Analytical Study for Automobile Re-Seller

A Proposal report for the BDM capstone Project

Submitted by

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Declaration Statement

I am working on a Project titled "Analytical Study for Automobile Re-seller". I extend my appreciation to New My Choice Cars, 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:

Name: Aryan Patil

Date: November 1,2025

1 Executive Summary

The project is focused on studying the operational challenges and proposing a data management framework for 'New My Choice Cars,' a pre-owned vehicle dealership operating in Pimpri, Pune.The business primarily operates in a B2C and C2B capacity, selling cars to individuals and purchasing cars from individuals for resale.

The key challenges at 'New My Choice Cars' stem from the reliance on manual, paper-based "Kararnama" (agreement forms) for recording purchase and sale transactions. This lack of digital data hinders the owner's ability to efficiently track inventory turnover, accurately calculate profitability per vehicle, analyze sales trends, and make informed pricing decisions.

To address these challenges, this project involves analyzing primary data extracted from a sample of transaction forms. Firstly, analysis of past transaction data (costs, prices, dates) aims to provide insights into sales patterns, inventory holding times, and profitability by model/brand.

Secondly, based on these analyses, a structured data management approach will be proposed to improve operational efficiency and enable data-driven decision-making for pricing, procurement, and sales strategy.

2 Organisation Background

Business Name: New My Choice Cars

Address: Mumbai-Pune Road, Pimpri, Pune - 411 018

Owner's Name: Mr. Manoj Pawar

New My Choice Cars is an established pre-owned car dealership located in the busy automotive hub of Kharalwadi, Pimpri, Pune. It operates within the unorganized sector. The business functions in both B2C (selling to individuals) and C2B (buying from individuals) capacities, dealing primarily in popular passenger vehicle segments (hatchbacks, sedans, MUVs/SUVs) common in the Maharashtra market.

Operations rely heavily on traditional methods, with transactions documented via physical agreement forms ("Kararnama"). Despite its local presence, the lack of digital data systems limits its analytical capabilities.

3 Problem Statement

3.1 Due to manual record-keeping on physical forms, the business owner faces significant challenges in accurately tracking inventory status (e.g., days in stock), calculating vehicle-specific profitability, and analyzing overall sales performance trends over time.

3.2 The absence of structured historical sales data prevents the owner from making data-informed decisions regarding vehicle procurement (which models are in demand/profitable) and competitive pricing strategies based on factors like model year, condition, and market trends.

4 Background of the Problem

The core issues at New My Choice Cars originate from its reliance on physical "Kararnama" documents for all transactions. Firstly, critical business data (purchase price, sale price, dates, vehicle specifics, customer details) is locked in inaccessible paper files. This makes generating even basic reports like monthly sales summaries or current inventory lists a time-consuming manual process, prone to errors.

Secondly, without readily analyzable data, crucial business decisions are based primarily on the owner's experience and intuition rather than quantitative evidence. Determining optimal pricing, understanding which vehicle segments yield the best returns, and identifying fast vs. slow-moving stock becomes difficult. This lack of data-driven insight puts the business at a disadvantage compared to more organized players and limits its potential for strategic growth and operational optimization.

In summary, the problems stem directly from the unorganized, non-digitized nature of data capture and storage, hindering effective business performance monitoring and strategic planning.

5 Problem Solving Approach

5a. Details about the methods used with Justification:
Given the need to extract insights from historical transaction data and propose a management framework, a mixed-methods approach is suitable.

Quantitative Methods:
Descriptive Statistics: To summarize key metrics like average sale price, frequency of models/brands sold, and average age of vehicles sold. This provides a baseline understanding of the business operations.

Trend Analysis: Analyzing Sale_Date and Sale_Amount to identify monthly or seasonal patterns in sales volume and revenue.
Inventory Turnover Calculation: Where purchase and sale data for the same vehicle exists, calculate 'Days in Inventory' to identify fast/slow-moving stock.

Qualitative Methods:
Process Observation & Interviews: Understanding the existing manual workflow through observation and discussions with the owner (as conducted during data collection) to identify specific bottlenecks and requirements for a new system.
Justification: Quantitative methods are essential for deriving objective insights from the transaction data. Qualitative methods provide context about the business environment and owner's needs, ensuring the proposed solution is practical.

5b. Details about the intended data collection with Justification:
Primary Data Source: Physical "Gaadi Kharedi Kararnama" (Vehicle Sale Agreement) forms provided by New My Choice Cars.
Data Extraction: Key variables extracted include: Record_ID, Sale_Date, Seller/Buyer details (Name, City, Phone, Business Type), Vehicle details (Brand, Model, Type, RegNo, Chassis_No, Engine_No, Manufacture_Year, Color, Fuel_Type, Transmission), and Transaction details (Sale_Amount, Payment_Mode).

