# Tech Saksham

## Case Study Report

## Data Analytics with Power BI

**“Real-Time Analysis of Bank Customers**

**“Government Arts and Science College,**

**Aundipatti”**

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**ABSTRACT**

In the digital age, data has become an invaluable asset for businesses, particularly in the banking sector. The proposed project, “Real-Time Analysis of Bank

Customers," aims to leverage PowerBI, a leading business intelligence tool, to analyze and visualize real-time customer data. This project will enable banks to gain deep insights into customer behavior, preferences, and trends, thereby facilitating data-driven decision-making and enhancing customer satisfaction. The real-time analysis will allow banks to respond promptly to changes in customer behavior or preferences, identify opportunities for cross-selling and up-selling, and tailor their products and services to meet customer needs. The project will also contribute to the broader goal of digital transformation in the banking sector, promoting efficiency, innovation, and customer-centricity.

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## INTRODUCTION

### 1.1 Problem Statement

In today's competitive banking landscape, understanding customer behavior and preferences is crucial for customer retention and revenue generation. However, banks often face challenges in analyzing customer data due to the sheer volume

and velocity of data generated. Traditional data analysis methods are time-consuming and often fail to provide real-time insights. This lack of real-time analysis can lead to missed opportunities for customer engagement, cross-selling, and up-selling, impacting the bank's revenue generation and customer satisfaction. Furthermore, the complexity and diversity of customer data, which includes transaction history, customer feedback, and demographic data, pose additional challenges for data analysis.

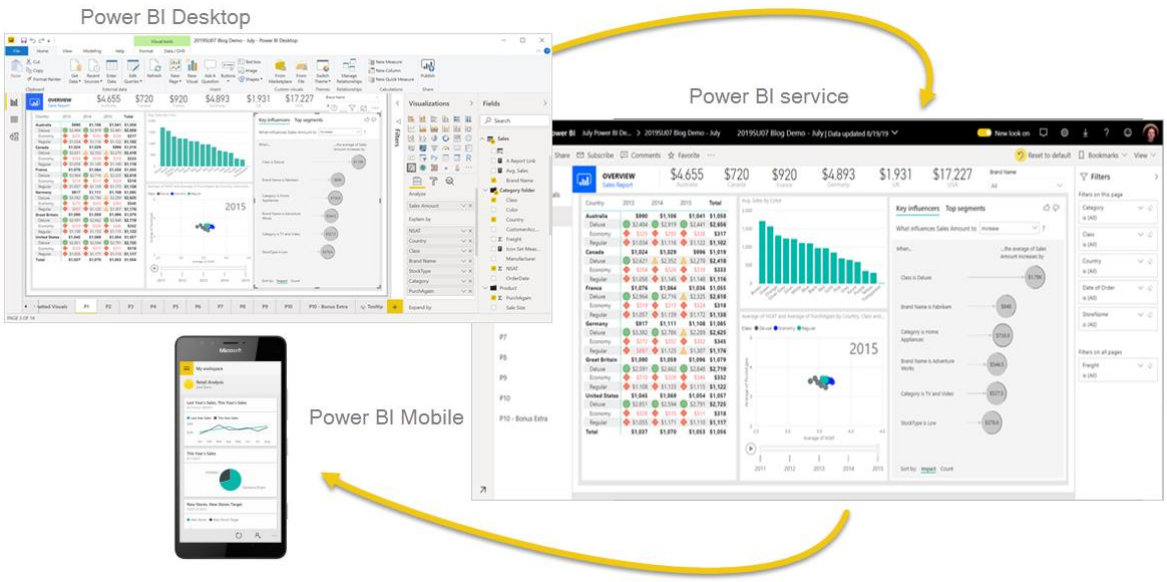
### 1.2 Proposed Solution

The proposed solution is to develop a PowerBI dashboard that can analyze and visualize real-time customer data. The dashboard will integrate data from various sources such as transaction history, customer feedback, and demographic data. It will provide a comprehensive view of customer behavior, preferences, and trends, enabling banks to make informed decisions. The dashboard will be interactive, user-friendly, and customizable, allowing banks to tailor it to their specific needs. The real-time analysis capability of the dashboard will enable banks to respond promptly to changes in customer behavior or preferences, identify opportunities for cross-selling and up-selling, and tailor their products and services to meet customer needs.

