M.Tech (Integrated). - Project-

CAMPUS TRANSPORT USAGE AND SATISFACTION DASHBOARD

Submitted in partial fulfillment of the requirements for the degree of

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in

Computer science and Engineering (Data science)

by

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Varshini S
Sakhanaa P

TABLE OF CONTENTS

LIST OF FIGURES

The **Power BI Dashboard** displaying Transport Mode Distribution and Satisfaction Ratings provides a visual overview of how students, faculty, and staff commute within the campus and their level of satisfaction with the transportation facilities. It uses bar and pie charts to represent the proportion of users for each transport mode, such as bikes, buses, or walking, making it easy to compare preferences. Additionally, satisfaction levels are depicted through color-coded ratings that highlight user experiences with comfort, punctuality, and convenience. This visualization helps the university identify the most and least preferred modes of transport and understand user sentiment. The insights derived from this dashboard can guide improvements in campus mobility and transport planning.

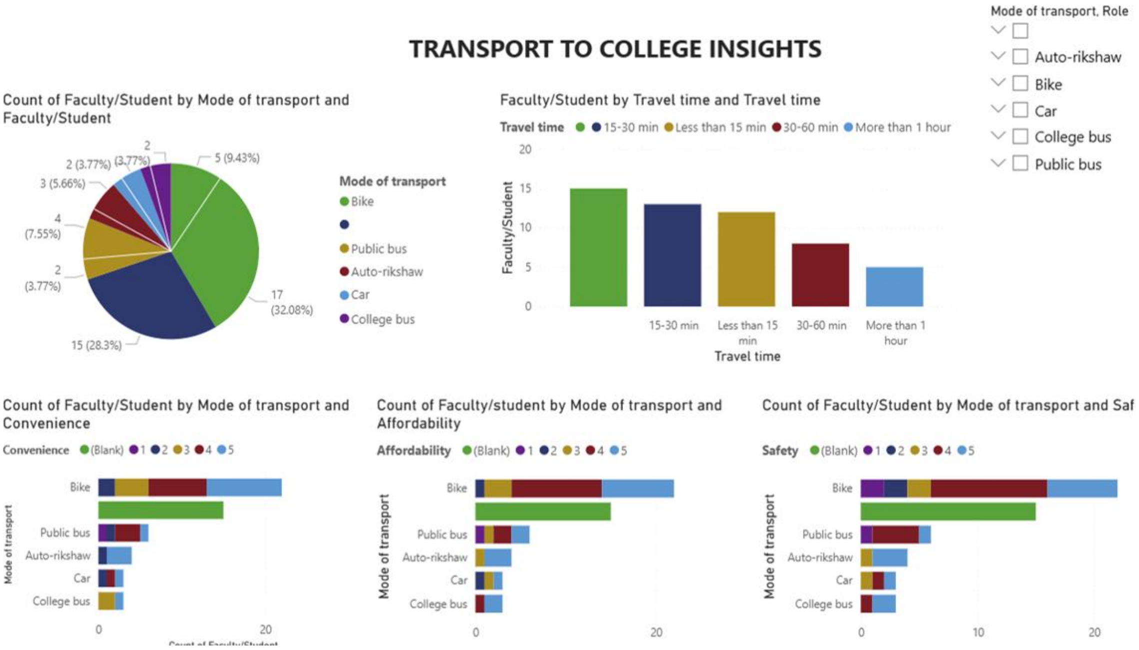

Figure 2.1: Transport to college insights

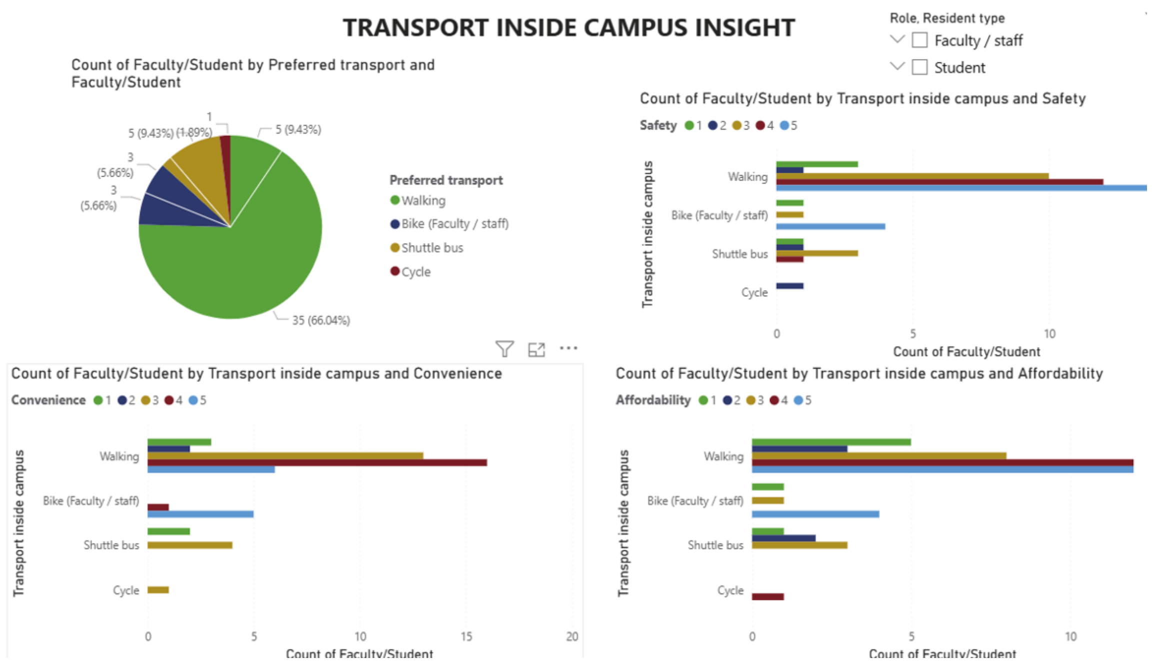

Figure 2.2: Transport inside college insights

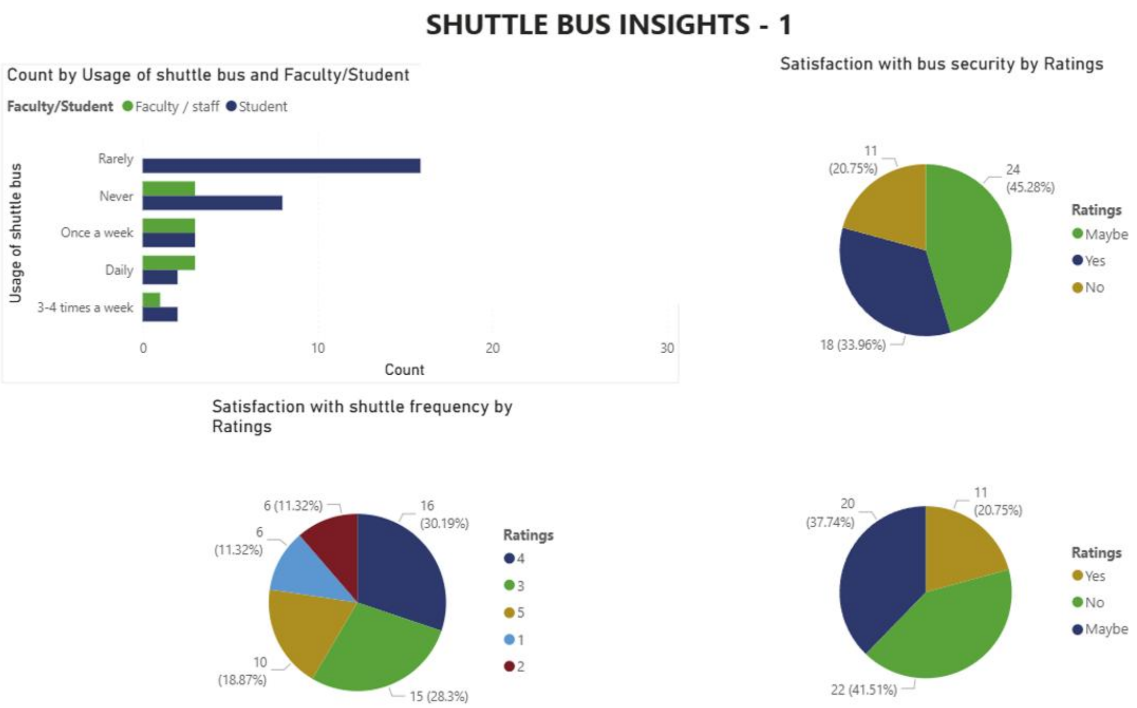

Figure 2.3: Shuttle bus insights

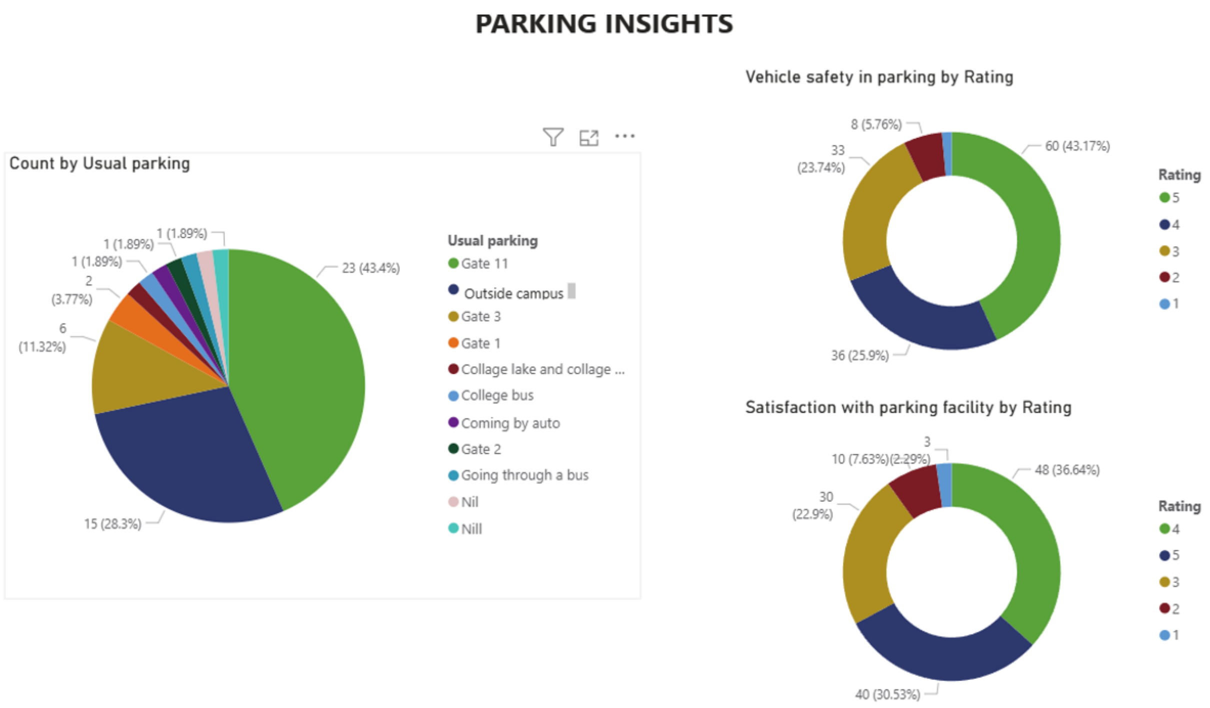

Figure 2.4: Parking insights

LIST OF TABLES

Table 2.1: Dataset Attributes Collected from Google Form Survey

Attribute Name	Description	Data Type	Example Value
Timestamp	Date and time when the response was submitted	Date/Time	08-11-2025 18:59:09
Role	Category of respondent (Student/Faculty/Staff)	Categorical	Student
Residency Type	Type of residence (Day scholar/Hosteller)	Categorical	Day scholar
Mode of Transport	Primary mode of transport used	Categorical	Bike

