DATE : 19/02/23

PREPARED BY:
TEAM 4

PROJECT COORDINATOR:
ANUSH

ANALYSIS OF WARRANTY

SPONSER NAME:
KRISHNAMOORTY VENUGOPAL

INSTRUCTOR:
RAMESH RAJAGOPALAN

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INTRODUCTION

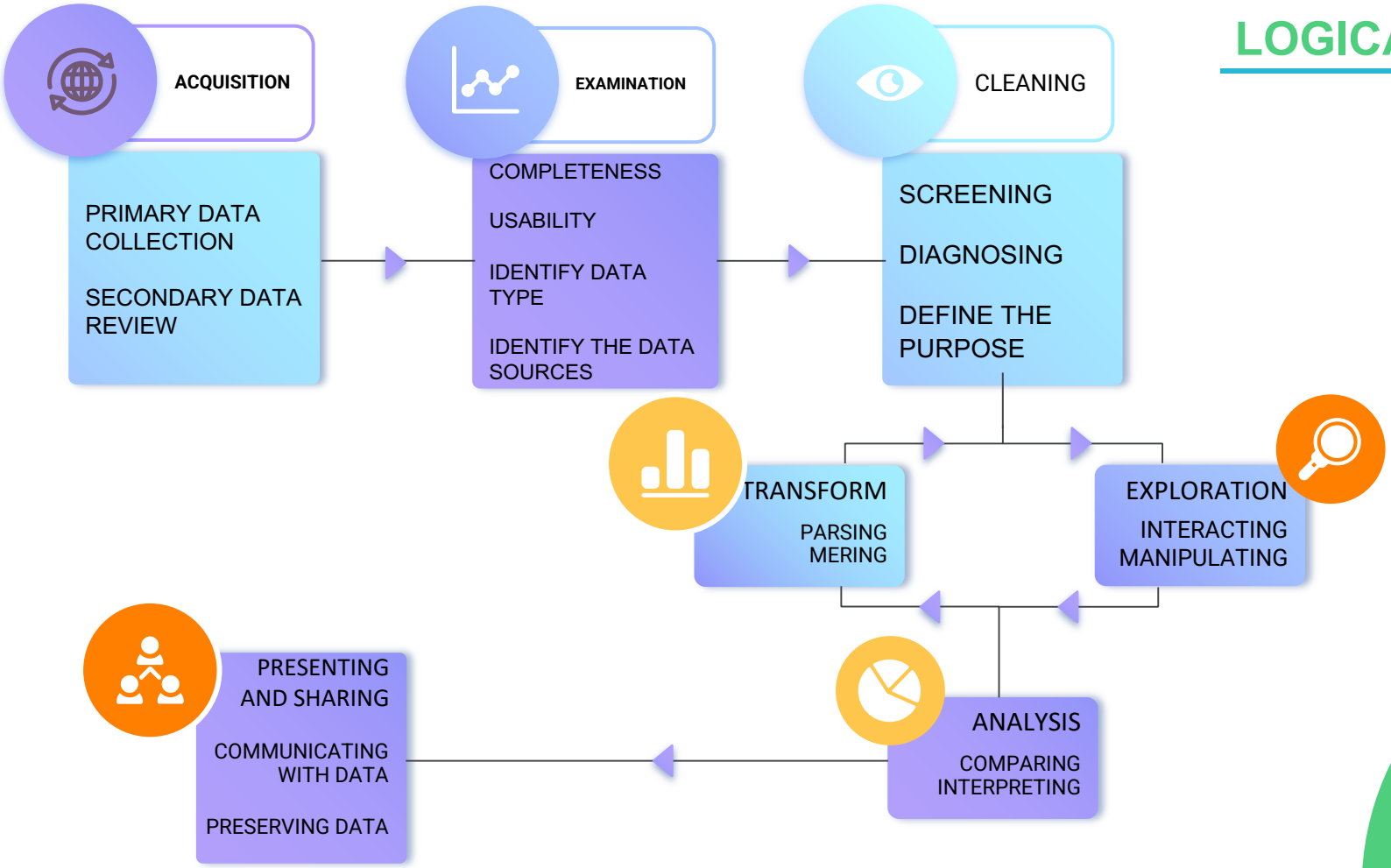
Good morning/afternoon/evening, everyone. We are pleased to be here today to present our research findings on warranty Data Portal . Our team has been working hard to gather and analyse data to provide insights and recommendations that we believe will be valuable to target audience/target Sponsor.