## The parts of Power BI

Power BI consists of several elements that all work together, starting with these three basics:

- A Windows desktop application called *Power BI Desktop*.
- An online software as a service (SaaS) service called the *Power BI service*.
- Power BI Mobile apps for Windows, iOS, and Android devices.




These three elements—Power BI Desktop, the service, and the mobile apps—are designed to let you create, share, and consume business insights in the way that serves you and your role most effectively.

Beyond those three, Power BI also features two other elements:

- **Power BI Report Builder**, for creating paginated reports to share in the Power BI service. Read more about paginated reports later in this article.
- **Power BI Report Server**, an on-premises report server where you can publish your Power BI reports, after creating them in Power BI Desktop. Read more about Power BI Report Server later in this article

## Power query editor

Power Query is a data transformation and data preparation engine. Power Query comes with a graphical interface for getting data from sources and a Power Query Editor for applying transformations. Because the engine is available in many products and services, the destination

where the data will be stored depends on where Power Query was used. Using Power Query, you can perform the extract, transform, and load (ETL) processing of data.

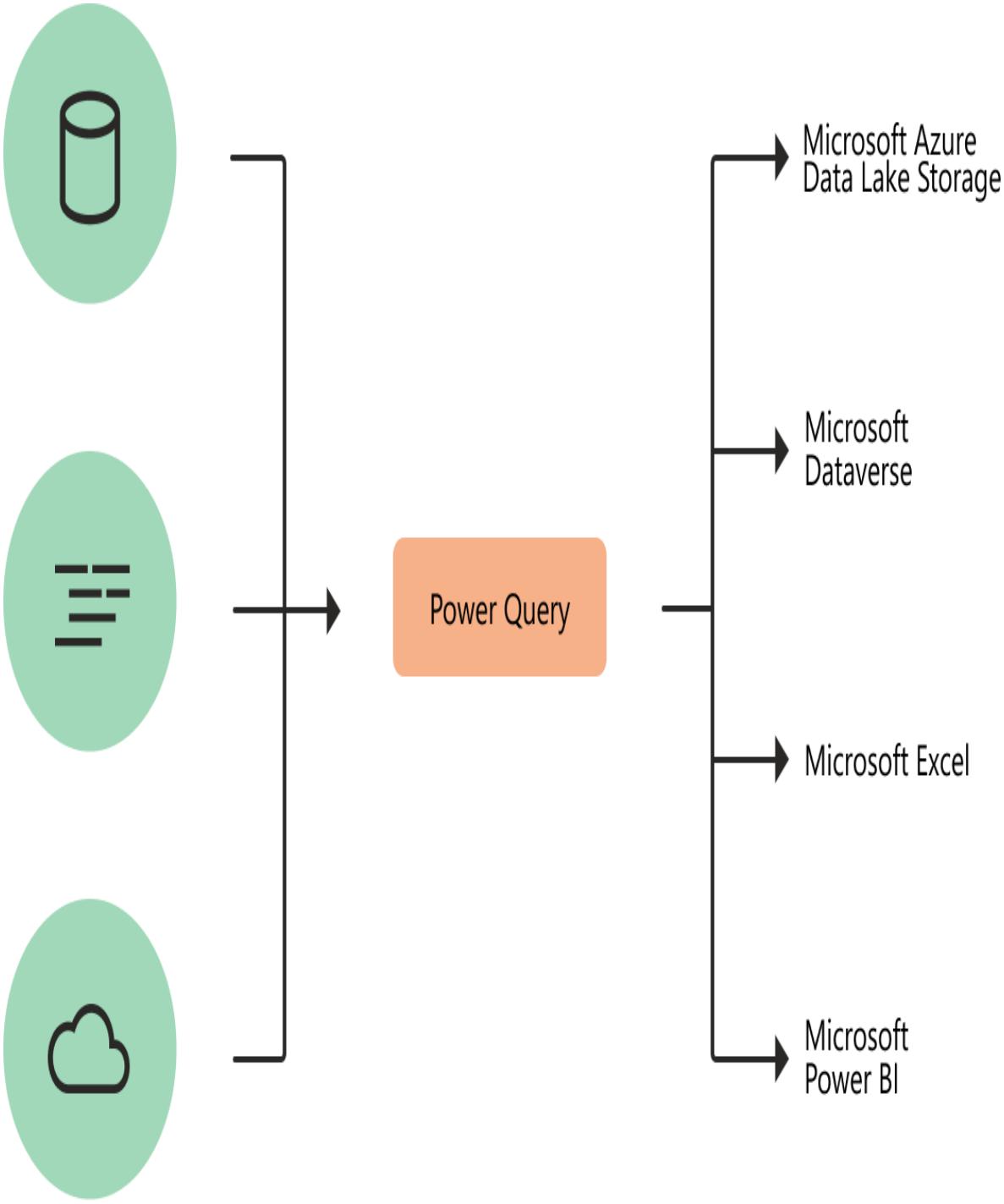



Diagram with symbolized data sources on the left, passing through Power Query for transformation in the center, and then going to four destinations on the right: Microsoft Azure Data Lake Storage, Microsoft Dataverse, Microsoft Excel and Microsoft Power BI.

## How Power Query helps with data acquisition

Business users spend up to 80 percent of their time on data preparation, which delays the work of analysis and decision-making. Several challenges contribute to this situation, and Power Query helps address many of them.

Expand table

| Existing challenge | How does Power Query help? |
|---|---|
| Finding and connecting to data is too difficult | Power Query enables connectivity to a wide range of data sources, including data of all sizes and shapes. |
| Experiences for data connectivity are too fragmented | Consistency of experience, and parity of query capabilities over all data sources. |
| Data often needs to be reshaped before consumption | Highly interactive and intuitive experience for rapidly and iteratively building queries over any data source, of any size. |
| Any shaping is one-off and not repeatable | When using Power Query to access and transform data, you define a repeatable process (query) that can be easily refreshed in the future to get up-to-date data.<br>In the event that you need to modify the process or query to account for underlying data or schema changes, you can use the same interactive and intuitive experience you used when you initially defined the query. |
| Volume (data sizes), velocity (rate of change), and variety (breadth of data sources and data shapes) | Power Query offers the ability to work against a subset of the entire data set to define the required data transformations, allowing you to easily filter down and transform your data to a manageable size.<br>Power Query queries can be refreshed manually or by taking advantage of scheduled refresh capabilities in specific products (such as Power BI) or even programmatically (by using the Excel object model).<br>Because Power Query provides connectivity to hundreds of data sources and over 350 different types of data transformations for each of these sources, you can work with data from any source and in any shape. |

**User Inter face**

User interface is important to meet user expectations and support the effective functionality of your site. A well-executed user interface facilitates effective interaction between the user and the program, app or machine through contrasting visuals, clean design and responsiveness.

