



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

< Vehicle Sales Analysis >

The domain of the Project: *Power BI Mini Project*

Team Mentors (and their designation):
Siddhika Shah, Software Engineer at HCL Technologies.

**Team Members: Raj Singhaniya, B.Tech 4th year, CSE
(G18- Power BI& SQL)**

Period of the project: 2 month project

May 2025 to August 25



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Declaration

The project titled “ Vehicle Sales Analysis ” has been mentored by **Siddhika Shah**, organised by SURE Trust, from May 2025 to August 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.

Team Members:

- Raj Singhaniya, B.Tech 4th year, CSE

Mentor's Name

Designation—Company Name

Shidhika Shah, Software Engineer at HCL Technologies

Prof. Radhakumari

Executive Director & Founder

SURE Trust



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Executive Summary

This project focuses on developing a comprehensive Vehicle Sales Analysis Dashboard aimed at providing clear, actionable insights into vehicle sales performance across multiple dimensions such as time, territory, product categories, and pricing. The primary objective was to create an interactive tool that consolidates key sales metrics—total sales, quantity sold, and gross margin—allowing stakeholders to monitor trends, identify growth opportunities, and optimize sales strategies.

Using robust data collection and preparation methods, sales data was cleaned, aggregated, and visualized through Power BI. Key performance indicators (KPIs) and a variety of charts, including trend lines, pie charts, bar charts, and geographic maps, were employed to reveal sales dynamics over time, regional distribution, and product-specific performance.

Key findings include a peak in sales volume in 2004 followed by a decline in 2005, with the APAC region emerging as the highest contributor to sales. Classic cars were identified as the highest-selling and highest-priced product category. Geographic analysis highlighted Australia and the USA as leading markets. These insights enable targeted marketing, improved inventory management, and refined pricing strategies.

Recommendations for future development include integrating real-time data feeds, incorporating predictive analytics for forecasting, expanding customer-related insights, and enhancing dashboard accessibility across devices. This dashboard serves as a critical decision-support tool, empowering executives and sales teams to drive business growth through data-driven strategies.



Introduction

Background and context of the project: The automotive industry is a highly competitive and dynamic sector where timely and accurate sales information is critical for sustaining growth and profitability. With increasing volumes of sales data generated from various regions, product lines, and customer segments, businesses face challenges in consolidating and interpreting this data effectively. To address this, the Vehicle Sales Analysis Dashboard project was initiated to create a centralized, interactive platform that visualizes key sales metrics and trends, facilitating data-driven decision-making for manufacturers, dealers, and marketers.

Problem statement or goals of the project: The primary challenge addressed by this project is the lack of a unified and intuitive tool that allows stakeholders to analyze complex vehicle sales data across multiple dimensions efficiently. Existing reports were often fragmented, static, and failed to provide actionable insights quickly. The goals of the project were to develop a dynamic dashboard that:

- Consolidates diverse sales data into a coherent, easy-to-understand format.
- Highlights critical metrics such as total sales, quantity sold, and gross margins.
- Enables users to analyze sales trends over time, by region, product, and pricing.
- Supports interactive exploration and drill-down into detailed sales data.
- Provides actionable insights that can improve sales strategies and operational decisions.



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Scope and limitations of the project: The scope of the project includes the development of an interactive sales dashboard using historical vehicle sales data from 2003 to 2005, encompassing key variables such as product categories, sales territories, deal sizes, and geographic locations. The dashboard is designed for use by sales managers, marketing teams, and executives.

However, the project has certain limitations:

- The analysis is based on historical data and does not incorporate real-time sales updates.
- Customer demographic and behavioral data are not included, which limits insights into consumer preferences.
- Geographic granularity is limited to country-level rather than city or dealer-level details.
- Advanced predictive analytics and forecasting were not implemented in this phase.
- The dashboard is optimized for desktop use, with limited mobile functionality at this stage.

Innovation component in the project: This project incorporates innovation by leveraging advanced data visualization techniques to transform raw sales data into an interactive and user-friendly dashboard. The use of Power BI's dynamic filtering, drill-down capabilities and geographic mapping allows users to explore complex datasets intuitively and uncover hidden patterns. The integration of multi-dimensional analysis — combining product pricing, sales volume, territory performance, and deal size — offers a comprehensive perspective rarely found in traditional sales reports. Additionally, the dashboard's design emphasizes accessibility and actionable insights, bridging the gap between data complexity and decision-making efficiency in the automotive industry.



Project Objectives

Clearly defined objectives and goals of the project

The primary objective of this project is to design and develop a comprehensive, interactive Vehicle Sales Analysis Dashboard that enables stakeholders to gain clear insights into sales performance and trends across multiple dimensions. The specific goals include:

- **Consolidate Sales Data:** Integrate vehicle sales data from various sources into a unified, clean dataset suitable for analysis.
- **Visualize Key Metrics:** Create intuitive visual representations of critical sales indicators such as total sales revenue, total quantity sold, and gross margins.
- **Trend Analysis:** Enable users to track sales trends over time to identify seasonal patterns, growth periods, or declines.
- **Geographical Insights:** Analyze sales performance across different territories and countries to pinpoint high-performing and underperforming markets.
- **Product and Pricing Analysis:** Examine the relationship between product categories, pricing strategies, and sales volume to inform better pricing and inventory decisions.
- **User Interaction:** Develop interactive features such as filters and drill-down options, allowing users to explore data in greater detail.
- **Support Decision-Making:** Provide actionable insights that support strategic sales planning, marketing campaigns, and operational improvements.

Expected outcomes and deliverables: The project will deliver:

- **A Fully Functional Dashboard:** An interactive Power BI dashboard presenting a consolidated view of vehicle sales data



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with multiple visualization types, including KPIs, line charts pie charts, bar charts, and geographic maps.

- **Key Performance Indicators:** Clear displays of essential metrics like Total Sales, Total Quantity, and Gross Margin for quick business assessment.
- **Trend and Comparative Reports:** Visual tools to analyze sales trends over years and compare performance across territories, products, and deal sizes.
- **Insightful Analyses:** Evidence-based findings on market trends, best-selling products, and regional sales distributions.
- **User Guide and Documentation:** Comprehensive documentation outlining the dashboard's features, data sources, and instructions for effective use.
- **Recommendations for Future Enhancements:** Identified opportunities for further development such as real-time data integration, predictive analytics, and enhanced customer insights.