Distance Travelled (in km)	Approximate travel distance from residence to campus	Numerical	3 km
Travel Duration (in minutes)	Average time taken to reach campus	Numerical	15 min
Entry Gate Used	Commonly used campus gate for entry	Categorical	Gate 3
Frequency of Travel	Number of trips made per day/week	Numerical	2
Parking Availability Rating	Rating of parking convenience (1–5 scale)	Ordinal	4
Safety Rating	Rating of safety during travel (1–5 scale)	Ordinal	5
Satisfaction Rating	Overall satisfaction with transport facilities	Ordinal	4
Alternative Mode Preference	Alternate mode considered if available	Categorical	Walking
Payment Method Used	Common payment option (Cash/Mobile wallet)	Categorical	Mobile wallet
Interest in Campus Shuttle	Willingness to use an official campus transport service	Boolean (Yes/No)	Yes
Suggestions/Feedback	Open-ended suggestions for improving transport	Text	"Need more bike parking"

Table 2.2: Categorized Transport Satisfaction Levels

Category	Satisfaction Range (1–5 Scale)	Description	Interpretation
Highly Satisfied	5	Respondents who gave maximum ratings across parameters like safety, convenience, and punctuality.	Transport system meets or exceeds expectations.
Satisfied	4	Users who are generally happy with current transport facilities but have minor improvement areas.	Good overall satisfaction level.
Neutral	3	Respondents with moderate experiences, showing no strong satisfaction or dissatisfaction.	Indicates average service quality.
Dissatisfied	2	Users who expressed concerns about delays, parking issues, or comfort levels.	Needs moderate improvement.

Highly Dissatisfied	1	Respondents with repeated negative experiences regarding safety, convenience, or time management.	Requires immediate corrective action.

Table 2.3: Summary of Dashboard Components and Their Functions

Component Name	Type of Visualization	Purpose / Function	Insights Provided
Transport Mode Distribution	Pie Chart	Displays the proportion of users by mode of transport (bus, bike, car, walking, etc.).	Helps identify the most preferred and least used transport modes on campus.
Satisfaction Ratings Overview	Stacked Bar Chart	Represents satisfaction levels across multiple parameters such as safety, convenience, and punctuality.	Highlights which areas of transport need improvement.
Travel Distance vs. Time	Line or Scatter Chart	Shows the relationship between travel distance and average travel duration.	Assists in understanding commuting efficiency and congestion points.
Parking and Shuttle Feedback	Column Chart	Displays feedback regarding parking space availability and shuttle service satisfaction.	Identifies parking issues and areas for shuttle service enhancement.
Respondent Category Filter	Slicer / Filter Panel	Allows users to filter results based on respondent type — students, faculty, or staff.	Enables comparison of transport experiences among different campus groups.
Overall Satisfaction Summary	Card / KPI Visualization	Shows the total average satisfaction score based on all responses.	Provides a quick snapshot of overall user sentiment.

Table 2.4: Comparison of Transport Modes Based on Frequency of Use

Mode of Transport	User Category	Average Frequency of Use (Days/Week)	Satisfaction Level (Average Rating / 5)	Remarks / Observations
Two-Wheeler (Bike/Scooter)	Day Scholars	5–6	4.2	Most preferred due to flexibility and timesaving.
College Bus / Shuttle	Students (Hostellers)	4–5	3.8	Convenient but needs better scheduling and timing.
Car (Personal/Faculty)	Faculty	5	4.5	Comfortable and reliable but faces parking issues.

Cycle	Students	3–4	3.6	Eco-friendly option, but limited usage due to weather and distance.
Walking	Hostellers / Faculty (Nearby)	5	4.0	Common among nearby residents; healthy but time-consuming for longer distances.

Table 2.5: Feedback Summary and Improvement Suggestions

Feedback Category	Common Issues Identified	Satisfaction Level (Average Rating / 5)	Suggested Improvements	Expected Outcome
Parking Facilities	Insufficient parking space, lack of organization	3.5	Expand parking area, implement digital slot booking	Reduced congestion and better parking management
Shuttle / Bus Service	Irregular schedules, overcrowding during peak hours	3.8	Introduce real-time tracking, increase frequency	Improved reliability and punctuality
Safety and Security	Poor lighting near parking and bus stops	4.0	Install more CCTV cameras and lighting systems	Enhanced safety for students and faculty
Travel Convenience	Long travel duration due to limited transport routes	3.9	Optimize routes and introduce more pick-up points	Reduced travel time and increased satisfaction
Sustainability Awareness	Low use of bicycles and walking	3.7	Promote eco-friendly transport campaigns	Improved environmental sustainability and awareness

LIST OF ABBREVIATIONS

Abbreviation	Full Form
BI	Business Intelligence
CSV	Comma Separated Values
DFD	Data Flow Diagram
KPI	Key Performance Indicator
MS	Microsoft
PBIX	Power BI Project File Extension
UI	User Interface
UX	User Experience

SYMBOLS AND NOTATIONS

Symbol	Meaning / Description
Σ	Summation of values (used in calculating averages and satisfaction indexes)
μ	Mean of dataset
σ	Standard deviation of responses
Δ	Change in satisfaction or feedback trend
→	Data flow direction between components
%	Percentage representation in visualizations

ABSTRACT

Transportation within a university campus plays a crucial role in ensuring smooth mobility, punctuality, and convenience for students, faculty, and staff. Efficient transport management directly influences academic productivity, accessibility, and overall campus satisfaction. With the continuous expansion of campus infrastructure and the increasing number of commuters, it becomes essential to develop a system that can effectively analyse transportation habits and user satisfaction to support better planning and decision-making. This project aims to analyse campus transport usage and satisfaction through data analytics and visualization using Microsoft Power BI. It leverages the capabilities of Business Intelligence (BI) to transform raw survey data into insightful visual representations that can guide campus authorities in improving transportation facilities.