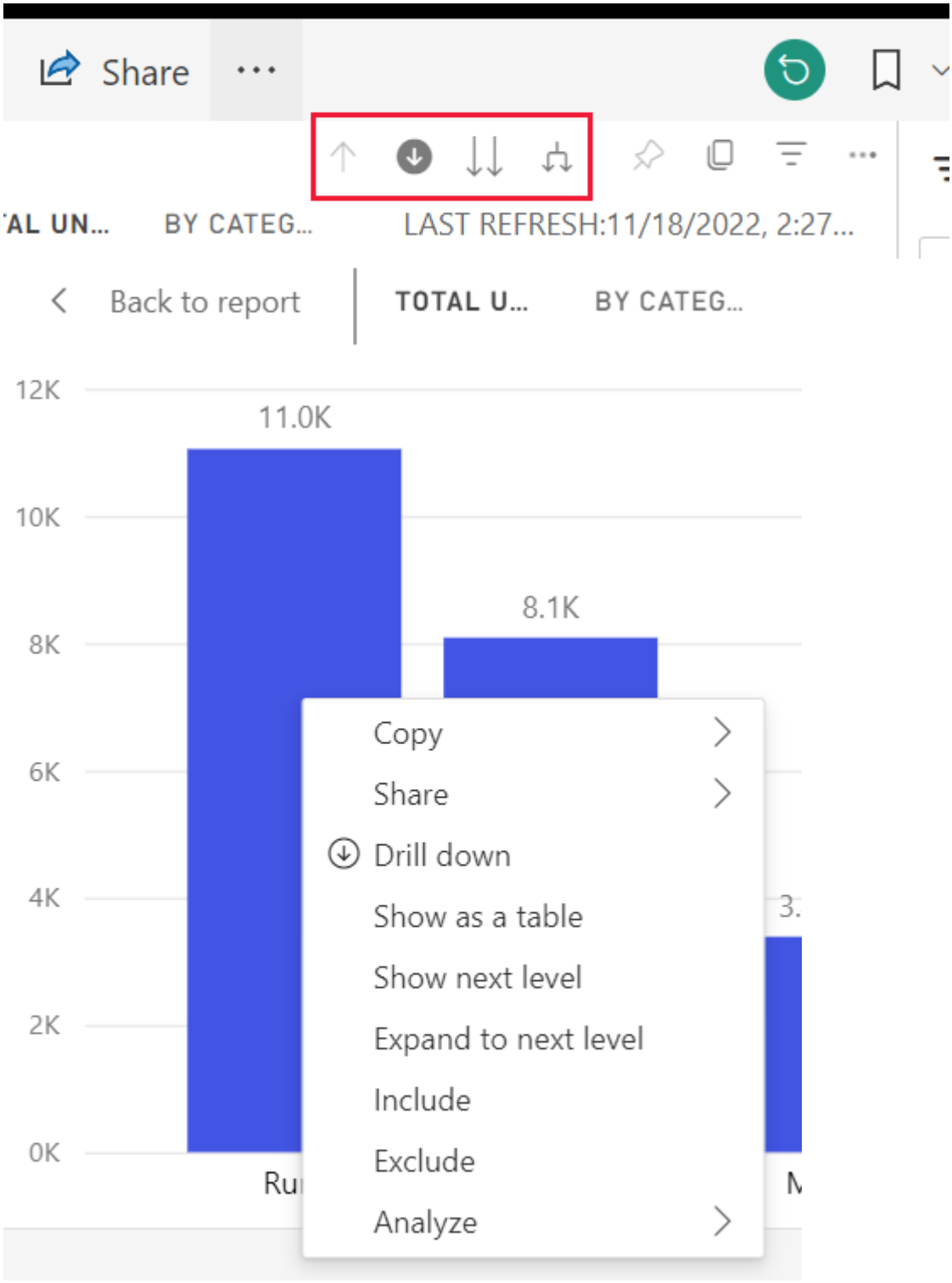
When designing a UI for your site, it's important to consider the user's expectations in terms of accessibility, visual aesthetic and ease of use. An optimal mix of effective visuals and efficient responsiveness will improve your site's conversion rates, as it anticipates the needs of the user and then satisfies those needs.

# About you project

Power BI is not limited to data analytics. It is also a data visualization tool that generates customized reports for the given information. Data is collected, processed, and monitored in real-time. Power BI can help banks track the profitability ratio of customers, products, and services, as well as the branch's performance against all KPIs (Key Performance Indicators).

Business enterprises and banks use Power BI to access the latest insights and get a complete perspective of their operations. The Power BI banking dashboard gives banking professionals a deeper and better understanding of their services and customers' response to the services.