Methodology and Results

Methods/Technology used: The project utilized a structured approach involving data acquisition, cleaning, transformation, analysis, and visualization. The methodology emphasized creating an efficient data pipeline and interactive visualizations to facilitate comprehensive sales analysis.

- **Data Preparation:** Raw sales data was collected, cleaned to remove inconsistencies and missing values, and transformed to create meaningful metrics such as total sales, quantities, and gross margin.
- **Data Modeling:** Relationships between data tables (such as sales, products, territories) were defined to enable effective slicing and dicing of data.
- **Visualization Design:** The dashboard was developed to balance clarity and detail, employing various chart types to best represent different aspects of sales performance.

Tools/Software used: Power BI, Kaggle Dataset

- Data collection approach (if applicable)

Project Architecture (Clearly describe the architecture): The vehicle sales data was sourced from internal company databases containing transactional records over the years 2003 to 2005. The data included:

- Sales transaction details: order date, product code, quantity, price, and gross margin.
- Territory and country information for each sale.
- Product categories and deal sizes.



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Data was exported into CSV format for easier integration into Power BI. Initial data cleaning involved removing duplicates, handling missing entries, and standardizing data formats to ensure consistency.

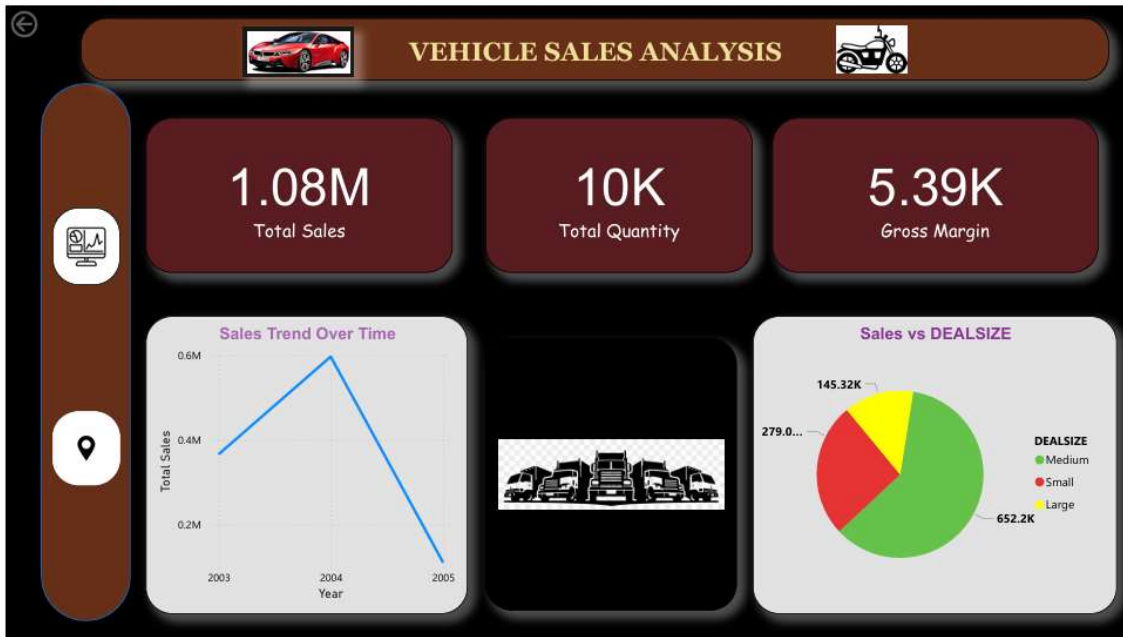
The project follows a multi-layered architecture:

- **Data Layer:** Raw sales data sourced from company databases or CSV files. Data cleaning and transformation were performed here using Excel and Power BI Query Editor.
- **Data Modeling Layer:** In Power BI, data tables were linked through relationships (e.g., Sales to Products, Sales to Territories) to enable cross-filtering and drill-down.
- **Visualization Layer:** The dashboard comprises multiple pages and visuals, including:
 1. KPIs for quick metrics overview.
 2. Line charts to show sales trends over time.
 3. Bar charts for territory and product-wise comparisons.
 4. Pie charts for deal size distribution.
 5. Geographic maps for country-wise sales visualization.
- **User Interaction Layer:** Slicers and filters allow users to dynamically explore the data based on time periods, product categories, and geographic areas.
- **Deployment Layer:** The completed dashboard can be published to Power BI Service for web and mobile access.



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Final project working screenshots along with supporting explanation:





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- **Dashboard Overview:**

This screenshot shows the main dashboard page with KPIs highlighting total sales (1.08M), quantity (10K), and gross margin (5.39K), along with a sales trend line chart from 2003 to 2005.

- **Territory and Product Analysis:**

This page displays sales distribution by territory, showcasing APAC as the leading region, and a bar chart highlighting sales by product code, with Classic Cars leading.

- **Geographic Sales Map:**

A map visualization indicating countries like Australia and the USA as top contributors in terms of order volume.

- **Deal Size Pie Chart:**

Visualizes the proportion of sales by deal size categories, with Medium deals comprising the largest share.

Each visualization supports interactive filtering to provide detailed insights based on user selection.

Project GitHub Link: <https://github.com/sure-trust/RAJ-SINGHANIYA-g18-sql-and-power-bi.git>



Learning and Reflection

New Learnings

Throughout the development of the Vehicle Sales Analysis Dashboard, I gained significant new skills and insights across both technical and project management domains. On the technical front, I deepened my knowledge of Power BI, particularly in creating interactive dashboards that effectively communicate complex data through various visualizations like KPIs, trend lines, pie charts, and geographic maps. I also learned how to use DAX formulas to calculate key performance indicators such as gross margin and total sales, which enhanced the analytical power of the dashboard. Data cleaning and preparation were crucial steps I mastered during this project, recognizing their importance in ensuring data accuracy and reliability for meaningful analysis. Additionally, I improved my understanding of data modeling, establishing relationships between tables to enable dynamic filtering and drill-down functionalities.