A structured Google Form survey was designed and distributed among students, faculty, and staff to collect detailed feedback on their commuting experiences. The survey included questions related to mode of transport, travel distance, time taken to reach the campus, satisfaction levels, parking convenience, safety perception, and overall experience. The responses were automatically collected in Google Sheets and then processed using Microsoft Excel for data cleaning, organization, and transformation. Any missing or inconsistent entries were handled to ensure data accuracy and integrity. The cleaned dataset was subsequently imported into Microsoft Power BI, where various data visualization techniques were applied to uncover trends, patterns, and correlations within the transport feedback data.

The Power BI dashboard developed in this project serves as a dynamic and interactive platform for analysing transport-related insights. It presents multiple visual elements such as bar charts, pie charts, line graphs, and cards that display key metrics including preferred transport modes, satisfaction ratings, travel durations, and parking convenience. Users can apply filters to view data by categories such as day scholars, hostellers, or faculty members. The dashboard's interactivity allows decision-makers to explore data dynamically, identify problem areas, and compare responses across different user groups. Additionally, the dashboard automatically updates whenever new survey responses are received, ensuring that insights remain current and reliable.

The results derived from the analysis revealed significant findings about campus transport behaviour. Most day scholars prefer using two-wheelers and college buses due to flexibility and convenience, whereas faculty members largely rely on personal cars. Hostellers expressed moderate satisfaction with shuttle services but suggested improvements in timing and frequency. Respondents also highlighted parking space shortages and safety concerns in certain areas. These insights provide valuable direction for campus administrators to enhance transport facilities, implement better traffic flow management, and promote sustainable commuting practices.

Ultimately, this project demonstrates the effective use of data analytics and visualization tools for institutional decision-making. It bridges the gap between survey data collection and actionable insight generation, transforming traditional feedback mechanisms into a digital, real-time solution. The application of Power BI not only simplifies data interpretation but also encourages transparency and participatory planning in the campus ecosystem. By implementing such a system, universities can achieve data-driven transport management that prioritizes efficiency, safety, and user satisfaction. This approach can serve as a scalable model for other educational institutions aiming to optimize their internal transport systems through Business Intelligence technologies.

1. INTRODUCTION

1.1 Background

Transportation within a university campus plays an essential role in ensuring efficient mobility, punctuality, and accessibility for all stakeholders, including students, faculty, and staff. A well-organized campus transport system directly impacts productivity, attendance, and satisfaction. However, as educational institutions expand, managing transportation becomes a major challenge due to increasing numbers of commuters, limited parking facilities, and a lack of optimized routes. This project focuses on analysing campus transport usage and satisfaction through the application of data analytics and visualization. By collecting feedback via Google Forms, cleaning and organizing the data using Microsoft Excel, and visualizing it using Microsoft Power BI, the project aims to provide data-driven insights that can help the administration understand and improve existing transportation systems.

1.2 Motivations

The motivation for this project arises from the growing need for data-based decision-making in campus management. Often, administrative decisions regarding transportation are based on assumptions rather than empirical data. Students and faculty may experience daily inconveniences—such as long waiting times, congested parking, or lack of safe commuting options—but their feedback is rarely quantified. By systematically collecting and analysing responses, this project enables the institution to understand actual usage patterns, satisfaction levels, and problem areas. Additionally, this project demonstrates how Business Intelligence tools like Power BI can transform raw survey data into actionable insights that can guide long-term infrastructure planning.

1.3 Scope of the Project

The scope of this project is focused on collecting and analysing transportation feedback within the campus using digital tools. The process begins with designing a Google Form to gather data from students, faculty, and staff about their commuting habits, satisfaction, and preferences. The data is then cleaned and organized using Microsoft Excel to ensure consistency and accuracy. The processed dataset is imported into Microsoft Power BI, where interactive visualizations and dashboards are created. These dashboards highlight trends, satisfaction levels, and potential areas for improvement. The scope is limited to analysing transport feedback and does not include route optimization or live vehicle tracking. However, it provides a strong foundation for data-driven campus transport planning.

2. PROJECT DESCRIPTION AND GOALS

2.1 Literature Review

Several studies have explored how data analytics can optimize transport systems and enhance commuter satisfaction.
According to **Wolski et al. (2020)**, integrating smart transport dashboards helps administrators make informed decisions based on real-time data trends. **Kaur and Singh (2021)** emphasized that student mobility affects attendance and academic outcomes, and the use of data visualization tools can improve campus transport management. **Goyal et al. (2022)** demonstrated that integrating Power BI for urban transport systems helps simplify decision-making and identify areas needing attention. However, few studies focus specifically on internal campus transport analysis. Therefore, this project extends the application of data analytics and visualization to a university campus setting, providing insights specific to student and faculty commuting experiences.

2.2 Research Gap

Although data-driven transport management is common in cities and industries, educational institutions often lack systematic approaches to analyse transportation feedback. Existing studies primarily target public transportation or logistics management, leaving a gap in understanding localized campus commuting patterns. This project addresses this gap by focusing on internal university transport systems, analysing both student and faculty perspectives using interactive dashboards. It combines survey-based data collection with visualization-driven insights, creating a framework that can be replicated in other institutions.

2.3 Objectives

The main objective of this project is to develop a data-driven decision-support tool for campus transport analysis.
The specific objectives include:

1. To design and conduct a structured Google Form survey to collect transport-related feedback from students, faculty, and staff.
2. To clean, preprocess, and organize collected data using Microsoft Excel.
3. To import the processed data into Power BI and create interactive dashboards that visualize transport patterns.
4. To identify common issues and satisfaction levels regarding different modes of transport.
5. To generate actionable insights and propose recommendations for improving campus transport management.