# Visualisation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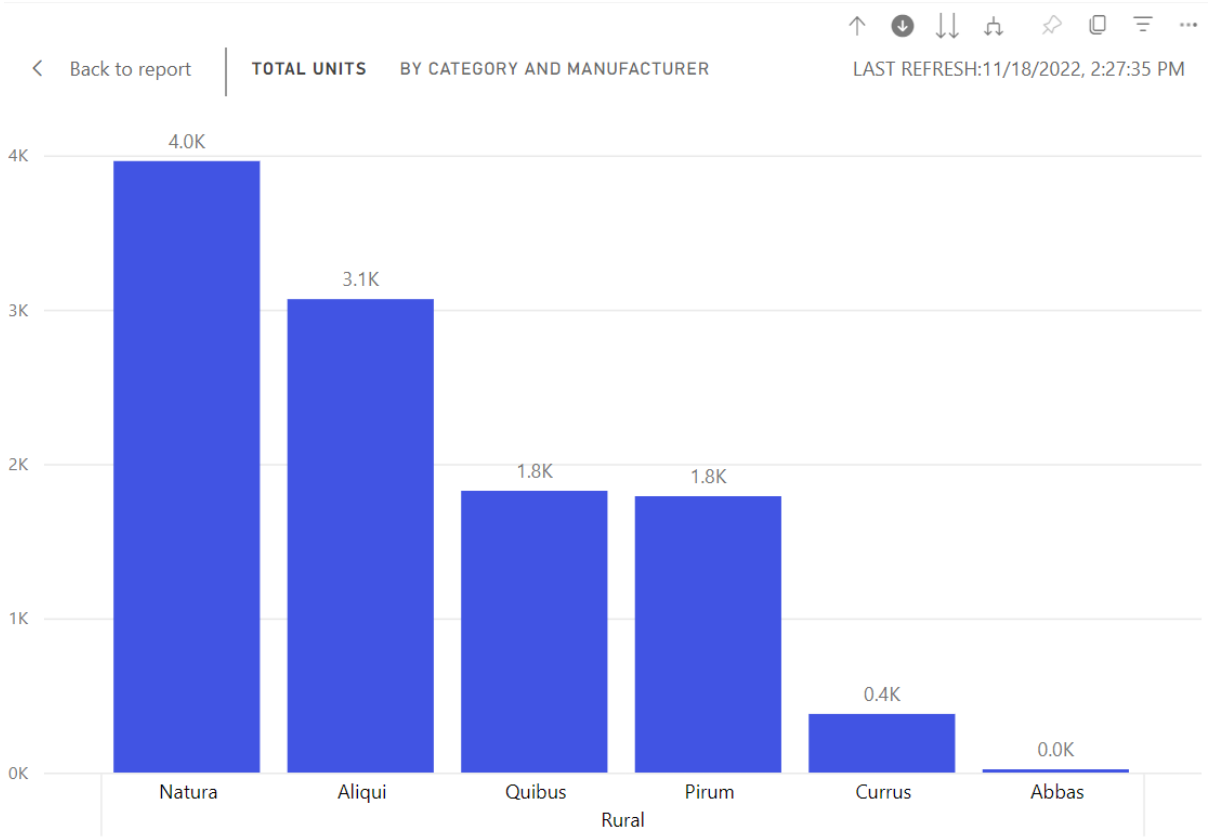
