Inventory Management for Local Vegetable Shop

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled **Inventory Management for Local Vegetable Shop.** I extend my appreciation to **Mohan Vegetable stall**, for providing the necessary resources that enabled me to conduct my project.

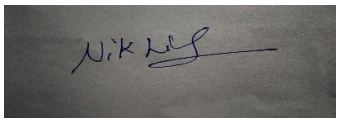
I hereby assert that the data presented and assessed in this project report is genuine and precise to the utmost extent of my knowledge and capabilities. The data has been gathered from primary sources and carefully analyzed to assure its reliability.

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 principles 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 understand that all recommendations made in this project report are within the context of the academic project taken up towards course fulfillment in the BS Degree Program offered by IIT Madras. The institution does not endorse any of the claims or comments.



Signature of Candidate: (**Digital Signature**)

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Date: 02-10-2023

EXECUTIVE SUMMARY –

Indian vegetable market is estimated to be worth over INR 6 trillion (US$ 75 billion). This makes it one of the largest vegetable markets in the world. The market is expected to grow at the rate of over 10% in the coming years.

The organized sector of Indian vegetable market is still very small, its only around 10% of the overall market size. However, the organized sector is growing rapidly, because of investments from e-commerce companies and food processing companies.

The unorganized sector of the Indian vegetable market is still the dominant sector, accounting for around 90% of the overall market size. The unorganized sector is made up of traditional Kirana stores and local vegetable vendors.

Local vegetable shops play an important role in Indian vegetable market. They offer a wider variety of vegetables than organized retailers and they are more convenient for consumers than organized retailers. However, local vegetable shops are also facing a lot of challenges, competition from e-commerce companies and legacy challenges such as inventory management, shop infrastructure, and adoption of new technologies.

These project focuses on a small vegetable shop located at kurukshetra Road, near Shiv temple Kaithal ,Haryana. The business is B2C ”Business to Customer” and its deals with the selling of vegetables to the local consumers. The major issues that the shop is facing is very small profit because of issue with inventory management and spoiling of vegetables which lead to loss to shop owner.

ORGANISATION BACKGROUND –

The unorganized sector of the Indian vegetable market is still the dominant sector, accounting for around 90% of the overall market. The unorganized sector is made up of traditional Kirana stores and local vegetable vendors. Unorganized retail market, also known as the “Bazaar” or “ Mandi” , is the sector of the retail industry that is not organized or structured. It is made up of small, independent retailers, such as kirana shops, street vendors, and vegetable stalls. These retailers typically sell a wide variety of goods, including vegetables, clothing, electronics, and household items. The unorganized retail market is the dominant force in the retail industry in many developing countries, like India. In India, for example, the unorganized retail market accounts for over 90% of all retail sales. The unorganized retail market has a number of advantages over the organized retail market. First, it is more accessible to consumers, especially those in rural areas. Second, it is more flexible and can adapt to changing consumer needs more quickly. Third, it offers a wider variety of products and services than the organized retail market.

Local Vegetable stalls are owned and operated on a small scale, usually in a space of 200 sq. Ft or less. These places are easily available within residential localities. These small shops stock up with vide range of vegetables and they all are fresh. These vegetable shops are known for its good pricing They are also found in various colonies or near locality or near temples to satisfy the basic needs of consumer. These stores do not offer any type of discount or any type deal that supper market may offer as these stores hold limited stock. Thus, prices are competitively higher than Wholesale stores. They are easy to access. Whenever in time you are need of something available at these shops is available to you. These shop owners are very flexible if customers maintain good relationship with them they even give some special discounts. These unorganized vegetables shops are very important in Indian economy. It also plays an important role in distributing goods to customers which are living in rural areas.

PROBLEM STATEMENT –

Analyze the monthly sales of a local vegetable shop to:

- determine the monthly sales by vegetables, sales by category to ensure that a proper stock of inventory is maintained
- Provide an inventory management plan to minimize the number of trips to the wholesale markets so that shop owner place bulk orders and reducing cost price to vegetable shop owners.
- Find out the top 5 vegetables that gives the maximum profits and the top 5 vegetables that gives maximum sales by volume.
- Spoiling of vegetables with the passage of time due to which loss suffered by owner .so, trying to use special type of plastic sheets which avoid spoiling of vegetables but expenditure of shop owner increases as these sheets also need to be replaced after sometimes.