Allow us to introduce ourselves. Our team is composed of 6 members, each with a unique background and area of expertise. We have Anush Bharathwaj, Balamurugan, Dhatchana, Hirthick Raj , Dhinakaran , Abishek and collectively, we have Three Years of experience in CSE and DataScience . Our team has worked collaboratively to ensure that our analysis and recommendations are informed by a variety of perspectives and experiences.

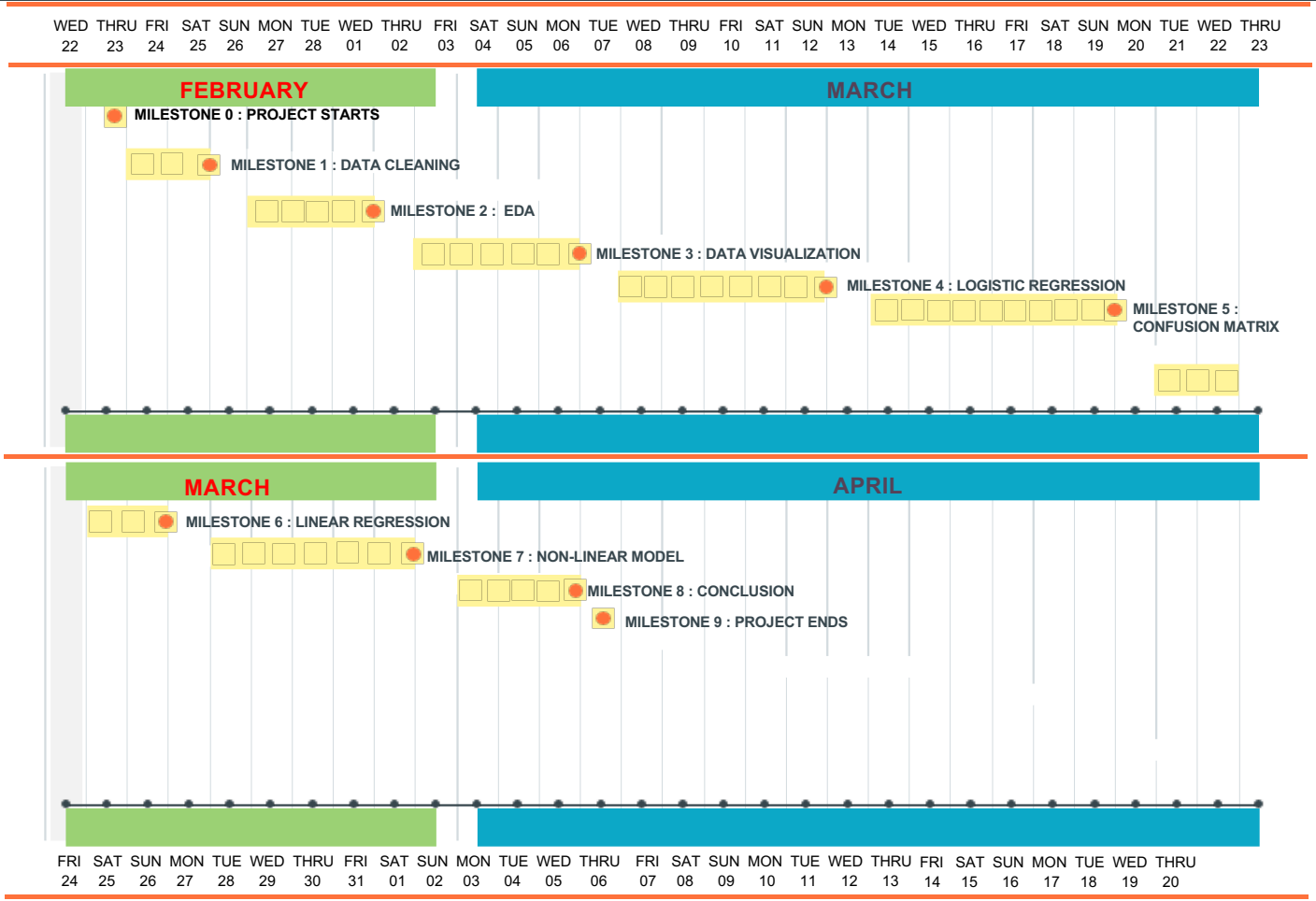
In this presentation, we will begin by providing an overview of the warranty Data Set , its importance, and its relevance to our audience. We will then discuss the research methods that we employed to gather and analyse data. This will be followed by a presentation of our key findings and insights. Finally, we will conclude with recommendations that we believe will help address the challenges and opportunities related to Warranty Portal.