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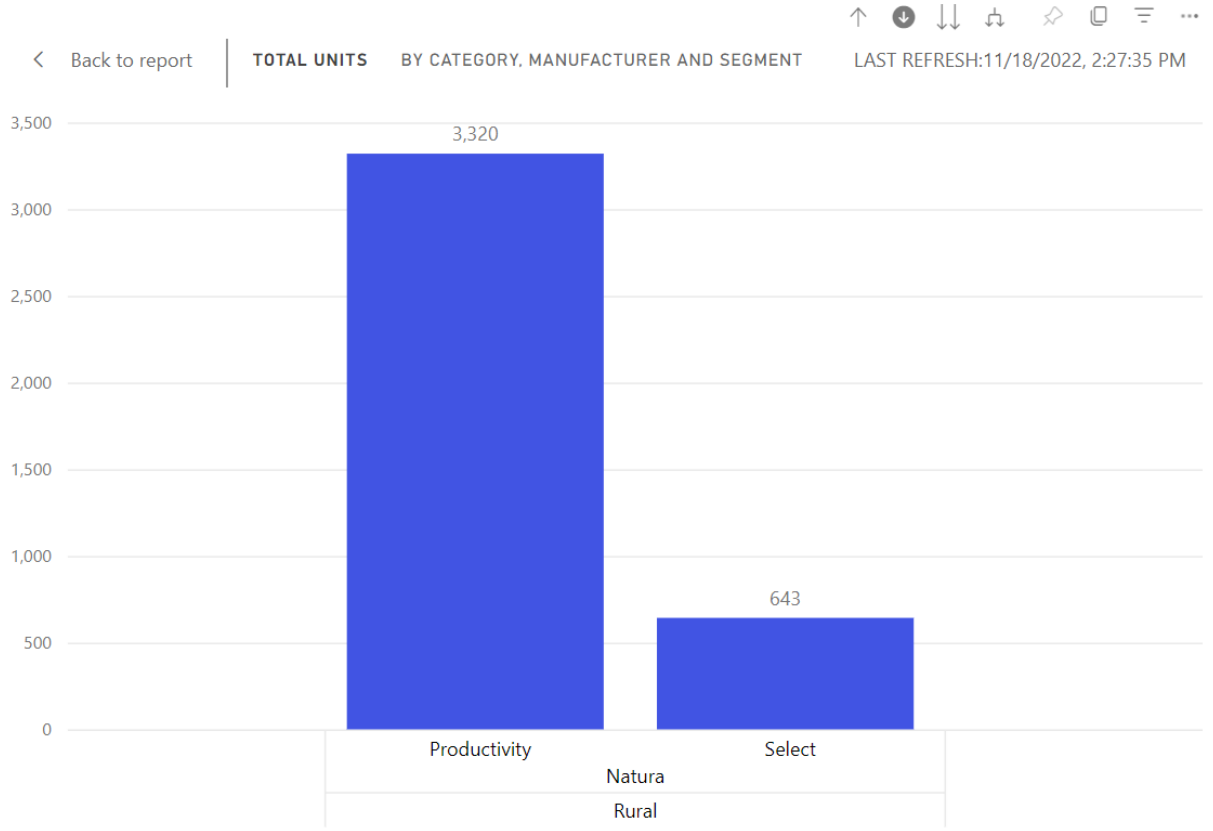