BACKGROUND OF THE PROBLEM –

The unorganized sector of the Indian vegetable market is still the dominant sector, accounting for around 90% of the overall market. The unorganized sector is made up of traditional Kirana stores and local vegetable vendors. India's retail sector is highly unorganized as compared to organized sectors but still Unorganized sector is dominant. It has more than thirteen million vegetable shops and local kirana stores which also keep vegetables. Since after the advent of E-commerce, these sector has become extremely competitive and local vegetable shops are losing customers as more and more customers are shifting to online shopping due to massive discounts given by e-commerce websites and legacy issues surrounding local vegetable shops. Some of the major challenges include inventory management, shop infrastructure and adoption to new technologies like digital payments etc. Lack of proper inventory management tools and lack of understanding about the hidden costs of excess inventory or the potential losses in sale because of vegetables being out of stock or being spoiled causing local vegetable shops heavy losses on daily basis making it difficult for them to survive in the current market scenarios and during in the times of covid. During the covid-19,these local vegetables shop vendors even

goes online in order to earn living. These shop owners are not educated but still they setup online payments and other methods to make payment such that customer never loss interest in coming to there shops. Some shop owners even started taking online orders through whatapp messaging app and started delivery vegetables to their customer houses. These local shop vendors went to any heights during covid time in order to put food on there tables.

PROBLEM SOLVING APPROACH –

Problem-solving approach includes first collecting the required monthly sales data, cleaning it, analyzing the data to find average monthly sales per vegetable, maintaining inventory ledger to keep track of stock holdings and daily depletions in stock. Then, we utilize this data to make an inventory management plan to help the local vegetable shop owner purchase in bulk increasing purchasing power and reducing cost price to the local vegetable shop owner. Managing proper inventory stocks, understanding the business trends, dealing with loans provided by banks to local vegetable vendors so that they can buy in bulk, and satisfying the customer needs were the significant challenges that made vegetable shop business owners worried most of the times and how he should operate and manage inventory. Suggesting shop owner to buy in bulk from online grocery apps when there is great deals or discount season so that shop owner can buy in cheap and sell in high to earn some profit. Also, suggesting shop owner some natural ways to avoid spoiling of vegetables and to avoid loss due to spoiling of vegetables.

a) Method used with justification-

- To achieve the task of calculating the average monthly sales per vegetable we will sum up all the sales over the time period of our data collection and divide it by the number of days for which we collected the data.
- To achieve the task of calculating the average monthly sales per category we will use the concept of grouping and group vegetables according to the daily needs or high and low prices to which they belong and then find the average monthly sale of that group.
- To achieve the task of finding the top 5 vegetables according to sale volumes, we will sum over the sales of each vegetable over the number of days for which we have collected the data and sort the summed sales in descending order and select the first 5 vegetables which gives max sales volume.
- To achieve the task of finding the top 5 vegetables which gives maximum profits we first find the average cost price and average selling price of each vegetable, subtract them to find out average profit per item sold and then multiply it with the monthly sales of that vegetable to find out the total profit generated per month

for each vegetable and then sort these values in descending order in order to get top 5 vegetables which gives maximum profits.

- For making an efficient inventory management plan we take use of the average monthly sales per vegetable from the data and opening stock for that month. The initial thing to do during maintaining vegetable shop stocks is to setting par level of each vegetable, which tells what levels of inventory you should have in stock in order to fulfil in hand demand. By maintaining stocks at par level, we can determine when to order more inventory, which will different from one vegetable to another. This helps us in remain efficient with our stock ordering stuff. Also, by keeping inventory at par level, local vegetable shop owner can eliminate excess stock problem and prevent lack of demanded products or vegetables during peek seasons.

b) Intended data collection with justification-

The data that we need for solving this business problem is the daily sales data of the vegetable for a period of 2-3 months as we need to calculate the monthly average sales of the vegetables so that we can find out the maximum profit generating vegetables and create an inventory management solution. The data is collected on daily basis by asking every day vegetable price and sales from the vegetable shop owner and stored into an notebook and than using these data into excel sheets.

c) Analysis tools with justification-

The software used for storing, cleaning and analyzing the data is MS excel. Microsoft Excel provides an easy to use interactive and straightforward interface with multiple features that will be useful in solving our business problem. It provides various mathematical functions for calculations and allows us to plot charts and graphs to analyse the data not just analytically but also visually and hence we are making use of excel for this project.

EXPECTED TIMELINE –

The expected timeline for the project is as follows –

- By 25 September, I able to collect previous few months sales data.
- By 10 October, I expect to clean and preprocess the data for analytical use.
- By 18 October, I expect to calculate monthly sales by category from data.
- By 26 October, I expect to calculate monthly sales for each vegetable.
- By 5 November, I expect to find out the top 5 profit generating vegetables.
- By 10 November, I expect to find out the top 5 vegetables by sales volume.
- By 15 November, I expect to make an optimized Inventory management plan.

EXPECTED OUTCOME –

The analysis done in this project will help the local vegetable shop owner to have a general idea about how monthly sales per category and monthly sales per vegetable influence the profit. It also helps the shop owners in order to make an efficient Inventory management plan thereby minimizing the inventory issues such as loss of sales due to product being out of stock, it also helps him in avoiding holding excessive inventory as well as help in reduce the number of trips made to the local markets or wholesale market. It also helps the shopkeepers to place bulk orders in order to reduce cost price to vegetable shop owner.