# Optimizing Inventory and Maximizing the Profit of a Café Business

**A Proposal report for the BDM capstone project**

Submitted by

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# Contents                                                      Page

# Declaration Statement

I am working on a Project Title "Optimizing Inventory and Maximizing the Profit of a Café Business". I extend my appreciation to "**Ektu Baithak**", 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:

*Sourasish Ghosh*

Name: Sourasish Ghosh

Date: 25-01-2025

# 1.    Executive Summary

The project is focused on studying the business problems and analysing the business of "*Ektu Baithak*", a Café/Restaurant placed at Tamlipara Bus Stand, Jirat, Balagarh, near STKK road. The business is solely a B2C serving various dishes and Café specific items to the customers/guests.

Speaking to the owner of the Café, Mr. Arghya Ghosh, I have come to know some challenges he is facing and overseeing altogether about flooded customers'/guest's
Food serving problems in festive seasons and also due to the irregular frequency of customers/guests, there is food wastage that the owner is somehow overseeing because purchasing of the raw materials is solely decided by an experienced employee of the Café.

To tackle these problems at "*Ektu Baithak*", I plan to manage the food supply and demand and sitting problem caused due to irregular frequency of customers/guests from daily cost, purchase, sells data and the customer/guest frequency at the Café. This will lead the purpose of solving the problem in a very systematic way. This approach is going utilise their supply chain and maximise their profit.

# 2.  Organisation Background

Business name: Ektu Baithak

Address: Tamlipara Bus Stand, Jirat, Balagarh, West Bengal- 712501

Owner's name: Mr. Arghya Ghosh

The Café's been running flawlessly from 2021 near Tamlipara Bus Stand. It's a B2C business that serves various snax, Café items, Indian Cuisine that's been very popular in our area and gained following , such dishes like- Chicken Biriyani, Mutton Biriyani etc. also some Chinese dishes e.g.: Chicken Manchurian,

Schezwan Chicken and many more. They belong to a very middle-class background as Mr. Arghya's mother is a housewife who often visits to the Café to manage and help out the business. He solely runs the business by himself. As of being a new business running in a rural area, it has managed to build strong connection to the customers. In spite of being a new restaurant, they serve various number dishes through out the year, also adjusting to new demands or trends of dishes which is quite unusual to be seen in new business. It's success tells us about it a lot of it.

## 3. Problem Statement

1. During festive seasons it faces a major issue of handling guests/customers to serve food and also providing sitting for the guests. Same issue occurs during the monsoon seasons, which causes inventory issue, waste management and quality issue.
2. It's a Dinner-only or Evening-only Café/restaurant, so it misses out morning hours to serve their guests/customers. Also, it delivers food in the local areas but they are not partnered with any restaurant aggregators or even they won't sell through their website.

## 4. Background of the Problem

As I was discussing with Mr. Ghosh about his business, we came to know about few problems he is facing currently although, he was a bit hesitant to threw out the problems but it came out eventually.

The business is Café/restaurant is fairly new in the area. With gaining popularity due to their ambience, during the festive seasons

overflooding customers causes havoc problems in operation, serving food and inventory issues. This problem also occurs in monsoon seasons as lack of customer frequency causes these same issues. As on further discussing, we came to know about that there is no fixed or measured quantity of buying raw materials in the restaurant. Most of it is managed by the head of the kitchen staff. So, it actually causes wastage in the Café .

The Café is only open from 5-10 P.M. everyday. But it can still be open in the morning hours to serve breakfast and Café items as it is fairly placed right beside a busy road. Also, the restaurant is not partnered with any of the restaurant aggregators or it neither delivers food through their website. They have online presence though but utilising the assets might be beneficial for the Café.

In summary, The Café struggles with inventory management in festive and monsoon seasons as it lacks fixed system of purchasing raw materials and also serving customers in breakfast can be beneficial with enhancement in the online presence would help boost the sales of "Ektu Baithak".

## 5. Problem Solving Approach

### 5.1 Possible applicable methods:

Given the problems the business is facing or the methods that can be useful to boost the profits are given below.

Time-Series analysis: Using it on the past year's dataset, we can predict the peak and dips on sales. By identifying the patterns, we can prepare the food stock and sufficient staff members to manage the business.

Statistical analysis: Using statistical methods can be beneficial to get to understand more about the business. Using regression analysis, t-test, chi-squared test, variance analysis, correlation checking can be considered useful in these case study.

Break-even analysis: To start the morning service, it is much needed to calculate how much revenue is needed to suffice the daytime operations. By looking at the fixed and variable cost, we can determine the minimum sales required to start the daytime business.

Surveys & Feedback: Doing surveys and taking feedback from the customers in the morning shift can be important to understand the business. It will improve the service quality, menu alteration and customer preferences.

Benchmarking: Doing comparison to same businesses in the local areas in multiple sectors (e.g.- online presence, delivery partner etc) will be very useful.