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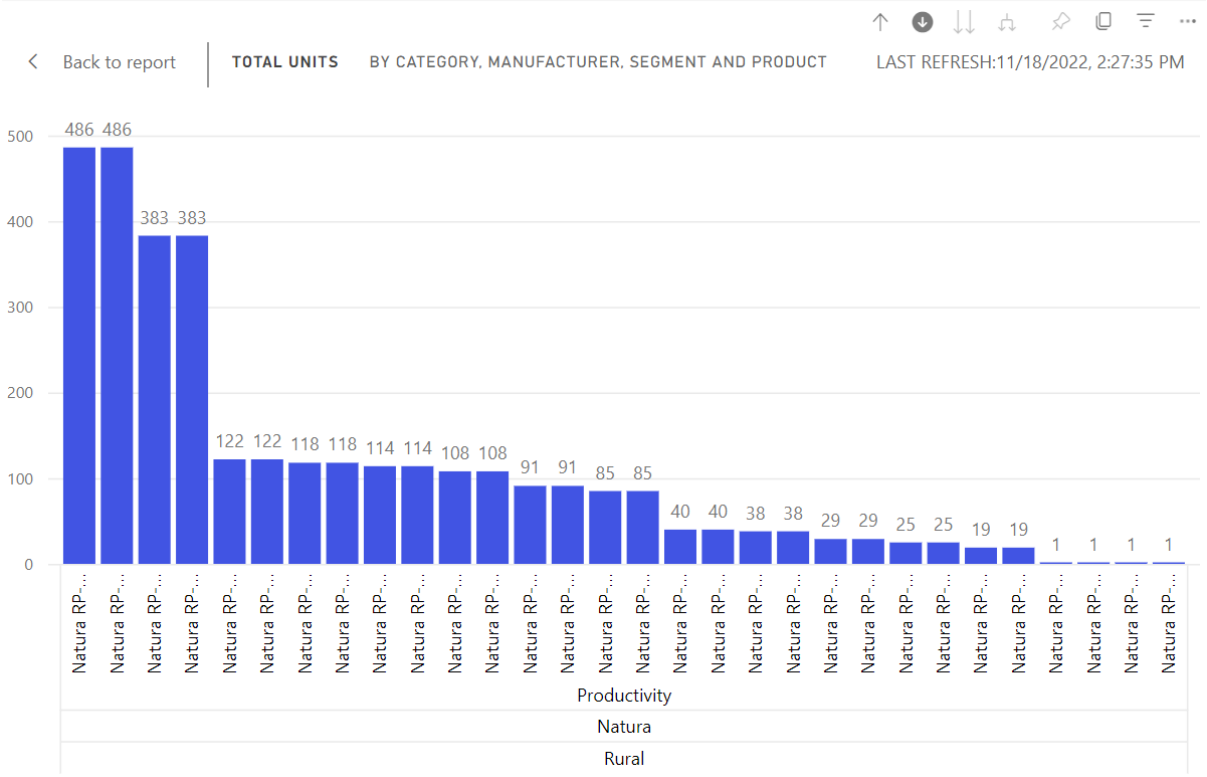
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