2.4 Problem Statement

Most campuses rely on manual feedback or observation to manage transportation facilities, which often leads to inefficiencies and unsatisfied commuters. The lack of systematic data collection and visualization results in poor understanding of actual commuting behaviours and satisfaction trends. The problem addressed in this project is the absence of an automated, visual, and data-driven approach to analyse campus transport systems. This project aims to overcome this issue by designing a Power BI dashboard that transforms raw survey responses into meaningful visual insights.

2.5 Project Plan

The project is divided into systematic stages:

1. **Data Collection:** Designing a Google Form to collect responses from students and faculty regarding their mode of transport, travel time, parking, and satisfaction.
2. **Data Cleaning:** Using Excel to remove duplicates, correct inconsistencies, and organize data into categories.
3. **Data Import:** Importing the refined dataset into Power BI.
4. **Dashboard Creation:** Building charts, graphs, and visual models to represent different transport aspects.
5. **Analysis and Reporting:** Interpreting visual insights to identify problem areas and suggest improvements.
6. **Documentation:** Compiling the results into a detailed project report and presentation.

3. TECHNICAL SPECIFICATION

3.1 Requirements

3.1.1 Functional Requirements

The system should allow the collection of survey data using Google Forms. It should enable exporting of responses in Excel format for preprocessing. Power BI should be capable of importing this data, establishing relationships, and generating visualizations. The dashboard should be interactive and capable of automatically updating when new responses are added to the dataset.

3.1.2 Non-Functional Requirements

The project should be easy to use and accessible to administrators without technical expertise. The data visualizations should be accurate, consistent, and visually appealing. It should perform efficiently even with increasing data size and maintain compatibility with common software environments.

3.2 Feasibility Study

3.2.1 Technical Feasibility

The tools used—Google Forms, Microsoft Excel, and Power BI—are readily available and widely used. These tools require minimal setup and ensure smooth data handling and visualization. Therefore, the project is technically feasible.

3.2.2 Economic Feasibility

Since all tools used are either free or institutionally licensed, the project incurs minimal or no financial cost, making it economically feasible for any university or college.

3.2.3 Social Feasibility

The project benefits students and faculty directly by addressing their transportation concerns. Improved transport systems contribute to better punctuality, reduced stress, and a more organized campus life, making it socially beneficial and acceptable.

3.3 System Specification

3.3.1 Hardware Specification

- Processor: Intel Core i5 or higher
- RAM: 8 GB or more
- Storage: 256 GB SSD or above
- Internet Connection: Required for Google Forms and Power BI service

3.3.2 Software Specification

- Operating System: Windows 10 or higher
- Applications: Google Forms, Microsoft Excel, Microsoft Power BI
- Browser: Chrome or Edge for accessing online tools

4. DESIGN APPROACH AND DETAILS

4.1 System Architecture

The System Architecture of the Campus Transport Dashboard shows the complete workflow from data collection to decision-making. It starts with gathering transport feedback through Google Forms, followed by data cleaning and organization in Microsoft Excel. The refined dataset is then imported into Power BI to create interactive visualizations. These visuals display key metrics like travel mode, satisfaction, safety, and parking convenience. The resulting insights help campus authorities make informed, data-driven improvements to enhance transport efficiency and user satisfaction.

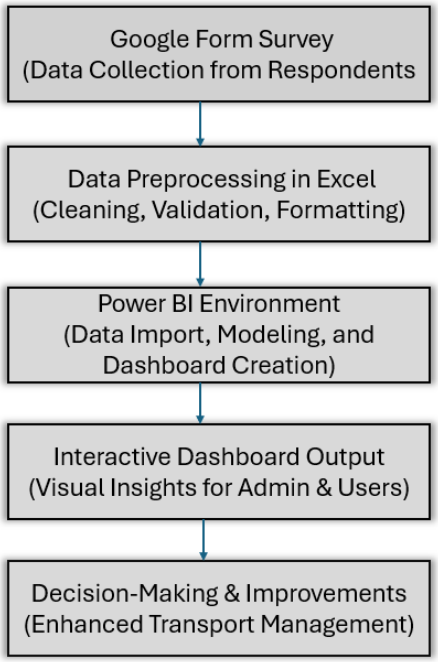

Figure 2.1: System Architecture of Campus Transport Dashboard

4.2 Design

4.2.1 Data Flow Diagram

The Data Flow Diagram (DFD) represents the flow of transport survey data from its collection to visualization. It begins with data entry through Google Forms by users (students, faculty, and staff). The responses are then stored in Google Sheets and exported to Microsoft Excel for cleaning and preprocessing. The refined dataset is subsequently imported into Power BI, where it is modelled and visualized through interactive dashboards. This process ensures seamless data movement and accurate transformation from raw inputs to analytical insights.