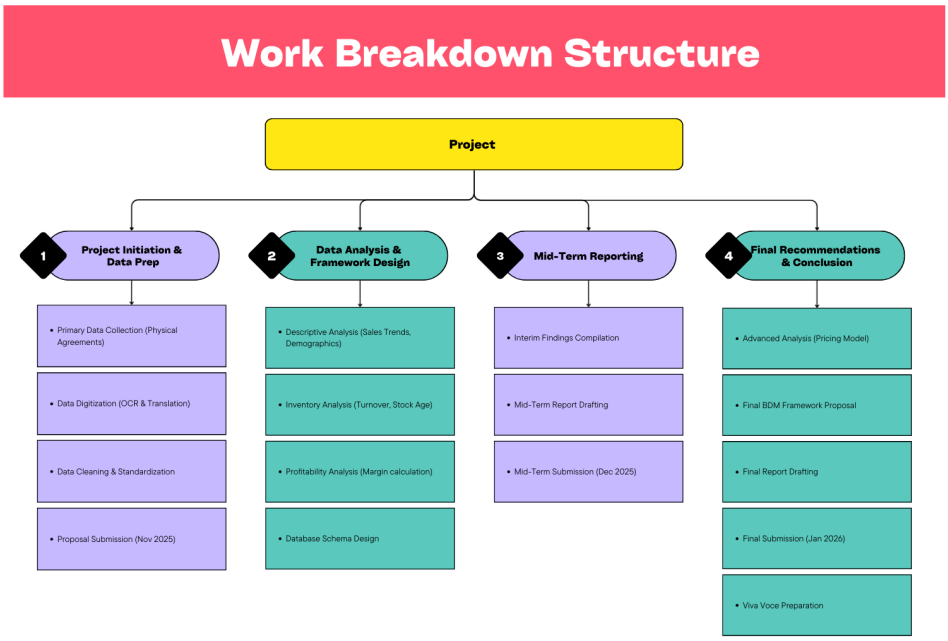
Justification: This primary data directly reflects the business's actual transactions. The selected variables cover all essential aspects needed to address the problem statements regarding inventory, sales, profitability, and customer patterns. Focusing on these specific fields from the agreements ensures relevant data for analysis.

5c. Analysis Tools and Justification:
Analysis Tools:
Microsoft Excel / Google Sheets: Used for initial data cleaning, structuring, basic calculations (e.g., average sale price), sorting, filtering, and creating simple charts (e.g., sales trends by month, top-selling models).
Python (with Pandas, Matplotlib/Seaborn libraries): Employed for more advanced data manipulation, handling larger datasets efficiently, performing statistical analysis (like calculating correlations), and generating more sophisticated visualizations (e.g., price distribution histograms, scatter plots of age vs. price).

Justification:
Excel/Sheets: Provide accessibility and ease of use for fundamental data handling and visualization, suitable for immediate insights and sharing with the business owner.
Python: Offers powerful capabilities for deeper data exploration, statistical modeling (if needed later), and automation of analysis, providing a more robust analytical foundation.

6 Expected Timeline

6.1 Work Breakdown Structure:



6.2 Gantt chart

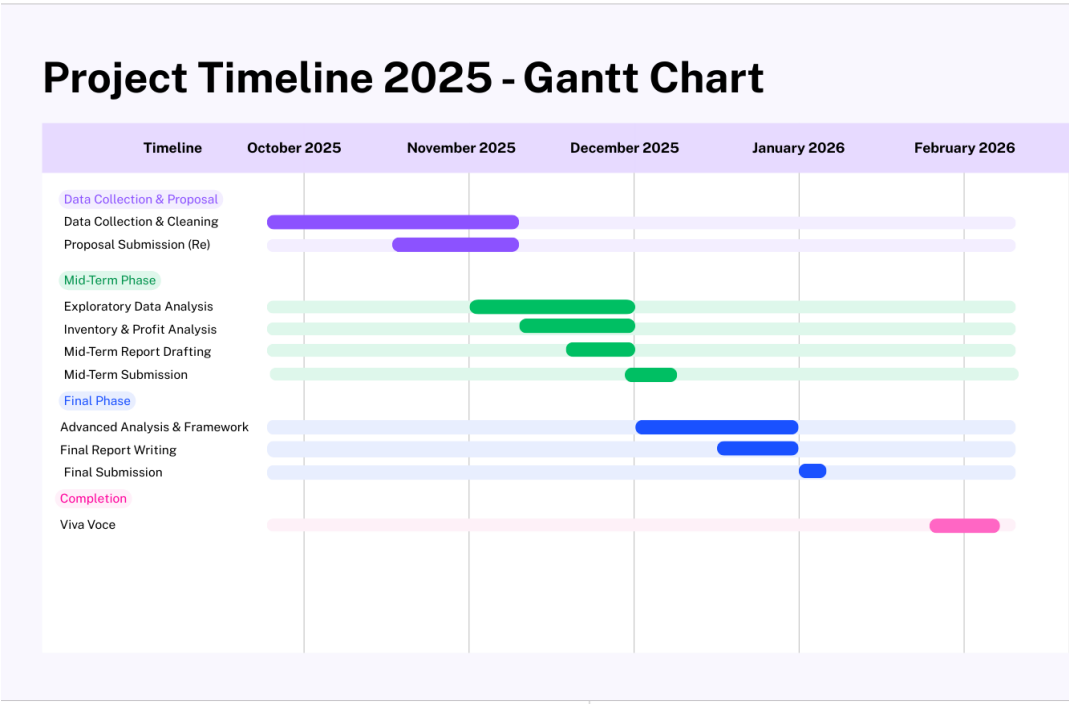


Figure 1 Expected timeline for completion of project.

7 Expected Outcome

- Develop a structured digital database schema tailored for New My Choice Cars to replace the current manual record-keeping system.
- Provide actionable insights based on the analysis of historical sales data, including – 1.Identification of best-selling vehicle brands, models, and fuel types. 2. Analysis of average inventory holding periods and identification of slow-moving stock. 3. Understanding of sales trends across different time periods. 4. Insights into typical customer demographics (age, location) based on available data.
- Formulate recommendations for data-driven pricing strategies based on vehicle age, make, model, and historical transaction values.
- Deliver a clear proposal for implementing a simple data management process (e.g., using spreadsheets or basic software) to ensure ongoing data capture and analysis.