From a project management perspective, this project taught me how to plan and execute a multi-step process — from data acquisition to dashboard deployment — while managing time effectively and maintaining a focus on the end user's needs. I also learned the value of iterative design, continuously refining the dashboard based on feedback and testing to improve usability.

Overall Experience

This project was a rewarding and insightful experience that bridged theoretical concepts with practical application. It allowed me to apply and enhance my data analysis and visualization skills while gaining hands-on experience with business intelligence tools. Navigating the challenges of handling complex datasets and optimizing the dashboard for clarity and interactivity strengthened my problem-solving skills.



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Moreover, working through this project increased my appreciation for the role of data storytelling in business, as transforming raw numbers into actionable insights is essential for informed decision-making. The project fostered a sense of accomplishment and confidence in my ability to use data-driven approaches to solve real-world business challenges.



Conclusion and Future Scope

Conclusion

This project successfully achieved its primary objective of developing a comprehensive Vehicle Sales Analysis Dashboard that consolidates complex sales data into an intuitive and interactive visual format. The dashboard provides clear insights into key metrics such as total sales, quantity sold, and gross margin, while enabling users to analyze sales trends over time, compare performance across territories and product categories, and understand the impact of deal sizes and geographic distribution.

The interactive features and diverse visualizations empower stakeholders—ranging from sales managers to executives—to make data-driven decisions that can optimize sales strategies, improve inventory management, and identify new market opportunities. Overall, the project demonstrates the power of business intelligence tools in transforming raw data into actionable insights, supporting the organization's goal of maintaining competitiveness and driving growth in the automotive industry.

Future Scope

There are several promising avenues for enhancing and expanding the dashboard to further increase its value:

- **Real-Time Data Integration:** Incorporate live data feeds to provide up-to-the-minute sales performance updates, enabling faster decision-making and responsiveness to market changes.
- **Predictive Analytics and Forecasting:** Embed machine learning models to forecast sales trends, identify potential risks, and recommend proactive strategies.



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- **Enhanced Customer Insights:** Integrate customer demographics, preferences, and feedback data to tailor marketing campaigns and product offerings more effectively.
- **Granular Geographic Analysis:** Extend geographic granularity from country-level to city or dealer-level, allowing for more precise regional targeting and resource allocation.
- **Mobile Optimization:** Develop mobile-friendly versions of the dashboard to support on-the-go access for sales teams and executives.
- **Customizable Reporting:** Provide users with options to generate custom reports based on specific parameters, improving flexibility and usability.



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< Retail Sales Analysis >

The domain of the Project: *Power BI Major Project*

**Team Mentors (and their designation):
Siddhika Shah, Software Engineer at HCL Technologies.**

**Team Members: Raj Singhaniya, B.Tech, 4th year, CSE
(G18- Power BI& SQL)**

Period of the project: 2 month project

May 2025 to August 25



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Declaration

The project titled “Retail Sales Analysis” has been mentored by Siddhika Shah, Software engineer at HCL, organized by SURE Trust, from May 2025 to August 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.

Team Members:

1. Raj Singhaniya, 4th year , CSE – G18 Power BI & SQL

Mentor’s Name

Designation—Company Name

Siddhika Shah,
Software engineer at HCL Technologies

Prof. Radhakumari
Executive Director & Founder
SURE Trust



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Executive Summary

This project provides a comprehensive analysis of the retail performance of SMART BAZAAR, focusing on key business metrics such as total revenue, order volume, discounting, and average order value. The objective was to identify sales trends, customer behavior, and product category performance to inform strategic decision-making and optimize revenue growth.

Using sales data segmented by customer, age group, payment type, and geographic location, the analysis revealed that Electronics dominate sales, accounting for over 64% of total revenue. The age group 41-50 contributes the most orders, and credit card payments are the preferred transaction method. Monthly sales show a positive trend, with increasing revenue from January through May.

Key findings suggest opportunities for targeted marketing in high-performing customer segments and regions, as well as optimizing discount strategies to maximize profitability. The insights provide a data-driven foundation for improving inventory management, customer engagement, and expanding product offerings.

Recommendations include focusing on Electronics while exploring growth in underrepresented categories like Furniture, enhancing customer loyalty programs for the 41-50 age group, and leveraging digital payment channels to improve transaction efficiency.



Introduction

Background and Context

In today's highly competitive retail environment, understanding customer behavior and sales performance is critical for sustaining growth and profitability. SMART BAZAAR, a leading retail store, aims to leverage data analytics to gain actionable insights into its sales patterns, customer demographics, and product category performance. This project is designed to analyze retail data to support informed decision-making and enhance overall business performance.

Problem Statement or Goals:

The primary goal of this project is to identify key factors driving sales and revenue at SMART BAZAAR and to uncover opportunities for improving marketing strategies, inventory management, and customer engagement. Challenges include understanding the distribution of sales across product categories, customer segments, and payment methods, as well as evaluating the impact of discounts on overall profitability.

Scope and Limitations

The analysis covers retail data from January to May, focusing on sales revenue, orders, discounts, customer age groups, payment types, and geographic distribution. While the dataset provides valuable insights, limitations include the absence of qualitative customer feedback and data beyond the five-month period, which may affect the ability to generalize trends over longer timeframes.



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Innovation Component

This project incorporates advanced data visualization and segmentation techniques to provide a multidimensional view of retail performance. By integrating sales data with demographic and geographic insights, the analysis introduces a data-driven approach to retail management, enabling SMART BAZAAR to tailor marketing efforts and optimize resource allocation more effectively than traditional methods.



Project Objectives

Objectives and Goals

- To analyze the sales performance of SMART BAZAAR across different product categories, customer demographics, and payment methods.
- To identify key customer segments driving revenue and orders, with a focus on age groups and purchasing behavior.
- To evaluate the impact of discounts on total sales and profitability.
- To assess geographic variations in revenue to pinpoint high-performing regions for targeted marketing.
- To provide actionable insights for optimizing inventory, marketing strategies, and customer engagement initiatives.