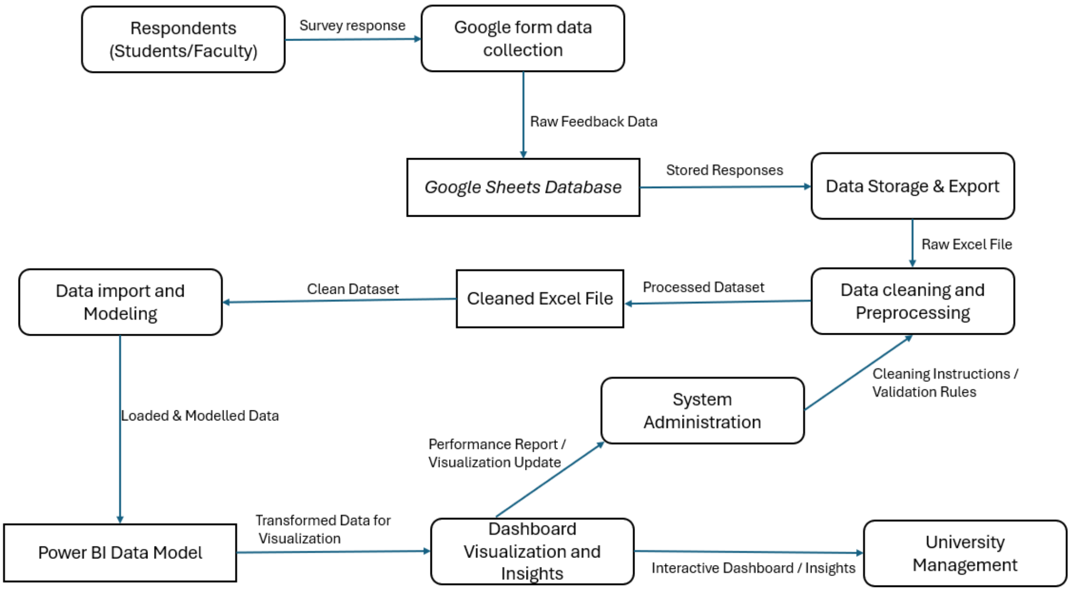

Figure 2.2: Data Flow Diagram Representing Data Movement from Google Form to Power BI

4.2.2 Use Case Diagram

The Use Case Diagram depicts how different campus users interact with the Transport Feedback System. Students and faculty submit transport-related feedback through Google Forms, which is stored and processed in the system. Power BI then analyses and visualizes this data into dashboards. The administrator reviews these dashboards, interprets insights, and recommends necessary improvements. Relationships between actors and processes are shown using arrows and "extends/includes" notations to represent dependencies between actions.

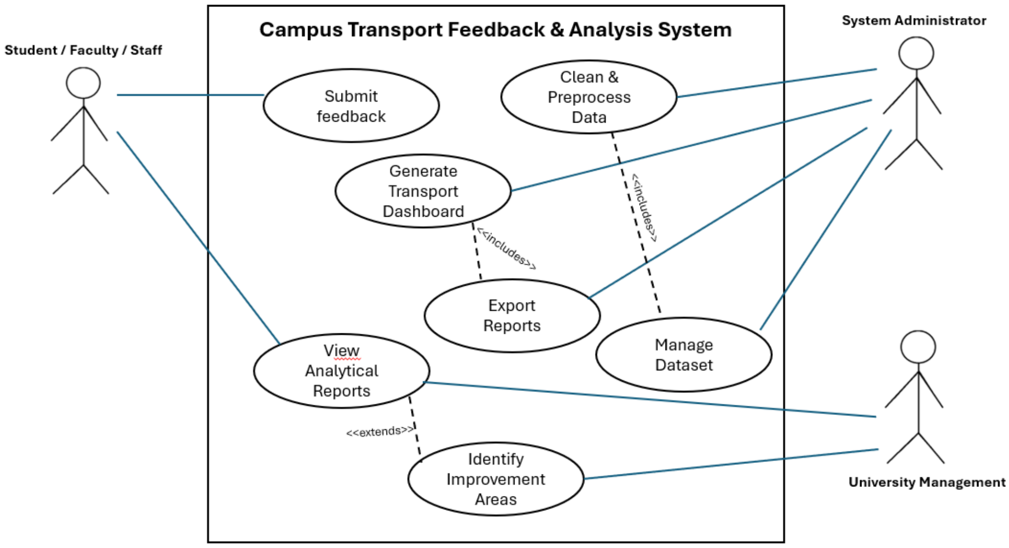

Figure 2.3: Use Case Diagram for Transport Feedback Analysis

4.2.3 Class Diagram

The Class Diagram illustrates the structural design of the data visualization system. It includes key classes such as *User, Dashboard, DataProcessor, DataConnector, SurveyData, Visulaization* Each class contains attributes and methods that define how data is collected, processed, analyzed, and displayed.

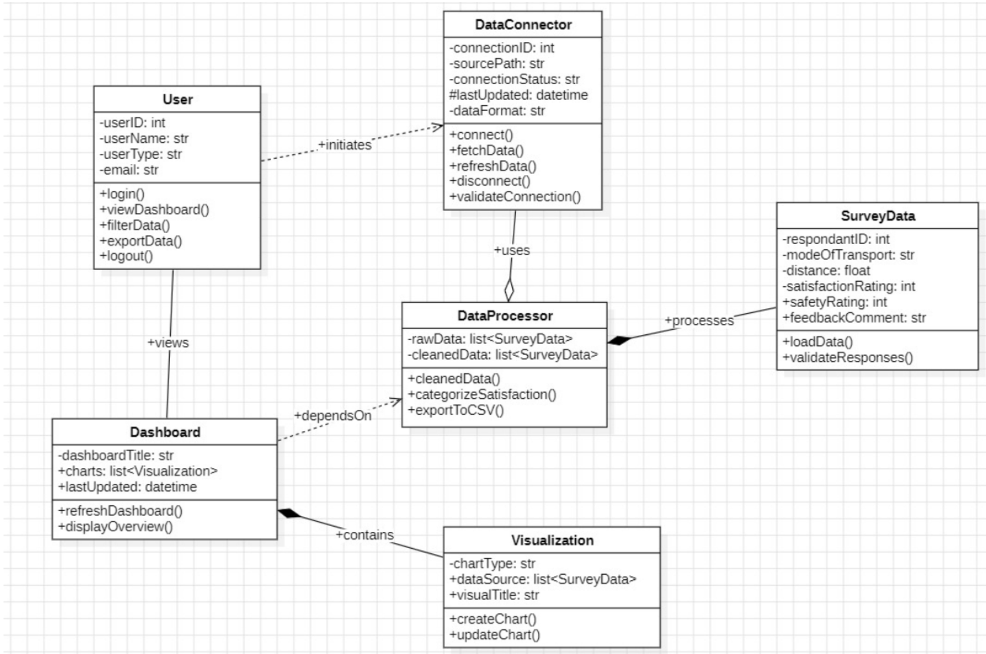

Figure 2.4: Class Diagram for Data Visualization Process

4.2.4 Sequence Diagram

The Sequence Diagram describes the chronological flow of actions when updating transport data. The process begins with the user submitting new survey responses via Google Forms. The updated dataset is fetched and cleaned in Excel, followed by data import into Power BI. Power BI then refreshes the data model and updates the dashboard visuals automatically. This sequential workflow ensures that insights remain current and reflect the latest user feedback.