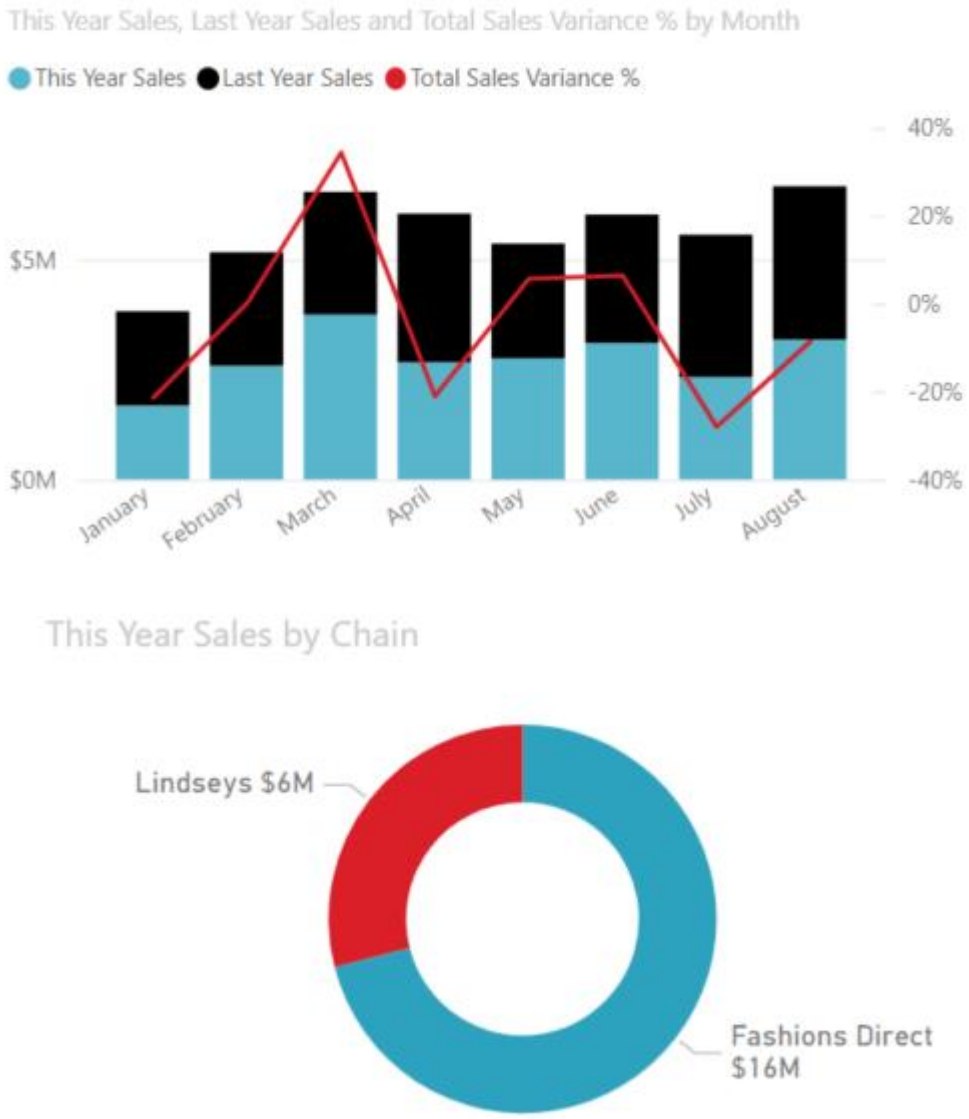
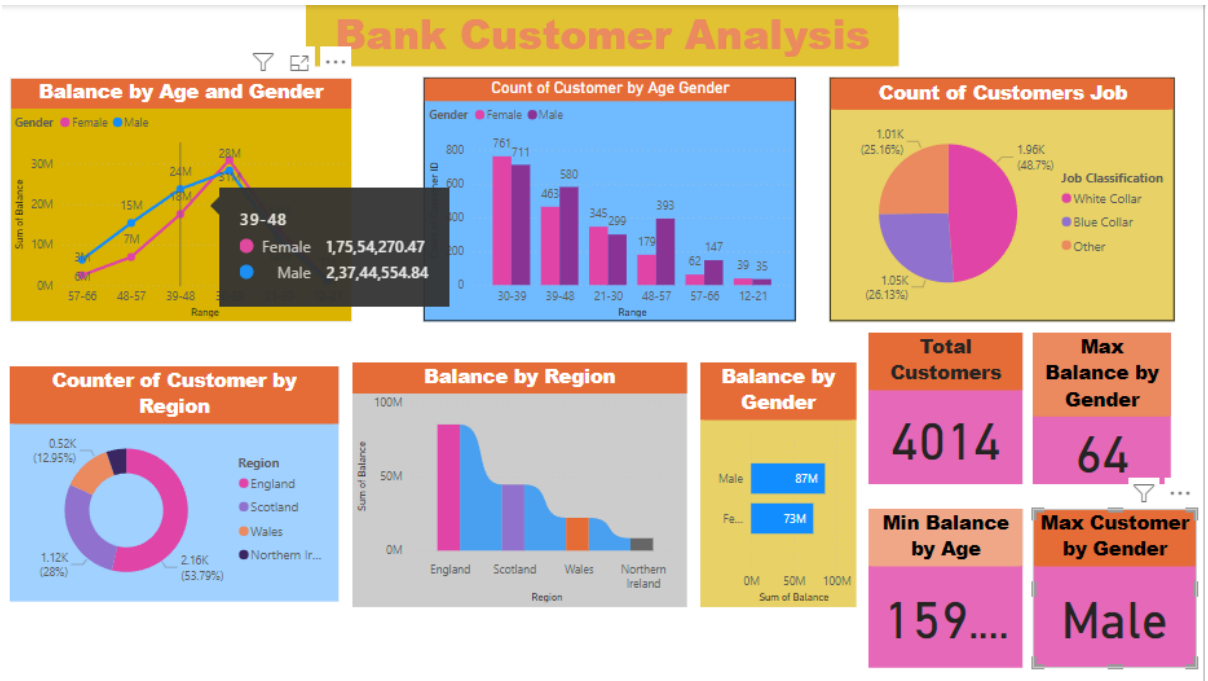