Expected Outcomes and Deliverables

- A detailed report highlighting sales trends, customer segmentation, and category performance.
- Visual dashboards showcasing key metrics such as total revenue, orders, discounts, and payment type distribution.
- Recommendations for improving sales strategies, discount policies, and customer targeting.
- A strategic framework for ongoing retail performance monitoring using data analytics.
- Presentation slides summarizing findings for stakeholders and decision-makers.



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Methodology and Results

Methods and Technology Used

The project employed a data analytics approach to examine retail sales data. Key methods included data cleaning, segmentation, and visualization to extract meaningful patterns and insights. Statistical analysis and trend analysis were applied to evaluate sales performance, customer demographics, and discount impacts.

Tools/Software used

Data collection approach: Kaggle

The dataset was collected from SMART BAZAAR's internal sales records spanning five months (January to May). The data included transactional details such as order values, discount amounts, customer age groups, payment types, and state-wise revenue. The dataset was anonymized to protect customer privacy.

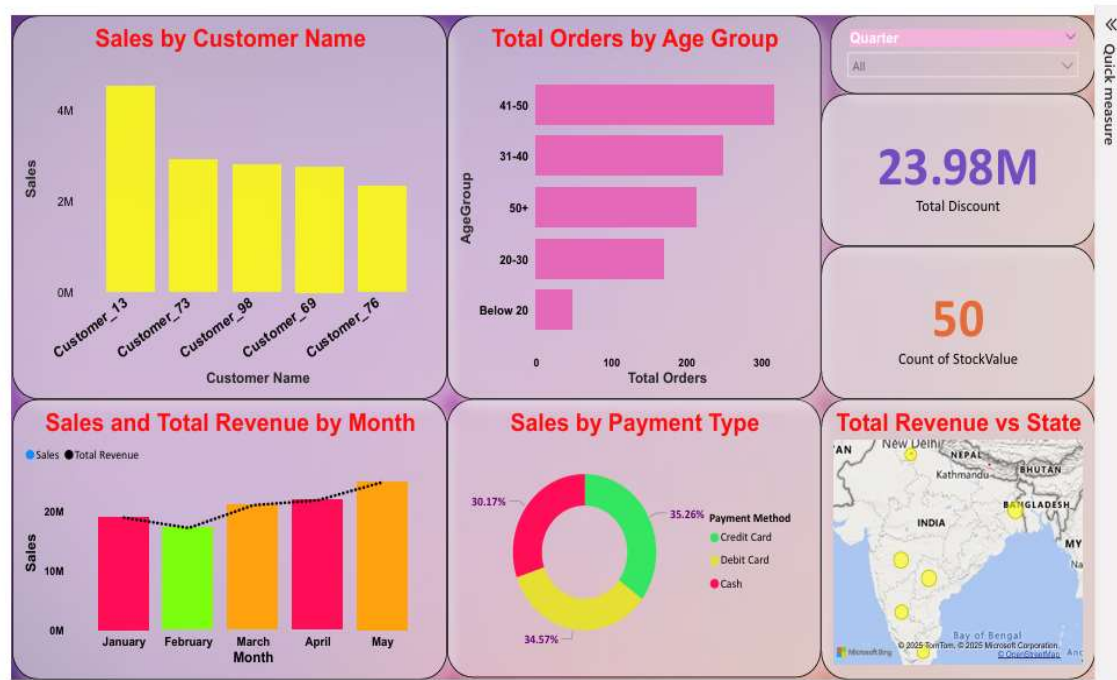
Project Architecture (Clearly describe the architecture): The project followed a modular architecture consisting of:

- **Data Ingestion:** Importing raw sales data from CSV/Excel files.
- **Data Cleaning and Preparation:** Handling missing values, removing duplicates, and formatting data for analysis.
- **Data Analysis:** Applying statistical methods to segment customers, analyze sales by category, payment type, and time period.
- **Visualization:** Creating visual dashboards for key performance indicators (KPIs) such as total revenue, order count, discounts, and sales by geography.



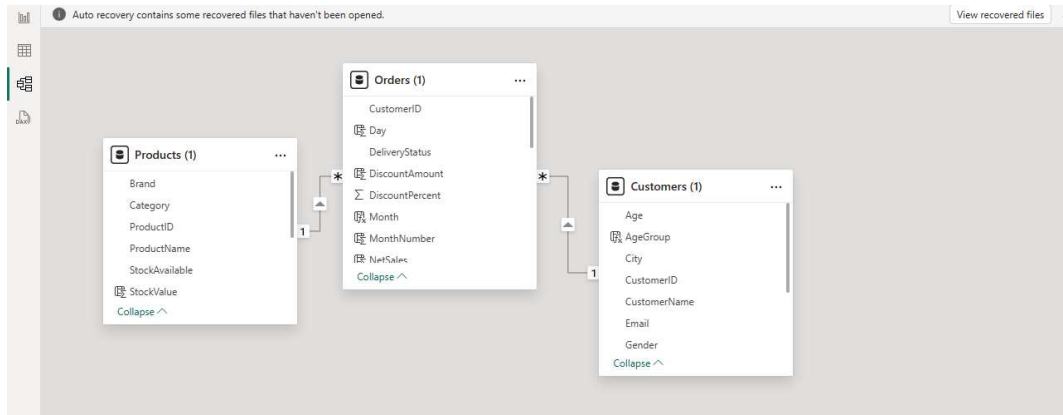
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Final project working screenshots along with supporting explanation:





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- **Retail Store Analysis Overview:** Displays key metrics including total revenue, orders, discounts, and average order value. The pie chart illustrates sales distribution by category, highlighting Electronics as the leading segment.
- **Detailed Analysis Dashboard:** Provides deeper insights into sales by customer name, orders by age group, monthly sales trends, payment method distribution, and geographic revenue spread. These visualizations support targeted marketing and inventory decisions.