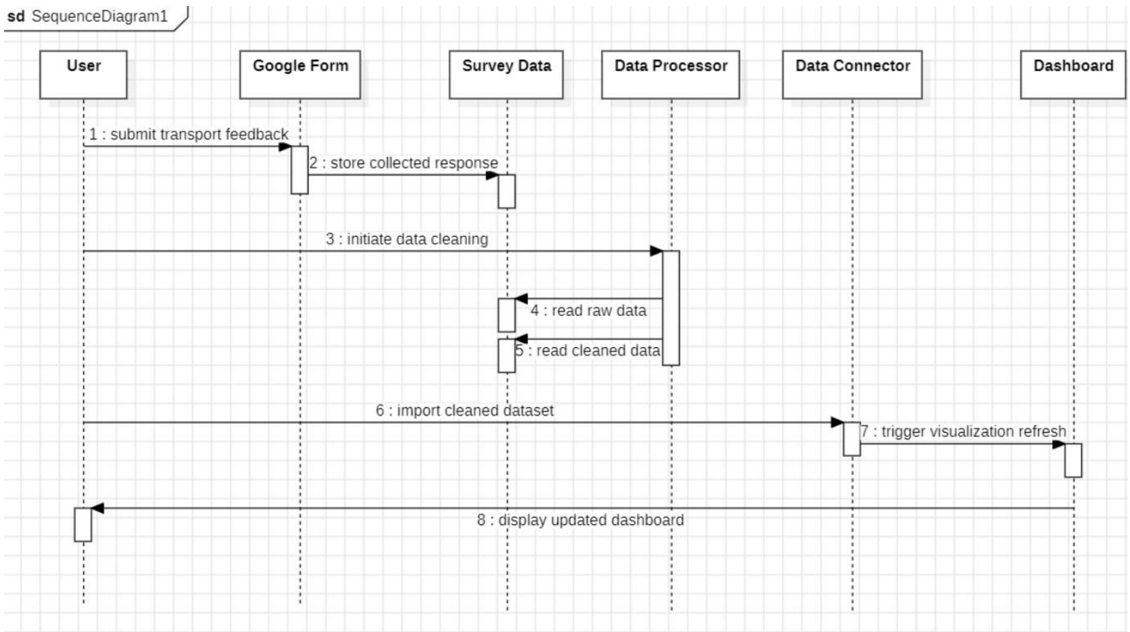

Figure 2.5: Sequence Diagram Showing Data Update Workflow

5. METHODOLOGY AND TESTING

The methodology adopted for this project follows a modular and structured approach, ensuring smooth data flow from collection to visualization. The system is divided into four major modules — Survey, Data Processing, Visualization, and Analysis. Each module plays a crucial role in achieving the overall objective of converting raw feedback into actionable insights for improving campus transportation. The testing phase was integrated within each module to verify data accuracy, system functionality, and dashboard performance.

5.1 Survey Module

The Survey Module forms the foundation of this project. A structured Google Form was designed to collect detailed transport-related feedback from students, faculty, and staff within the university campus. The form included questions about mode of transport, travel distance, travel time, parking convenience, safety perception, and overall satisfaction level.

Once responses were submitted, the data was automatically stored in Google Sheets, ensuring easy access and centralized storage. This module ensured that the dataset captured a diverse range of responses, representing the actual travel patterns and experiences of campus commuters. Regular testing at this stage involved verifying that all responses were recorded correctly, without duplication or data loss, and ensuring that question formats (like rating scales and dropdowns) functioned as intended.

5.2 Data Processing Module

The Data Processing Module focuses on transforming the raw survey data into a clean, structured, and analysis-ready format. The responses from Google Sheets were exported to Microsoft Excel, where the preprocessing steps were carried out. This included removing incomplete or inconsistent responses, standardizing column names, categorizing transport types, and assigning numerical codes to qualitative variables such as satisfaction levels.

Additional operations like calculating average satisfaction scores, frequency of transport modes, and distance-based classifications were also performed. This step ensured that the dataset-maintained integrity, accuracy, and consistency for visualization. Testing in this module involved validating cell formulas, verifying computed values, and ensuring no missing or duplicate entries existed after cleaning.

5.3 Visualization Module

The Visualization Module deals with importing the processed dataset into Microsoft Power BI for creating interactive dashboards. Within Power BI, relationships between different data fields were established, and various visual components such as bar charts, pie charts, cards, and slicers were added to represent transport trends and satisfaction patterns effectively.

Multiple dashboard pages were designed to display distinct aspects — including Transport Mode Distribution, Satisfaction Ratings, Parking Analysis, and Travel Duration Insights. Testing for this module focused on verifying data import accuracy, checking the correctness of visual filters, and ensuring real-time synchronization whenever new responses were added to the Google Form. The responsiveness and interactivity of visuals were also tested across different devices.

5.4 Analysis Module

The Analysis Module represents the interpretation phase of the project, where the visualized data is analysed to extract actionable insights. This involves identifying most frequently used transport modes, assessing user satisfaction levels, and detecting key problem areas such as inadequate parking or safety issues. Comparative analysis between students and faculty responses was also carried out to highlight differences in transport preferences and experiences.

