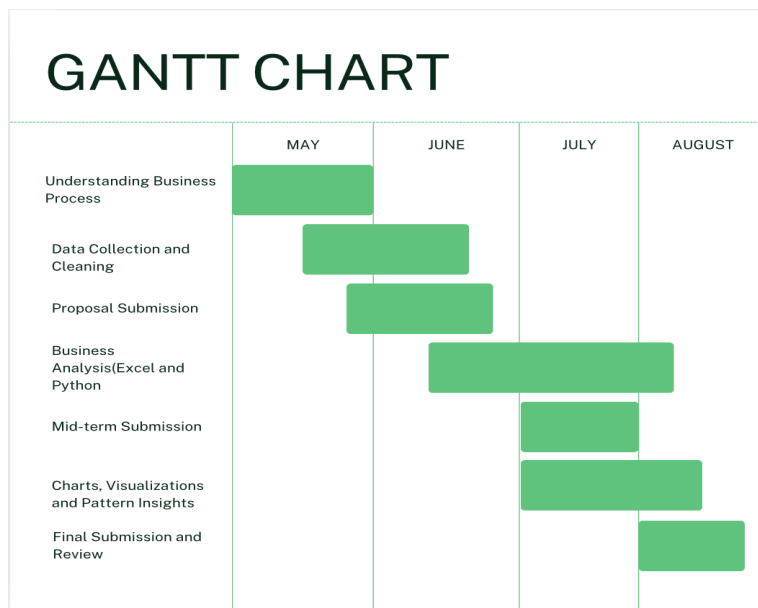
This blended approach aims to provide insights that are not just theoretical but usable, helping VeggieBell make clear, informed decisions across its daily operations.

6. Expected Timeline

Work Breakdown Structure:
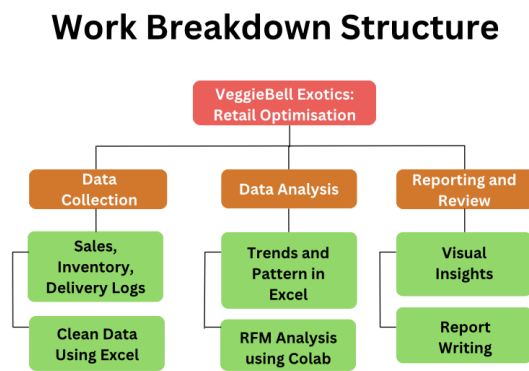
Gantt Chart:

7. Expected Outcome

This project is expected to deliver the following outcomes:

- **Inventory Optimization:** Recommend order quantities using basic trend analysis to minimize excess and improve cash flow.
- **Customer Segmentation:** Identify groups for personalized marketing using RFM insights.
- **Delivery Review:** Highlight common causes of delays and suggest scheduling improvements.
- **Business Dashboards:** Provide accessible visuals and summaries for faster decision-making.

These results will help VeggieBell strengthen operational efficiency, engage better with customers, and scale more confidently using a foundational, data-driven approach.