Power BI Dashboard
Human Resource & Sales Insights

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Abstract- *Data science and data analytics are two closely related fields that deal with extracting insights and knowledge from data to inform decision-making processes.Both data science and data analytics play crucial roles in extracting actionable insights from data, driving innovation, and optimizing processes across various industries such as healthcare, finance, marketing, and more.This paper provides a comprehensive analysis of Human Resources (HR) within a company, delving into various key metrics that shed light on the workforce composition and dynamics. It offers insights into the overall employee count, distinguishing between active and inactive employees, while also examining attrition rates and trends. Moreover, it dissects attrition data by department, uncovering patterns and potential areas of concern. Additionally, the study investigates the average age of employees across different departments, allowing for comparisons and understanding of demographic distributions within the organization. Furthermore, it explores correlations between demographic attributes such as gender and age group, providing valuable insights into potential disparities or trends within the workforce.*

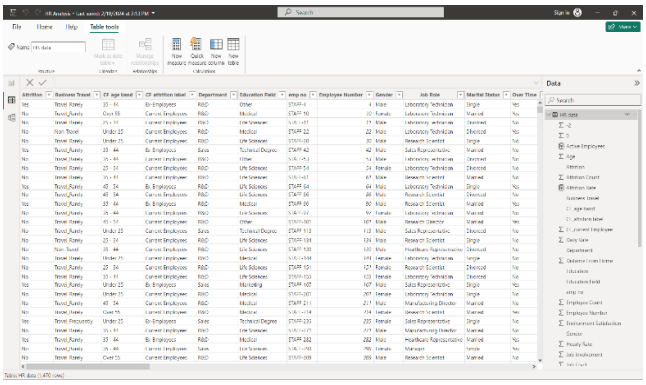
Keywords- Dashboard, MySQL, Power BI

I. INTRODUCTION

Data science involves the use of **various techniques, algorithms,** and tools to analyze and interpret complex datasets. It encompasses a broad range of disciplines such as **statistics, machine learning, data mining, and big data technologies**. Data scientists are responsible for exploring data, identifying patterns, building predictive models, and creating data-driven solutions to solve problems or address business challenges.

On the other hand, **data analytics focuses on analyzing data** to uncover meaningful trends and insights that can help organizations make informed decisions. It typically involves descriptive and diagnostic analytics, **where historical data is examined** to understand past performance and identify areas for improvement. Data analysts use statistical methods and visualization techniques to communicate their findings effectively.

A dataset refers to a **structured collection of data that is organized and stored for analysis, interpretation, and use in various applications**. It typically consists of rows and columns, where each row represents an individual data point or observation, and each column represents a specific attribute or variable associated with those data points.



II. POWER BI

Power BI is a powerful business analytics tool **developed by Microsoft**. It allows users to visualize and analyze data from various sources to gain insights into their business operations. With Power BI, you can create **interactive reports, dashboards, and visualizations** that help you understand trends, identify opportunities, and make informed decisions. It supports a wide range of data sources, including databases, spreadsheets, cloud services, and web APIs. Plus, it offers features like data modeling, **DAX (Data Analysis Expressions)** for calculations, and natural language queries for easier exploration of data.

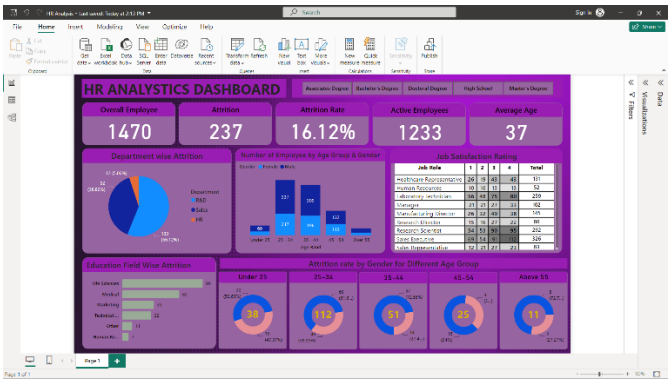
Power BI supports seamless integration with MySQL databases, enabling users to connect directly to their MySQL server to import data into Power BI for analysis and visualization. This integration allows users to build interactive reports and dashboards using data stored in MySQL, providing insights into various aspects of their business operations. By

connecting Power BI to MySQL, users can leverage Power BI's powerful analytics capabilities to explore and gain insights from their MySQL data effortlessly

III. HR ANALYSIS DASBOARD

A comprehensive examination of the **Human Resources (HR) landscape within a specific company,** delving deeply into a range of essential metrics that illuminate the composition and dynamics of its workforce. Through meticulous analysis, it sheds light on critical aspects such as the total number of employees, distinguishing between those currently active within the organization and those who are no longer part of it. Moreover, the paper thoroughly investigates attrition rates and their underlying trends, offering valuable insights into the factors contributing to employee turnover and retention challenges.