We hope that our research will be informative and thought-provoking, and that it will spark conversations and ideas that will contribute to ongoing efforts to the project objective. We are excited to share our work with you, and we look forward to your questions and feedback. Thank you.

LOGICAL FLOW



PROJECT TIMELINE



START DATE: 19/02/23

ACTIVITY	START	END	ASSIGNED TO
MILESTONE 0 : PROJECT START	23/02/23	25/02/23	ANUSH BHARATHWAJ L
MILESTONE 1 : DATA CLEANING	26/02/23	01/03/23	BALAMURUGAN B
MILESTONE 2 : EDA	02/03/23	06/03/23	DHATCHANA H
MILESTONE 3 : DATA VISUALIZATION	07/03/23	12/03/23	ANUSH BHARATHWAJ L
MILESTONE 4 : LOGISTIC REGRESSION	13/03/23	19/03/23	HIRTHICK RAJ M
MILESTONE 5 : CONFUSION MATRIX	20/03/23	26/03/23	DHINAKARAN D G S
MILESTONE 6 : LINEAR REGRESSION	27/03/23	01/04/23	ABISHEK V
MILESTONE 7 : NON-LINEAR MODEL	02/04/23	05/04/23	DHATCHANA H
MILESTONE 8 : CONCLUSION	05/04/23	08/04/23	BALAMURUGAN B

BUSINESS CONTEXT

- The business context, problem, or opportunity that the warranty data portal could address will depend on the specific needs and goals of the company. However, here are some examples of how a warranty data portal could address a business problem or opportunity:

PROBLEM
HIGH WARRANTY COSTS

If a company is experiencing high warranty costs, a warranty data portal could help identify the specific products or product categories that are driving these costs. By analysing warranty claims data, the portal could identify the most common causes of warranty claims and the products that have the highest frequency of claims.

OPPORTUNITY
COMPETITIVE ADVANTAGE

A warranty data portal could also provide a competitive advantage by demonstrating the company's commitment to product quality and customer satisfaction. By providing customers with easy access to warranty information and a seamless claims process, the company could differentiate itself from competitors and improve its reputation in the marketplace.

BUSSINESS QUESTION'S

- Analysing warranty data can provide valuable insights into product quality, customer satisfaction, and potential cost savings.
  Here are some business questions that could be addressed with data analytics on warranty data:

1) What are the top reasons for product returns under warranty?

A: By analysing the reasons for product returns, businesses can identify the most common product defects or issues and prioritize efforts to improve product quality.

2) What is the average cost of warranty claims for each product category?

A: By analysing the cost of warranty claims, businesses can identify which product categories have the highest cost of warranty claims and potentially make change reduce these costs.

3) How do warranty claims vary by geography?

A: By analysing warranty claims by geography, businesses can identify potential issues with product distribution or customer demographics that may be contributing to warranty claims.

4) What is the average repair time for warranty claims?

A: By analysing the repair time for warranty claims, businesses can identify potential bottlenecks in the repair process and potentially reduce repair time, improving customer satisfaction.

5) Which product models have the highest frequency of warranty claims?

A: By analysing warranty claims by product model, businesses can identify which products have the most frequent warranty claims and focus on improving these products.

