# *"Improving Operational Efficiency and Customer Experience in an RO Machine Store"*

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

**Submitted by**

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# Contents

# Declaration Statement

I am working on a Project Title "*Improving Operational Efficiency and Customer Experience in an RO Machine Store"*. I extend my appreciation to **Rudra Enterprises**, 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:

Name: Rashi Sharma

Date: 2 Feb, 2025

**Title:**

*"Improving Operational Efficiency and Customer Experience in an RO Machine Store"*

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## 1. Executive Summary

This project focuses on **Rudra Enterprises** that operates in the unorganized sector and offers services like water purifier sales, refills, and maintenance. Additionally, they offer a limited selection of home appliances. While the core emphasis of this project will be on the RO business, the presence of these appliances will be considered as part of the overall shop inventory. The business serves both households and commercials clients within the local area functioning as a B2C provider.

The shop faces specific challenges such as customer complaints related to water flow and float valves and maintaining adequate stock of spare parts. The project aims to analyse these issues and propose strategies for improving operations, reducing costs, and enhancing customer satisfaction.

To address the problems, data will be collected from the shop through interviews and manual records, focusing on operations, sales, and customer feedback. Analytical tools like Excel, Python will be used to process the data and identify trends.

The expected outcomes include actionable recommendations for addressing operational inefficiencies, enhancing marketing efforts, and managing inventory more effectively. These solutions will help improve the shop's customer retention and operational performance.

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## 2. Organization Background

**Rudra Enterprises** is a local RO machine shop established in 2005. It is located in Shalimar Garden Extension 2, Sahibabad. It operates in B2C sector, offering services such as water purifier sales, refills, and maintenance. The shop primarily caters to households and commercials clients within the local area.

The business employs three staff members: a technician, a sales manager, and a labour. It maintains manual records for sales and inventory management. The shop generates customers mainly through referrals and promotes itself via tele-calling.

The business faces competition from 8 to 10 similar shops in the vicinity, as well as online retailers. Its operations are affected by customer complaints related to water flow and float valve issues and the challenge of maintaining an adequate stock of spare parts.

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## 3. Problem Statement

### 3.1 Problem 1:

Customers frequently report issues with water flow and float valves in the RO machines, leading to dissatisfaction.

### 3.2 Problem 2:

The shop struggles to maintain an adequate stock of spare parts due to resource constraints, impacting service quality and efficiency.

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## 4. Background of the Problem

The primary issue with the business stems from customer complaints about water flow and float valve malfunctions. These problems often arise from delays in repairs or inadequate quality checks before selling the machines. Addressing these issues is critical to maintaining customer trust and ensuring long-term loyalty.

Additionally, the shop's inability to stock spare parts in bulk due to limited resources often leads to delays in repairs and installations. Competitors who have better stock availability gain an advantage in the market.

Another factor is the shop's reliance on referrals and tele-calling for customer acquisition. While this works to some extent, it limits the shop's ability to attract a larger customer base, especially in a competitive environment with 8-10 similar shops nearby. Enhancing marketing strategies and streamlining operations can help mitigate these challenges.

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## 5. Problem-Solving Approach

**Data Collection:**

1. **Interviews:** Conducted with the shop owner to understand operational challenges and customer feedback.

2. **Records Review:** Analysed manual sales and inventory records to identify trends and bottlenecks.

3. **Observation:** Observed daily operations to understand workflow and customer interactions.

**Tools and Techniques:**

1. **Microsoft Excel:** For organizing and analysing sales and inventory data. It enables flexible data handling, calculations, and the creation of tables to monitor stock levels and sales. Features like graphing and pivot tables help in visualizing consumption patterns and trends, making it easier to summarize and analyse data. Additionally, Pareto charts highlight key inventory products that impact sales, aiding in focused inventory management efforts.

2. **Customer Feedback Analysis:** Categorize customer complaints to identify recurring issues.

3. **Python and Machine Learning Tools**: Python, a highly adaptable programming language, includes libraries such as Pandas and NumPy that offer powerful data handling, processing, and statistical analysis functions.
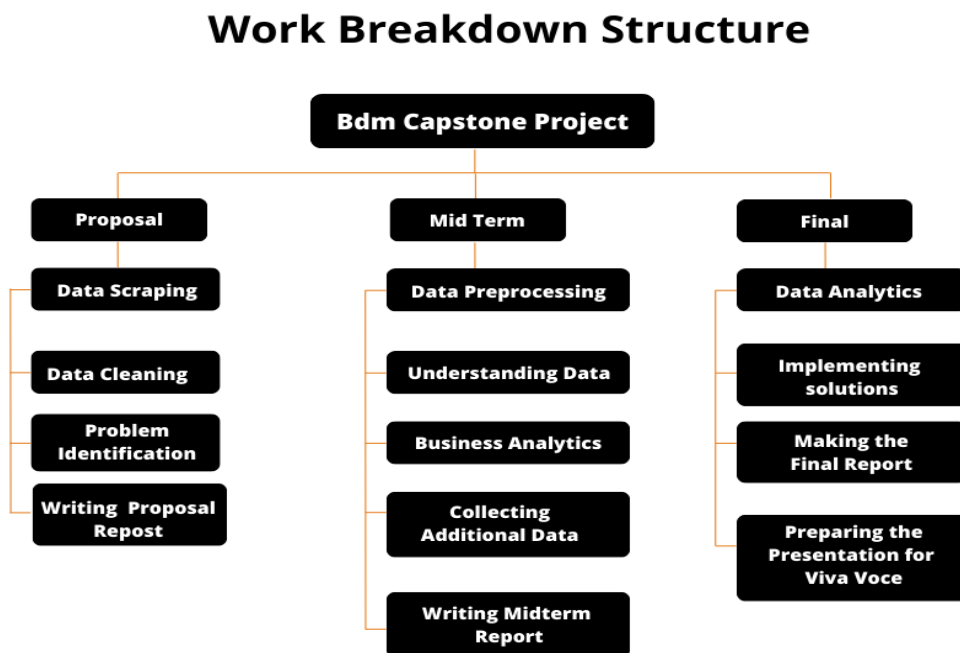
By integrating these methods, data collection practices and analysis tools, the Rudra Enterprises will establish a solid inventory management system. This approach will enable data-driven decision making, optimize stock levels and effectively lower operational costs. This will help in ensuring product availability, enhancing customer satisfaction and supporting the shop's long-term success and profitability in competitive market.