Furthermore, the analysis extends to dissecting attrition data at a granular level, examining patterns and potential areas of concern within different departments or functional areas of the company. This nuanced approach allows for a more targeted understanding of where attrition may be particularly pronounced or where specific interventions may be necessary to address retention issues effectively.

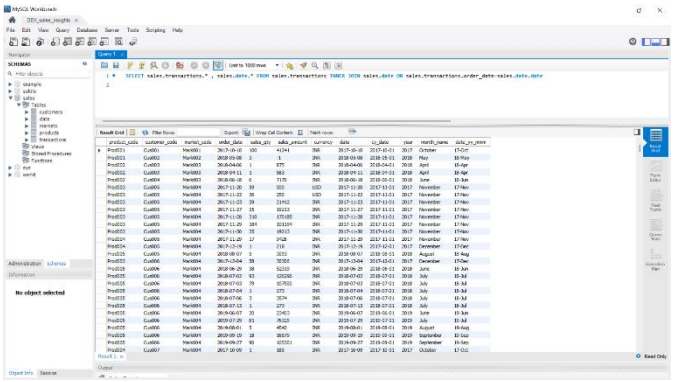


Additionally, the study delves into the demographic profile of the workforce, particularly focusing on the average age of employees across various departments. By comparing age distributions within different segments of the organization, **the paper provides insights into potential generational dynamics** and their implications for workforce management and succession planning.

Moreover, the paper explores correlations between demographic attributes such as **gender and age group**, uncovering potential disparities or trends within the workforce. This deeper analysis offers valuable insights into areas where diversity and inclusion efforts may need to be strengthened or tailored to address specific demographic challenges effectively.

IV. MySQL SERVER

MySQL Server stands as an open-source relational database management system (RDBMS) leveraging the power of Structured Query Language (SQL). It adeptly organizes data into tables within databases, facilitating efficient storage and management. MySQL serves as a cornerstone for analyzing extensive datasets, fueling reports, business insights, and data warehousing initiatives.
Within MySQL, customer data finds a structured home, encompassing vital information such as personal details, purchase history, transaction logs, market codes (utilized for geographical identification), quantities of purchased products, and more. **This data architecture ensures seamless accessibility through unique identifiers, enabling swift retrieval and manipulation.MySQL's** prowess shines through in handling concurrent customer data transactions with finesse, ensuring smooth operations even under heavy loads. Its arsenal boasts robust security measures, encompassing customer authentication protocols, granular access controls, and encryption protocols, fortifying the fortress around sensitive customer information.Additionally, MySQL's scalability empowers businesses to accommodate growing customer bases effortlessly, while its reliability ensures uninterrupted service delivery. Through advanced features like replication and failover mechanisms, MySQL further solidifies its position as a stalwart guardian of customer data integrity and accessibility.



V. DATA CLEANING

To clean data from a MySQL server in Power BI Desktop, you can use Power Query Editor. Here’s a basic guide:

1. Connect to MySQL Server:

- Ensure you have the necessary permissions and access to the MySQL server.
- Provide the server name or IP address, port number, database name, and authentication credentials (username and password).
- You may need to specify additional options such as SSL settings depending on your server configuration.

2. Load Data:

- Select the tables you want to import into Power BI Desktop. You can preview the data to ensure it's the correct dataset.
- Consider the size of your data and whether it's feasible to load it all into memory at once. You can apply filters to reduce the dataset size if needed.