EXPECTED BUSINESS VALUE

If the warranty data generates new insights on the business questions, the company can expect to realize several benefits, including:

IMPROVED PRODUCT QUALITY

By identifying the root cause of warranty claims and common defects, the company can take targeted actions to improve product quality. This can result in a reduction in warranty claims, a decrease in repair costs, and an improvement in customer satisfaction.

DATA-DRIVEN DECISION-MAKING

By leveraging warranty data analytics, the company can make more informed and data-driven decisions. This can help identify areas of opportunity, optimize business processes, and reduce business risk.

ENHANCED CUSTOMER EXPERIENCE

By providing customers with easy access to warranty information and a seamless claims process, the company can improve the overall customer experience. This can lead to increased customer satisfaction, higher customer loyalty, and ultimately, increased revenue.

DATA ACCESS AND COMPUTATIONAL ENVIRONMENT

General Considerations For Accessing And Analysing Warranty Data:

DATA ACCESS

The first step in analysing warranty data is to gain access to the data. This may involve extracting data from warranty management systems or other databases, and consolidating data from various sources. Depending on the data sources and the data format, we may need to use data transformation and cleaning tools to ensure the data is consistent and in a usable format.

DATA STORAGE AND MANAGEMENT

Will need to store and manage the data in a way that enables efficient analysis. This may involve setting up a database or data warehouse to store the data, and implementing appropriate data security and access controls. (OPTIONAL)

COMPUTATIONAL ENVIRONMENT

To analyse the warranty data, you will need a computational environment that supports data analysis and visualization. This may involve setting up a data analysis platform, such as R or Python, and installing appropriate libraries and tools for data analysis, such as Pandas, Numpy, Scikit-learn, and Matplotlib.

DATA ANALYSIS AND VISUALIZATION

This may involve exploratory data analysis to identify patterns and correlations, as well as predictive modelling to forecast future warranty claims.

DATA PREPARATION AND PRELIMINARY DATA ANALYSES

General Considerations For Data Preparation And Preliminary Analysis Of Warranty Data

DATA CLEANING AND TRANSFORMATION

It's Important To Ensure That The Warranty Data Is Clean And In A Usable Format. This May Involve Identifying And Correcting Errors, Filling In Missing Data, And Transforming Data Into A Consistent Format.

EXPLORATORY DATA ANALYSIS

Conduct Exploratory Data Analysis To Gain An Understanding Of The Data And Identify Any Patterns Or Relationships. This May Involve Plotting The Data And Conducting Statistical Analyses To Identify Trends Or Correlations.

DESCRIPTIVE STATISTICS

Descriptive Statistics Can Help You Summarize The Data And Identify Any Outliers Or Unusual Data Points That May Need Further Investigation. This May Involve Calculating Measures Of Central Tendency (Such As Mean, Median, And Mode) And Measures Of Variability

PREDICTIVE MODELING

To Build Predictive Models To Forecast Future Warranty Claims. This May Involve Using Techniques Such As Regression Analysis, Time Series Analysis, And Machine Learning.

SOLUTION APPROACH

Overview Of Theoretical/Conceptual Approaches, Models, And Research Techniques For Similar Business Topic Studies In Prior Literature

Survival analysis is a statistical method used to examine time-to-event data, such as the interval between the sale of a product and the occurrence of the first warranty claim. The likelihood of warranty claims can be predicted using this method, as can the chance of subsequent warranty claims.

SURVIVAL ANALYSIS

Reliability analysis is a statistical method for determining a product's durability over time. This strategy can be used to find probable flaws or design problems that could result in warranty claims.

RELIABILITY ANALYSIS

Graphical representations of the probabilistic interactions between variables are known as Bayesian networks. The intricate connections between warranty claims and other product attributes can be modelled using this method.

BAYESIAN NETWORKS

In warranty data analysis, techniques like decision trees, random forests, and neural networks have been utilized to pinpoint the main causes of warranty claims and create predictive models.

MACHINE LEARNING

POTENTIAL RISKS

There Are Several Potential Risks Associated With Warranty Data, Including:

DATA QUALITY ISSUES

The quality of the data is one of the main concerns involved with warranty data. Inaccurate judgments and poor decision-making might result from incomplete, inaccurate, or inconsistent data.