Key Metrics:

- Total Revenue: 242.70M
- Total Orders: 1000
- Total Discount: 27.62M
- Average Order Value: 242.70K

Sales vs Category:

- Electronics dominate with 64.37%
- Accessories at 19.88%
- Furniture at 15.75%



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Detailed Analysis

- **Sales by Customer Name:** Customer_13 leads sales with the highest value.
- **Total Orders by Age Group:** Age group 41-50 places the most orders.
- **Sales and Total Revenue by Month:** Steady increase from January to May.
- **Sales by Payment Type:** Credit Card is the most used payment method (35.26%), followed by Debit Card and Cash.
- **Total Discount:** 23.98M
- **Count of Stock Value:** 50
- **Total Revenue VS State:** Map visualization showing revenue distribution across states.

Project GitHub Link: <https://github.com/sure-trust/RAJ-SINGHANIYA-g18-sql-and-power-bi.git>



Learning and Reflection

During this project, I gained valuable experience in analyzing retail data to derive actionable business insights. I enhanced my skills in data visualization tools and learned how to interpret key performance indicators such as revenue, orders, and discounts. Working with customer segmentation and geographic data broadened my understanding of market analysis. Additionally, I improved my ability to communicate complex data findings clearly through reports and presentations.

From a management perspective, I developed better time management and collaboration skills by coordinating with team members and meeting project deadlines. This experience has increased my confidence in handling real-world data analytics projects and using data-driven decision-making to solve business problems.

My Overall Experience

This project was a rewarding journey that challenged me to apply theoretical knowledge in a practical setting. I enjoyed exploring the intersection of technology and business and learned the importance of accuracy and clarity when working with data. The collaborative environment helped me grow both technically and personally, and I look forward to applying these skills in future projects.



Conclusion and Future Scope

Conclusion:

This project successfully analyzed the retail performance of SMART BAZAAR by examining key metrics such as total revenue, order volume, discount impact, and customer segmentation. We achieved the objectives of identifying top-performing product categories, understanding customer demographics, and evaluating payment methods and geographic sales distribution. The insights gained provide a clear roadmap for improving marketing strategies, optimizing inventory, and enhancing customer engagement, ultimately contributing to increased profitability.

Future Scope

There is several opportunities to expand and deepen this analysis in future work:

- Incorporating qualitative customer feedback and sentiment analysis to better understand customer preferences and satisfaction.
- Extending the data timeline beyond five months to identify long-term trends and seasonal patterns.
- Integrating advanced machine learning techniques for sales forecasting and customer behavior prediction.
- Developing personalized marketing campaigns using customer segmentation and purchase history.
- Enhancing real-time dashboard capabilities for ongoing retail performance monitoring and quicker decision-making.



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<Meeting_Feedback>

The domain of the Project: SQL

**Team Mentors (and their designation):
Siddhika Shah, Software Engineer at HCL Technologies**

Team Members: Raj Singhaniya, 4th year, B.Tech, CSE

Period of the project: 2 months

May 2025 to August 2025



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Declaration

The project titled “Meeting_Feedback” has been mentored by Siddhika Shah, Software Engineer at HCL Technologies, organised by SURE Trust, from May 2025 to August 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.

Team Members:

- Raj Singhaniya, 4th year , B.Tech, CSE- G18 Power BI & SQL

Mentor's Name

Designation—Company Name

Siddhika Shah

Software Engineer at HCL Technologies

Prof. Radhakumari

Executive Director & Founder

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Executive Summary

This project automates the collection, processing, and management of Google Form feedback and Google Meet attendance data, streamlining manual workflows into a seamless, efficient pipeline. By integrating Google Forms with Google Sheets and leveraging Pabbly Connect to load data into a FreeSQLDatabase MySQL instance, the system ensures timely and accurate data ingestion. An hourly scheduled cron job processes incoming data, updating record statuses or logging errors for transparency and reliability.

Key achievements include successful automation of data capture, real-time processing with iterative workflows, and the development of simple admin dashboards to monitor system health and data insights. This automation reduces manual effort, minimizes errors, and improves data accessibility for decision-makers.

The project demonstrates how free and low-code tools can be effectively combined to build scalable data management solutions. Recommendations include expanding real-time error notifications, enhancing dashboard analytics, and exploring additional data sources to further increase system robustness and business value.



Introduction

Background and Context

In many organizations, collecting feedback via Google Forms and tracking attendance through Google Meet are critical for evaluating engagement and participation. However, manual data consolidation from these sources into a centralized database is often time-consuming, prone to errors, and inefficient. Automating this process can improve accuracy and free up valuable time for analysis and decision-making.

Problem Statement or Goals

The goal of this project is to automate the capture and processing of Google Form feedback and Google Meet attendance data, centralizing it into a MySQL database hosted on FreeSQLDatabase. This automation aims to ensure timely data availability, reduce manual workload, and provide administrators with actionable insights through dashboards and reports.

Scope and Limitations

The project covers automation of data ingestion from Google Forms and Google Meet, scheduled processing to update record statuses, error logging, and the creation of simple admin dashboards. Limitations include reliance on free-tier services which may impose data volume or API call restrictions, and the scope excludes advanced analytics or real-time data processing beyond hourly updates.

Innovation Component

This project innovatively combines no-code/low-code automation tools like Pabbly Connect with free cloud database services to create a scalable, cost-effective data integration pipeline. The use of iterators and scheduled workflows ensures efficient batch processing, making it accessible for organizations without extensive development resources.



Project Objectives

Objectives and Goals

- Automate the collection of Google Form feedback and Google Meet attendance data into a centralized MySQL database.
- Utilize Pabbly Connect to create scheduled workflows for data ingestion and processing.
- Implement an hourly cron job to match, update, and mark processed records while logging any errors for transparency.
- Develop simple admin queries and dashboards to provide clear visibility into data status and system performance.
- Ensure the solution is scalable, maintainable, and cost-effective using free-tier database and automation tools.

Expected Outcomes and Deliverables

- Fully automated data pipeline from Google Forms and Google Meet to MySQL.
- Reliable scheduled processing that updates data status and captures errors.
- Admin dashboards with key metrics and system health indicators.
- Documentation of workflows, cron jobs, and database schema.
- A scalable framework that can be extended to additional data sources or enhanced analytics.