3. Transform Data:

- Explore the data in the Power Query Editor. You can access it by selecting "Transform Data" or "Edit Queries" depending on your version of Power BI Desktop.
- Use the various data transformation options available in Power Query Editor, such as:
- Removing unnecessary columns.
- Renaming columns to make them more descriptive.
- Splitting columns based on delimiters or fixed widths.
- Merging or appending queries to combine multiple datasets.
- Adding custom columns using formulas or expressions.
- Pivoting or unpivoting columns to reshape your data.

4. Apply Transformations:

- As you make changes in the Power Query Editor, they are not immediately applied to your data model. You need to click on "Close & Apply" to apply the transformations and load the cleaned data into your Power BI model.
- You can also create reusable functions or parameters in Power Query Editor for complex transformations or to parameterize your queries.

5. Close and Apply:

- Once you've finished cleaning and transforming your data, click on "Close & Apply" to exit the Power Query Editor and apply the changes to your Power BI model.
- Power BI will refresh the data based on your transformation steps each time you open the report or manually trigger a refresh.

6. *Refresh Data*:

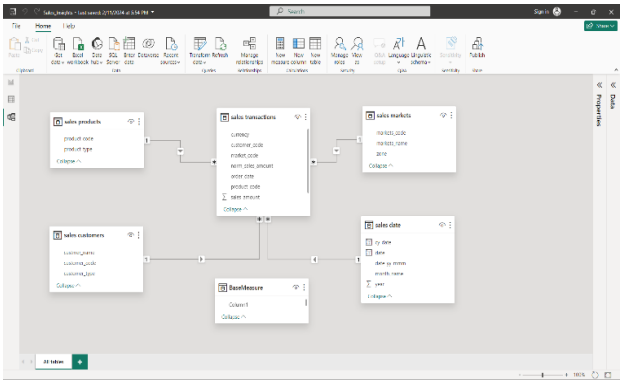
- After your initial data cleaning, it's important to schedule regular data refreshes to keep your Power BI reports up to date.
- Configure data refresh settings in Power BI Service to automatically refresh data from your MySQL server on a schedule (daily, weekly, etc.).
- Ensure that the credentials used for data refresh have appropriate permissions to access the MySQL server.

By following these steps, you can effectively clean and transform data from a MySQL server in Power BI Desktop to create insightful visualizations and reports.

VI. RELATIONSHIP & DASHBOARD

1. Designing the Data Model:

- After connecting to your data source, Power BI Desktop creates a data model. Here, you can create relationships between tables if necessary. This is crucial for creating accurate visualizations.
- Use the Manage Relationships dialog to establish and manage relationships between tables based on common fields.



2. Creating Visualizations:

- Click on the "Report" tab in Power BI Desktop to start creating visualizations.
- Choose the type of visualization you want to create from the Visualizations pane on the right side. Common visualization types include:

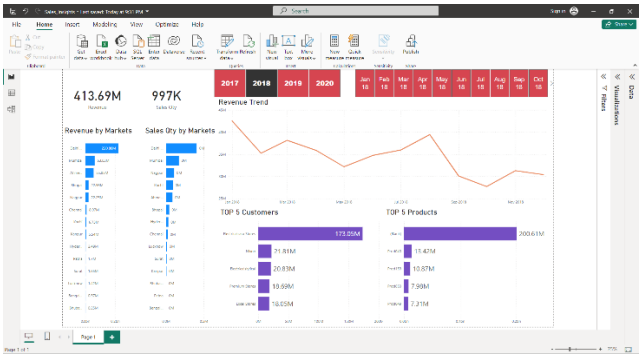
- **Bar chart:** Displays data using horizontal bars.
- **Line chart:** Shows trends over time or other ordered categories.
- **Pie chart:** Represents data as slices of a circular pie.
- **Table:** Displays data in rows and columns.
- **Map:** Visualizes data on a map based on geographical fields.
- Drag and drop fields from your data model onto the visualization canvas to create your visualization.
- Customize the visualization by adjusting properties such as color, size, axis titles, and data labels.

3. Adding Interactivity:

- Power BI allows you to add interactivity to your visualizations to make them more engaging and insightful.
- Use slicers to filter data across multiple visualizations. Slicers act as interactive filters that users can use to dynamically filter data.
- Add drill-through functionality to allow users to explore details within a specific category or data point. Users can drill down to view more detailed information.
- Create bookmarks to save the state of your report, including filter selections and visualization configurations. This allows users to navigate between different views of the data.