This module forms the decision-support component of the project — helping the university administration identify opportunities for improving campus transport facilities and planning sustainable mobility options. Testing for this stage included validating that the generated insights accurately matched the underlying dataset and that all visual outputs reflected the most recent data updates.

5.5 Testing Overview

Testing was performed throughout the project lifecycle in both module-level and system-level stages. The focus was to ensure accuracy, consistency, and responsiveness across all tools used — Google Forms, Excel, and Power BI.

Sample data entries were added to simulate new responses and test real-time dashboard updates. Cross-verification between Excel and Power BI outputs confirmed that the visualization reflected true data patterns. Finally, user-level testing was conducted by sharing the dashboard with peers and faculty to ensure it was intuitive, clear, and interactive.

6. PROJECT DEMONSTRATION

The project demonstration presents the complete workflow of the transport feedback analysis system. The process starts with the Google Form, which is designed to collect feedback from students, faculty, and staff regarding their mode of transport, travel distance, time, satisfaction levels, and suggestions for improvement. The collected responses are automatically stored in Google Sheets, ensuring real-time data storage and accessibility.

Next, the data is exported to Microsoft Excel, where it undergoes data cleaning and preprocessing. This includes removing duplicate responses, handling missing values, correcting inconsistent entries, and categorizing variables such as transport type, satisfaction rating, and frequency of use. The cleaned dataset is then connected to Microsoft Power BI, where relationships between attributes are established and visual models are designed.

Finally, the Power BI dashboard is created to visualize the data interactively. The dashboard displays a variety of insights, such as the distribution of transport modes, average satisfaction levels, parking facility ratings, and travel time analysis. Filters and slicers are added to allow users to view data based on categories like gender, role (student or faculty), and mode of transport. This demonstration clearly shows how survey data flows from collection to visualization, forming a comprehensive analytical tool for decision-making. The final output highlights how digital tools can convert raw feedback into meaningful insights, supporting smarter campus management.

7. RESULT AND DISCUSSION

The results of this project are presented through a set of Power BI dashboards that clearly visualize the feedback collected from participants. The analysis revealed that two-wheelers and walking were the most preferred modes of transport among students, while faculty members largely depended on cars or bicycles for shorter distances. Bus usage was moderate, but the corresponding satisfaction ratings indicated certain concerns regarding frequency, timeliness, and comfort.

Further, the satisfaction analysis demonstrated that while most respondents were somewhat satisfied, there were noticeable issues related to parking congestion, traffic near gates, and lack of safety during peak hours. The data visualization also brought out patterns between travel time and satisfaction—shorter commutes were associated with higher satisfaction scores.

The interactive features in Power BI allowed dynamic filtering of data, enabling separate views for students and faculty. This made it easier to identify differences in travel behaviour and expectations. Additionally, the dashboards supported automatic updates—ensuring that whenever new responses were added to the Google Form, the visualizations refreshed accordingly. Overall, the system proved effective in summarizing large amounts of feedback data into concise, visually rich insights that could guide policy decisions.

8. CONCLUSION

This project effectively demonstrates how data analytics and visualization techniques can be applied to solve real-world management challenges within a university environment. Through the integration of Google Forms, Microsoft Excel, and Power BI, the entire workflow—from data collection to dashboard creation—was streamlined and automated. The system proved to be simple, efficient, and scalable for continuous monitoring of transport-related issues.

By transforming raw survey responses into meaningful visual insights, the project provides a decision-support framework for campus administrators. It enables evidence-based planning, allowing management to identify underperforming transport modes, assess satisfaction trends, and plan targeted improvements. The project also shows how tools like Power BI can enhance transparency and data-driven governance in educational institutions.

In conclusion, the Transport Feedback Analysis project highlights the importance of continuous feedback loops and visualization in improving everyday services. It establishes a foundation for future extensions such as route optimization, real-time transport tracking, and predictive modelling of transport demand. This initiative not only supports efficient campus operations but also encourages the adoption of data science practices in institutional decision-making.

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10. APPENDIX A – SAMPLE CODE

The below Power BI Power Query (M language) script performs essential data cleaning and preparation steps before visualization. It imports survey data from Excel, removes blank rows, trims unwanted spaces, converts data types, and renames columns for better readability. These preprocessing steps ensure that the data is accurate, consistent, and ready for creating meaningful transport analytics dashboards in Power BI.

CODE:

```
// Power BI Data Cleaning and Transformation Script

// (Used in Power Query Editor)


let

   // Step 1: Import data from Excel file

   Source = Excel.Workbook(File.Contents("Campus_Transport_Data.xlsx"), null, true),


   // Step 2: Load the main sheet

   Sheet1_Sheet = Source{[Item="Sheet1",Kind="Sheet"]}[Data],


   // Step 3: Promote first row as headers

   PromotedHeaders = Table.PromoteHeaders(Sheet1_Sheet, [PromoteAllScalars=true]),


   // Step 4: Remove blank rows to clean dataset

   RemovedBlankRows = Table.SelectRows(PromotedHeaders, each ([Respondent_Type] <> null)),


   // Step 5: Trim spaces in text fields
```

```
    TrimmedColumns = Table.TransformColumns(RemovedBlankRows,{
        {"Mode_of_Transport", Text.Trim, type text},
        {"Travel_Time", Text.Trim, type text}
    }),

    // Step 6: Convert data types for analysis
    ChangedType = Table.TransformColumnTypes(TrimmedColumns,{
        {"Satisfaction_Rating", Int64.Type},
        {"Parking_Rating", Int64.Type}
    }),

    // Step 7: Rename columns for clarity
    RenamedColumns = Table.RenameColumns(ChangedType,{
        {"Respondent_Type", "User_Type"},
        {"Mode_of_Transport", "Transport_Mode"}
    })

in
    RenamedColumns
```