Methodology and Results

Methodology and Results

Methods and Technology used:

The project follows an automated data pipeline approach, integrating Google Forms and Google Meet data into a MySQL database. Data is ingested, processed, and monitored using scheduled workflows, ensuring accuracy and timeliness. Error handling and iterative processing ensure robustness.

Final project working screenshots along with supporting explanation:

Tools and Software Used:

- **Google Forms & Google Sheets:** For initial data collection and storage.
- **FreeSQLDatabase:** A free MySQL cloud database service for centralized data storage.
- **Pabbly Connect:** Automation platform used to create scheduled workflows, including data ingestion, batch processing, and error logging.
- **Cron Jobs:** Scheduled hourly scripts that trigger data matching and processing, setting flags like `is_processed = 1`.
- **Dashboard Tools:** (e.g., Google Data Studio or similar) for creating simple admin dashboards and queries.

Data Collection Approach

Google Form responses automatically populate Google Sheets. Attendance data from Google Meet is exported or captured via integration tools. Pabbly Connect periodically pulls this data to load into the MySQL database.

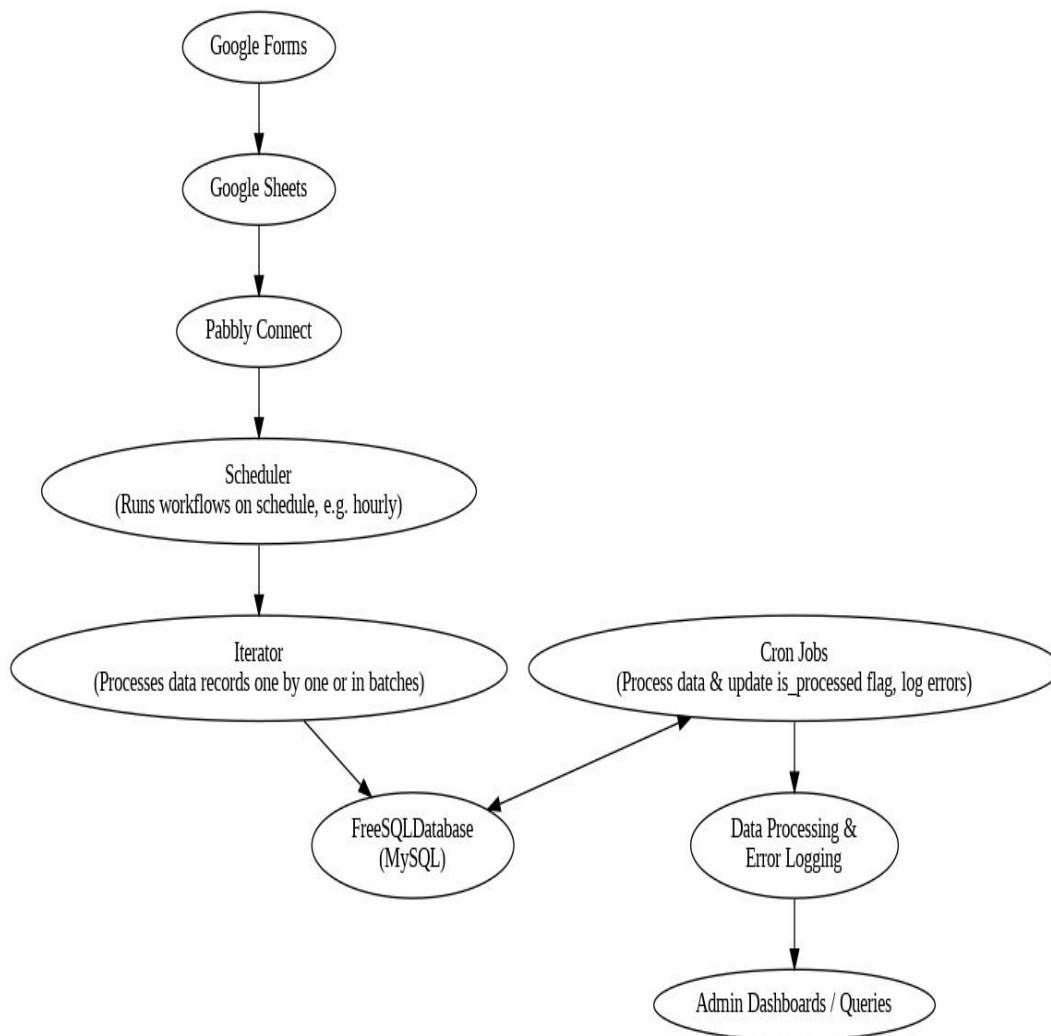
Project Architecture



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- Data flows from Google Forms and Google Meet to Sheets, then via Pabbly Connect into MySQL.
- Hourly cron jobs process and update records, marking them processed or logging errors.
- Dashboards provide insights and monitoring capabilities for administrators.

Flow Diagram





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Trigger: When this happens ...

1. Schedule (Pabbly) : Schedule Workflow

Choose App

Schedule (Pabbly)

Trigger Event

Schedule Workflow

How often you want to run your workflow?

At regular intervals

Every

1

Enter the value in minutes or hours or days when the workflow should be executed.

Time Span

Hours

Choose the time span when the workflow should be executed. Note that this schedule trigger will start working immediately as soon you save it.

Response Received

Label

How Often You Want to Run Your Workflow?

At Regular Intervals

Every

1

Time Span

Hours

Save

2. MySQL : Get Rows

Choose App

MySQL

Action Event

Get Rows

Table Name (required)

testbook

Column Name (WHERE Clause)

is Premium (string)

Operator

is

Value (required)

0

Link

Enter link or map data.

Simple Response

Response Received

Label

Status

Results

success

["id","first_name","last_name","email","password"]

Save & Send Test Request

Save

3. Iterator (Pabbly) : Process Arrays

Choose App

Iterator (Pabbly)

Action Event

Process Arrays

Choose Array

2. Results

Important Note:

The response includes the first expanded data set as values, which can be mapped in further steps. At the time of workflow execution, it will process all values one by one. We support iteration of maximum 500 records at once.