4. Designing the Dashboard:

- Once you have created your visualizations, you can arrange them on a dashboard.
- Click on the "Dashboard" tab in Power BI Desktop to create a new dashboard.
- Drag and drop visualizations from your report onto the dashboard canvas to add them.
- Resize and rearrange the visualizations to create a layout that communicates your insights effectively.
- Add text boxes, images, or shapes to provide context or additional information on the dashboard.



5. Formatting and Styling:

- Apply formatting and styling to your visualizations and dashboard to enhance visual appeal and readability.
- Customize colors, fonts, and backgrounds to match your organization's branding or to create a visually appealing design.
- Use themes and templates to quickly apply consistent formatting across all visualizations and dashboards in your report.

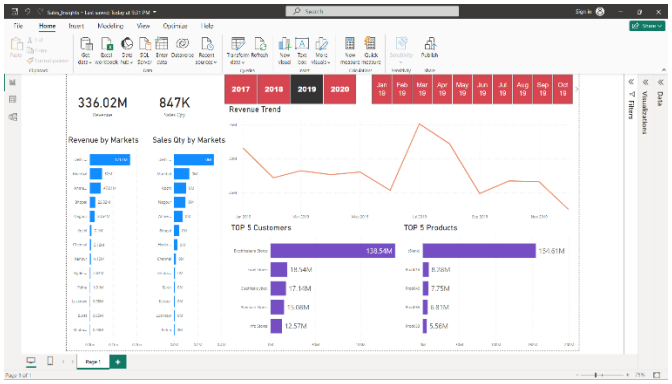
6. Testing and Iteration:

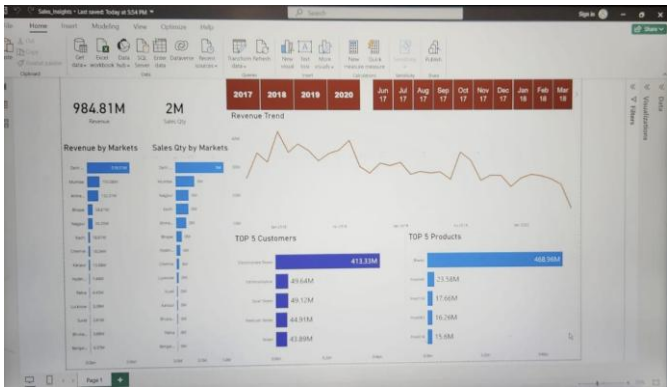
- Once you've created your dashboard and visualizations, it's essential to test them thoroughly to ensure they provide accurate insights and are easy to understand.
- Solicit feedback from stakeholders or colleagues and iterate on your design based on their input.

7. Publishing and Sharing:

- Once you're satisfied with your dashboard and visualizations, publish your report to the Power BI service.
- Share the dashboard with colleagues or stakeholders by granting them access to the report or publishing it to a workspace.
- Schedule data refreshes to keep your dashboard up to date with the latest data from your data source.

By following these steps, you can create compelling dashboards and visualizations in Power BI that help users gain valuable insights from their data.





VII. CONCLUSION

In conclusion, this study provides a thorough **analysis of the Human Resources (HR) landscape within the company**, offering valuable insights into workforce composition, attrition trends, and demographic dynamics. By examining key metrics such as employee counts, attrition rates, and departmental breakdowns, we have gained a deeper understanding of the challenges and opportunities facing the organization.

Our analysis has revealed significant insights into the factors influencing employee turnover and retention, allowing us to identify areas of concern and potential strategies for improvement. By dissecting attrition **data at a granular level**, we have pinpointed specific departments or functional areas where attrition may be particularly pronounced, enabling targeted interventions to address retention challenges effectively.

Furthermore, our examination of demographic attributes such as age and gender has provided valuable insights into workforce diversity and inclusion dynamics. By **exploring correlations between demographic variables**, we have uncovered potential disparities or trends that warrant further attention and action.

Overall, **this study serves as a valuable resource for organizational leaders and HR professionals seeking to optimize workforce management strategies and enhance employee engagement and retention.** By leveraging the insights generated from this analysis, the company can make informed decisions and implement targeted initiatives to foster a more resilient, diverse, and engaged workforce, ultimately driving long-term organizational success.

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