While stunning, rich visuals can be great tools for communicating ideas, the end benefit of data visualisation is its ability to drive better decision making. Here are a few ways data visualisation helps with strategic decision making:

- **See the big picture.** There's a clear picture of performance buried within the transaction, interaction, process, and behavioural data stored in your systems. Data visualisation allows you to recognise the broader context and higher-level scenario within it. As a result, you'll notice trends and spot patterns you wouldn't be able to see if you were looking at numbers on their own.

- **Identify the significance.** Bringing visual clarity to the story told within your data helps you identify insights that lead to better decision making, planning, strategies, and actions. How is your business performing, what needs to be modified, and where should you focus your resources? The ability to understand the significance of your data drives more effective operations and decisions.
- **Make informed decisions.** With concrete numbers and tangible insights, you can be confident your decisions are backed by data. Having clear insight into performance metrics empowers you with the knowledge and arms you with the tools to make the right decisions at the right time.
- **Track trends over time.** Once you've established a baseline, trends will begin to emerge. Track progress, spot trends, and begin using your insights to drive informed, strategic decisions. As you build your trends, shifts in patterns indicate if things drift off track, allowing you to immediately address any sign of lowered performance.

## Dashboard and Report



# Reports:

**Power BI offers numerous benefits for project tracking. One of the main advantages is its ability to consolidate data from multiple sources, such as project management tools, financial systems, and spreadsheets. This allows project managers to have a holistic view of the project, making it easier to identify trends, patterns, and anomalies. Power BI's advanced visualizations enable the creation of intuitive dashboards, making it effortless to track project progress at a glance. Furthermore, Power BI's interactive features allow users to explore and drill down into the data, gaining deeper insights into the project's performance .Another benefit of using Power BI for project tracking is its ability to automate data refreshes. With Power BI, project managers can set up scheduled refreshes to ensure that the data is always up to date.**

# Conclusion

Business analytics is the process of discovering, interpreting, and communicating significant patterns in data and using tools to empower your entire organization to ask any question of any data in any environment on any device. Business analytics adds even more opportunities to drive desired outcomes, such as optimization, cost savings, and customer engagement. Those who are successful with analytics ignore their instincts and chose their results based on what the data reveals. In a perfect scenario, business leaders set up a methodology without bias so that insights and discoveries can be obtained without adding preconceived notions or experiences in the equation.

It has been said that **"a picture is worth a thousand words."** And today, in the era of big data, when businesses are inundated with

information from varied data types and from on-premises and cloud-based sources, that old saying has never been more relevant.

Sifting through information to understand what matters and what doesn’t is becoming more difficult. Visuals make analysis much easier and faster and offer the ability to see briefly what matters. What’s more, most people respond far better to visuals than text—90 percent of the information sent to the brain is visual, and the brain processes visuals at 60,000 times the speed of text. Those points make a strong case for the use of data visualization for analyzing and conveying information.

## Github Link :