Response Received

Label

Response Row/Found

1

Response Result 0 Row/Value

4

Response Result 0 Row/Value Name

Amya Sharma

Response Result 0 Row/Value Email

amyasharma@gmail.com

Response Result 0 Row/Value Join Time

2025-09-12 09:00:00

Response Result 0 Row/Value Last Time

2025-09-12 10:00:00

Response Result 0 Row/Value Duration (minutes)

60

Save & Send Test Request

Save

4. Google Sheets : Lookup/Spreadsheet Rows V2

Choose App

Google Sheets

Action Event

Lookup Spreadsheet Rows V2

Select Spreadsheet (required)

google_my_workspaces

Select Sheet

google_my_workspaces

Lookup Value

["email": "amyasharma@gmail.com"]

Lookup Column(s) (required)

email

End Column of Date (required)

4

Lookup as Date?

No

Use Sheet Headers as Keys in Response?

No

Response Received

Label

Response Row/Found

1

Response Result 0 Row/Value

4

Response Result 0 Row/Value Name

Amya Sharma

Response Result 0 Row/Value Email

amyasharma@gmail.com

Response Result 0 Row/Value Join Time

2025-09-12 09:00:00

Response Result 0 Row/Value Last Time

2025-09-12 10:00:00

Response Result 0 Row/Value Duration (minutes)

60

Save & Send Test Request

Save



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

Action: Do this ...
5. Filter (Pabbly): Filter Values

Choose App
Filter (Pabbly)

Action Event
Filter Values

Connected Refresh Fields

Select Label
4. Response Result 0 RowValue 1

Filter Type
Greater than

Value
0

AND Condition

OR Condition

Response Received

Label
Status

Value
success

Message
Condition is true

Save & Send Test Request Save

Action: Do this ...
6. MySQL: Custom Query

Choose App
MySQL

Action Event
Custom Query

Connected Refresh Fields

SQL Query (Required)
UPDATE feedback SET is_processed = 1, error_message = NULL WHERE id = 3, Id : 6

Enter your custom MySQL query:

Simple Response ☒

Response Received

Save & Send Test Request Save

phpMyAdmin

Recent Favorites

information_schema
ser12706190
New
feedback

Database: ser12706190

Table: feedback

	id	name	email	mobile	feedback	submitted_at	is_processed	error_message
<input type="checkbox"/>	1	Raj	raj29@gmail.com	9780069009	Great meeting!	2025-06-12 22:38:59	1	NULL
<input type="checkbox"/>	5	Aarav Patel	aarav.patel@gmail.com	8090991220	Good!	2025-06-13 11:08:00	1	NULL
<input type="checkbox"/>	6	Aanya Sharma	aanya.sharma@gmail.com	975789807	Good and interesting.	2025-06-13 11:09:02	1	NULL
<input type="checkbox"/>	7	Shivam	shivam@gmail.com	9875802344	Good	2025-06-13 11:13:45	0	Logs Error
<input type="checkbox"/>	8	Aditya Verma	aditya.verma@gmail.com	9876543210	Good.	2025-06-13 11:14:24	1	NULL
<input type="checkbox"/>	9	Anika Reddy	anika.reddy@gmail.com	9123456789	Very good.	2025-06-13 11:16:19	1	NULL
<input type="checkbox"/>	10	Aryan Mehta	aryan.mehta@gmail.com	9123456789	Very good.	2025-06-13 11:16:33	1	NULL
<input type="checkbox"/>	11	Rahul Iyer	rahul.iyer@gmail.com	78267364872	Good	2025-06-13 11:19:30	1	NULL
<input type="checkbox"/>	12	Avni Desai	avni.desai@gmail.com	9088776555	Interesting!	2025-06-13 11:20:43	1	NULL
<input type="checkbox"/>	13	Bhavya Kapoor	bhavya.kapoor@gmail.com	0345612789	Exciting session!	2025-06-13 11:21:56	1	NULL
<input type="checkbox"/>	14	Chirag Bansal	chirag.bansal@gmail.com	7890123456	Knowledgeable session!	2025-06-13 11:22:59	1	NULL
<input type="checkbox"/>	15	Dhruv Sethi	dhruv.sethi@gmail.com	8456123789	Good	2025-06-13 11:23:43	1	NULL
<input type="checkbox"/>	16	Eesha Rao	eesha.rao@gmail.com	9054781230	Very good.	2025-06-13 11:24:36	1	NULL
<input type="checkbox"/>	17	Faihan Ali	faihan.ali@gmail.com	7382910456	Exciting.	2025-06-13 11:25:26	1	NULL
<input type="checkbox"/>	18	Gaurav Khanna	gaurav.khanna@gmail.com	8012345678	Knowledgeable.	2025-06-13 11:26:35	1	NULL
<input type="checkbox"/>	19	Harshita Yadav	harshita.yadav@gmail.com	9823456701	Very good.	2025-06-13 11:33:57	1	NULL
<input type="checkbox"/>	20	Ishaan Tiwari	ishaan.tiwari@gmail.com	8590776555	Good.	2025-06-13 11:40:14	1	NULL
<input type="checkbox"/>	21	Jiya Singh	jiya.singh@gmail.com	9123987654	Nice.	2025-06-13 11:41:54	1	NULL
<input type="checkbox"/>	22	Kabir Roy	kabir.roy@gmail.com	7895432198	Very good.	2025-06-13 11:43:13	1	NULL
<input type="checkbox"/>	23	Kavya Nair	kavya.nair@gmail.com	9432107890	Very nice.	2025-06-13 11:46:42	1	NULL
<input type="checkbox"/>	24	Krish Jain	krish.jain@gmail.com	9042031785	Knowledgeable	2025-06-13 11:47:48	1	NULL
<input type="checkbox"/>	25	Lavanya Menon	lavanya.menon@gmail.com	0354781209	Very good.	2025-06-13 11:55:25	1	NULL
<input type="checkbox"/>	26	Mihir Bhatia	mihir.bhatia@gmail.com	8091728354	Good.	2025-06-13 11:56:22	1	NULL
<input type="checkbox"/>	27	Naina Chawla	naina.chawla@gmail.com	7210807654	Mind blowing session.	2025-06-13 11:57:34	1	NULL
<input type="checkbox"/>	28	Om Joshi	om.joshi@gmail.com	9017263548	Good.	2025-06-13 11:58:22	1	NULL
<input type="checkbox"/>	29	Pari Agarwal	pari.agarwal@gmail.com	8876543210	Exciting!	2025-06-13 11:59:26	1	NULL
<input type="checkbox"/>	30	Pranav Kulkarni	pranav.kulkarni@gmail.com	9054321078	Very good.	2025-06-13 12:00:31	1	NULL