PRIVACY AND SECURITY CONCERNS

Warranty data frequently contains sensitive information about consumers and products, raising privacy and security concerns. If this data is not securely protected, breaches and cyberattacks may occur.

REGULATORY COMPLIANCE

Many regulations and compliance standards, including data protection legislation and industry standards, may apply to warranty data. Legal and financial repercussions may occur from failure to comply with these regulations.

TECHNOLOGICAL OBSOLESCENCE

As technology develops, outmoded and inefficient warranty data systems may be created. Accessing and analysing warranty data may become challenging as a result, which may result in missed opportunities and postponed decision-making.

LACK OF EXPERTISE

Warranty data analysis calls for particular knowledge and abilities. It may be difficult for an organization to examine the data efficiently and come to useful conclusions if it lacks the appropriate skills.

MITIGATE THE POTENTIAL RISKS

The Following Strategies Can Be Used To Reduce The Potential Dangers Connected To Warranty Data:

DATA QUALITY CONTROLS

Establish Data Quality Controls To Make Sure The Data Is Precise, Comprehensive, And Consistent. Processes Including Data Cleansing, Data Profiling, And Data Validation May Be Involved.

SECURITY MEASURES

Adopt suitable security measures, such as access controls, data encryption, and intrusion detection systems, to secure warranty data from unauthorized access.

REGULATORY COMPLIANCE

Verify that the warranty data portal and any associated procedures adhere to all applicable laws and standards. To identify and handle compliance obligations, this may entail collaborating with legal and compliance departments.

TECHNOLOGY UPGRADES

To make sure the systems used to manage warranty data are still functional and efficient, they should be reviewed and updated on a regular basis. This can entail making an infrastructure, software, or hardware purchase to facilitate warranty data management.

INTEROPERABILITY AND INTEGRATION

Check for seamless interoperability and integration between the various systems used to manage warranty data. This can entail implementing common data formats and protocols as well as creating methods for data interchange and integration.

QUESTION AND ANSWER ?

What is the root cause of warranty claims?	By analyzing the root cause of warranty claims, businesses can identify the specific factors that are leading to product defects and improve product design or production processes to prevent future warranty claims.
How does the frequency of warranty claims vary over time?	By analyzing warranty claims over time, businesses can identify trends and potentially predict when warranty claims are likely to increase or decrease.
What are the most common types of defects in The products that lead to warranty claims, and how can we reduce the frequency of these defects?	After conducting a detailed warranty data analysis, we found that the most common types of defects in The products that lead to warranty claims are related to issues with the product's mechanical components, such as faulty bearings and belts.
How can we better understand customer behaviour and preferences related to warranty claims, and how can we use this information to improve our warranty claims process?	After conducting an analysis of The warranty data, we found that customers who submit warranty claims tend to fall into one of three categories: those who are dissatisfied with the product and want a replacement, those who are simply looking for a repair, and those who are looking for a refund
How can we identify and address common issues with our products that are leading to high rates of warranty claims?	After conducting an analysis of The warranty data, we found that a significant number of warranty claims are related to issues with The products' Part's. Specifically, we found that the Dual Brake Valve are failing at a high rate, leading to customer frustration and dissatisfaction.

CONCLUSION

Conclusions For A Warranty Data Analysis Will Depend On The Specific Business Questions And Objectives That Were Identified At The Outset Of The Project.

1) Identification of product defects: The analysis of warranty data may reveal patterns of failures or malfunctions that indicate the presence of product defects.

2) Assessment of warranty program effectiveness: The analysis of warranty data may reveal how effective the warranty program is in meeting customer needs and managing costs.

3) Identification of opportunities for cost savings: The analysis of warranty data may identify specific opportunities for cost savings by reducing warranty claims, extending product life, or improving product quality.

THANKS

OUR TEAM :

ANUSH BHARATHWAJ L
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BALAMURUGAN B
HIRTHICK RAJ M
DHINAKARAN D G S
ABISHEK V