**Proposed Steps:**
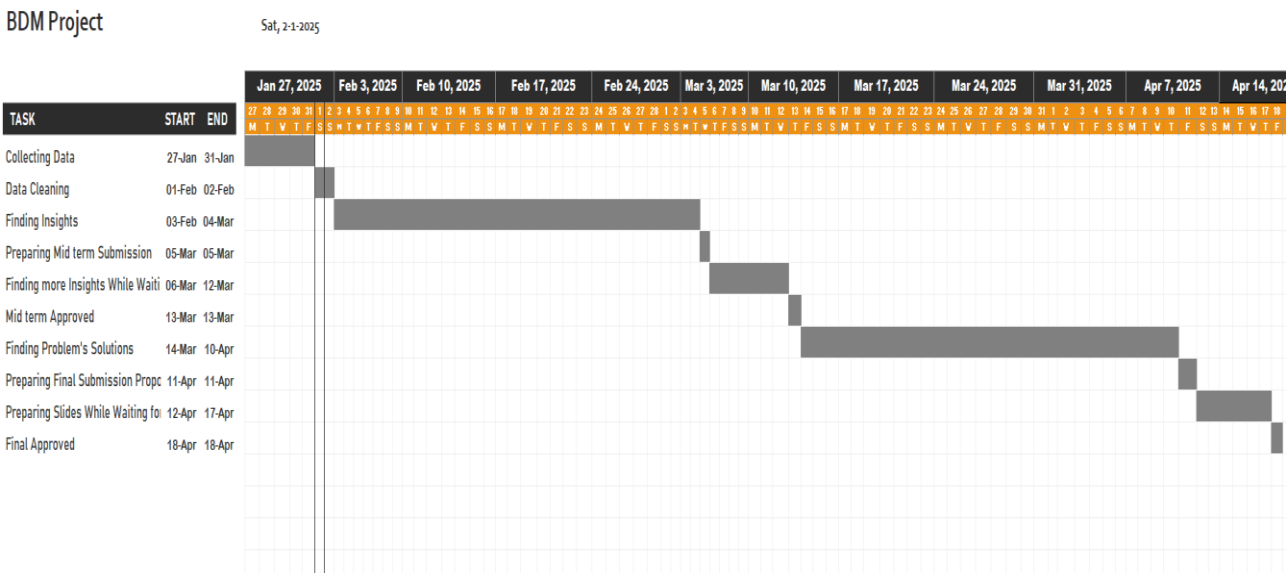
1. Develop an inventory management system (manual or basic digital solution) to track spare parts effectively.

2. Address common customer complaints by improving the quality control process for RO machines.

3. Suggest marketing strategies such as local partnerships or social media campaigns to increase visibility and reach.

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**6. Expected Timeline**

**Work Breakdown Structure:**

**Gantt Chart:**



**BDM Project** — Sat, 2-1-2025

| TASK | START | END |
|---|---|---|
| Collecting Data | 27-Jan | 31-Jan |
| Data Cleaning | 01-Feb | 02-Feb |
| Finding Insights | 03-Feb | 04-Mar |
| Preparing Mid term Submission | 05-Mar | 05-Mar |
| Finding more Insights While Waiti | 06-Mar | 12-Mar |
| Mid term Approved | 13-Mar | 13-Mar |
| Finding Problem's Solutions | 14-Mar | 10-Apr |
| Preparing Final Submission Propc | 11-Apr | 11-Apr |
| Preparing Slides While Waiting for | 12-Apr | 17-Apr |
| Final Approved | 18-Apr | 18-Apr |

## 7. Expected Outcomes

1. **Operational Improvements:**

   o A streamlined inventory management process to ensure spare parts are always available.

   o Faster resolution of common customer complaints like water flow and float valve issues.

2. **Customer Satisfaction:**

   o Reduced complaints and improved service quality will enhance customer loyalty.

3. **Marketing Effectiveness:**

   o Increased visibility and reach through improved marketing strategies, helping attract more customers despite competition.

These changes will position the shop for sustainable growth and improved profitability.