Innovation & Entrepreneurship Hub for Educated Rural Youth (SURE Trust – IERY)

phpMyAdmin

Recent Favorites

information_schema
sql12706190
New
feedback

Database: sql12706190 Table: feedback

		id	name	email	mobile	feedback	submitted_at	is_processed	error_message
<input type="checkbox"/>	Edit Copy Delete	48	Rahul patel	rahul.patel@gmail.com	7800000000	Exciting.	2025-09-13 12:28:23	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	49	Mehul Iyer	mehul.iyer@gmail.com	6801720456	Exciting.	2025-09-13 12:38:05	1	NULL
<input type="checkbox"/>	Edit Copy Delete	50	Vikas Ali	vikas.ali@gmail.com	7812003465	Nice.	2025-09-13 12:37:09	1	NULL
<input type="checkbox"/>	Edit Copy Delete	51	Zoya Mehta	zoya.mehta@gmail.com	9346128705	Good.	2025-09-13 23:39:10	1	NULL
<input type="checkbox"/>	Edit Copy Delete	52	Zoya Bansal	zoya.bansal@gmail.com	8854320198	Good.	2025-09-13 23:40:25	1	NULL
<input type="checkbox"/>	Edit Copy Delete	53	Karan Verma	karan.verma@gmail.com	9878887808	Good.	2025-09-13 12:41:27	1	NULL
<input type="checkbox"/>	Edit Copy Delete	54	Karan Ali	karan.ali@gmail.com	7519082736	Good.	2025-09-13 12:42:32	1	NULL
<input type="checkbox"/>	Edit Copy Delete	55	Mehul Ali	mehul.ali@gmail.com	9021379485	Nice.	2025-09-13 12:43:22	1	NULL
<input type="checkbox"/>	Edit Copy Delete	56	Neha Verma	neha.verma@gmail.com	9182347590	Good.	2025-09-13 12:44:21	1	NULL
<input type="checkbox"/>	Edit Copy Delete	57	Tanvi Mehta	tanvi.mehta@gmail.com	9873201456	Good.	2025-09-13 12:45:29	1	NULL
<input type="checkbox"/>	Edit Copy Delete	58	Sneha Verma	sneha.verma@gmail.com	9128456073	Nice.	2025-09-13 12:46:42	1	NULL
<input type="checkbox"/>	Edit Copy Delete	59	Prushotam Panday	prushotampanday@gmail.com	9807898780	Good.	2025-09-13 12:24:20	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	60	Divyanshu	divyanshu23@gmail.com	9800080809	Good.	2025-09-13 13:25:08	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	61	Rohit Kurmi	kurmi56@gmail.com	9878709800	Good.	2025-09-13 13:25:41	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	62	Prushotam kr Panday	prushotam406@gmail.com	8787483903	Good.	2025-09-13 13:44:13	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	63	Abhishek Raj	abhishekrjtm@gmail.com	9807898780	Very good	2025-09-13 13:45:59	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	64	Chandan kumar	chandankumar780745@gmail.com	6202782324	stw p	2025-09-13 13:47:26	0	Logs Error
<input type="checkbox"/>	Edit Copy Delete	65	Yo yo yo	yoyoyo@gmail.com	9878700800	Good	2025-09-13 14:18:46	0	Logs Error

☐ Check all With selected: Edit Copy Delete Export

☐ Show all Number of rows: 100 Filter rows: Search this table Sort by key: PRIMARY (ASC)

Query results operations

Print Copy to clipboard Export Display chart Create view

Project GitHub Link: <https://github.com/sure-trust/RAJ-SINGHANIYA-g18-sql-and-power-bi.git>



Learning and Reflection

My Learnings:

Throughout this project, I developed practical skills in automating data workflows using Pabbly Connect, including scheduling and iterators. I enhanced my understanding of integrating Google Forms, Google Sheets, and MySQL databases (FreeSQLDatabase) to create seamless data pipelines. I also gained experience in setting up cron jobs for timely data processing and learned the importance of error handling and logging in maintaining data integrity.

Overall Experience:

This project was a valuable learning journey that allowed me to apply theoretical knowledge to a real-world problem. I enjoyed working with no-code/low-code tools and cloud databases, which made complex automation accessible. The experience improved my technical skills and gave me insight into managing data workflows efficiently, which will benefit my future projects.



Conclusion and Future Scope

Conclusion:

This project successfully automated the capture, processing, and management of Google Form feedback and Google Meet attendance data. By leveraging Pabbly Connect for scheduled workflows and integrating with FreeSQLDatabase MySQL, we built a robust data pipeline that reduces manual effort and ensures timely data updates. The system's ability to log errors and mark processed records enhances reliability, while the admin dashboards provide useful insights for monitoring and decision-making. Overall, the project met its objectives of creating an efficient, scalable, and cost-effective solution for data integration and processing.

Future Scope

There are several opportunities to expand and improve the project, including:

- Implementing real-time notifications and alerts for processing errors or anomalies to enable faster responses.
- Enhancing dashboards with advanced analytics and data visualizations for deeper insights into feedback and attendance patterns.
- Extending the automation pipeline to support additional platforms such as Zoom, Microsoft Teams, or other feedback tools.
- Incorporating machine learning techniques for sentiment analysis or predictive analytics on feedback data.
- Exploring paid database or automation services to improve scalability, performance, and feature sets as data volumes grow.