## 5.2 **Data Collection and Cleaning**:

Sales and Costing Data: Mr. Ghosh has provided me an estimated sales and the restaurant cost data of previous year. It consists of estimated monthly sales, employee costs, electricity bill, estimated average raw material costs, monthly profit margin etc. It will be beneficial to analyse the peak and dips of sales, trends of the customer purchases.

Although it had to be tuned in, the input data, as the owner gave me an estimated data. I had to estimate the electricity bill as the unit and monthly cost will due to varying season. Similarly, I had to clean the monthly income as it is varying due to peak seasons and monsoon seasons. This data cleaning ensures us to get more accurate conclusion.

## 5.3 **Analysis Tools:**

Google sheets : Google is the primary that will be used to analyse, store and evaluate the data as it is easy to use, the interface is very familiar, the calculations can be done within the sheet and we can also generate plots using the dataset.

Python (using libraries such as Pandas, NumPy, Matplotlib etc): Using Python can be very efficient to operate and visualize the input data using numerous kinds of Python libraries. It can provide insights of the data more accurately also applying statistical methods into it.

Google Forms: To get feedback from the customers we can use Google Forms as it is very reliable and easy to use. Storing those feedbacks and qualitatively analysing it will be crucial to get insights of the business.

# 6. Expected Timeline:

6.1 **Work Breakdown Structure:**
1. Data Collection: I collected the data in between end of January till the first week of February.
2. Data Cleaning: To clean the dataset, it took me about 2 weeks of February which will be $2^{nd}$ & $3^{rd}$ week of the month.
3. Proposal Preparation: I made the proposal document in the last week of February.
4. Data Analysis: I started simple analysis of the data from the first day of March.
5. Mid-Term Preparation: I am planning to do the work and analysis from the $1^{st}$ to $3^{rd}$ week of March for the Mid-Term. And submit it in the month of April.
6. Final Submission: I am planning to submit it during the month of April.

**6.2 Gantt Chart:**



Expected Timeline for the Project Completion (Gantt Chart)
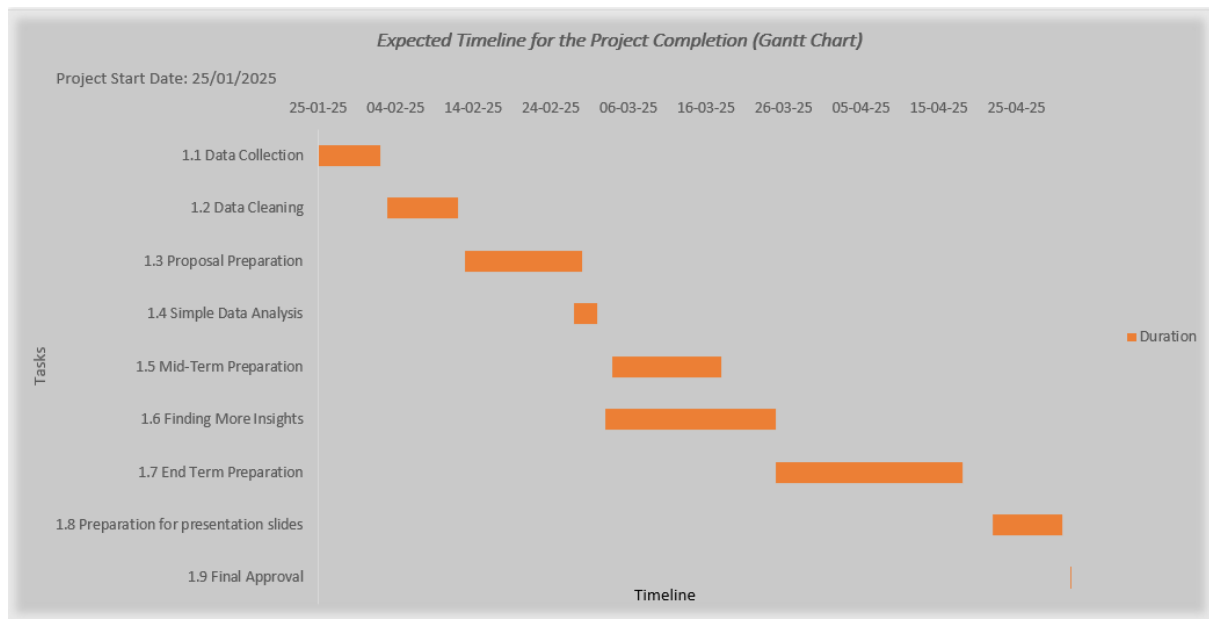
# 7. Expected Outcome:

- Ensuring that the inventory is managed with better planning in the off-seasons and festive seasons.
- To maximize the profit, the morning business operation is sufficient or not to start can be measured.
- Applying more online presence and partnering with delivery aggregators, or delivering through their website will reach out to more people.
- Benchmarking with same businesses in the local area will give a clear picture of adaptation of menu.