TheTools

UK Banks Reports

HANDS - ON PROJECT

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Introduction

This project is centered around a detailed analysis of customer data from a UK bank branch, focusing on customers from various regions and age groups. The management team is interested in gaining insights into their customer demographics, financial behaviors, and trends. Specifically, they are looking to understand the distribution of customers by region and gender, evaluate financial metrics based on job classifications and age ranges, and identify trends in customer acquisition throughout the year 2015. Additionally, they want to determine which customers hold the largest account balances to enhance their high-value client management strategies.

Understanding these insights is critical for the bank to improve customer service, tailor marketing strategies, and make informed decisions related to product offerings, customer engagement, and regional focus. By analyzing this data, the bank can identify potential areas of growth, optimize customer outreach, and ensure they are catering to the needs of their diverse customer base.

Why and How Power BI is Used:

Power BI is used in this project as the primary tool for visualizing and analyzing customer data due to its robust capabilities in handling large datasets, creating interactive dashboards, and generating insightful reports. Here's why Power BI is particularly useful for this project and how it is applied to achieve the objectives:

Data Integration and Cleaning: Power BI allows the integration of data from multiple sources. For this project, customer data from the bank's internal systems is imported and cleaned in Power Query. This ensures that any inconsistencies in data formats or missing values are handled effectively before analysis begins.

Visualizing Customer Distribution: Power BI's advanced visualizations, such as maps and bar charts, are used to display the number of unique customers across various regions. This helps management quickly understand customer concentration and identify regions that may require further attention or expansion.

Analyzing Gender Distribution: Power BI's ability to create percentage-based visualizations allows us to efficiently display gender distribution across each region, providing a clear understanding of the customer base's demographic structure.

Average Balance Analysis by Job and Age: Power BI's DAX (Data Analysis Expressions) language is used to calculate the average balance based on job classification and age ranges. The results are displayed through bar charts and scatter plots, enabling management to easily compare financial behaviors across different customer segments.

Trend Analysis for Customer Onboarding: Power BI's time-series visualizations, such as line charts, are used to show the monthly trend of new customers joining the bank in 2015. This helps in understanding the seasonal patterns or specific periods when customer acquisition was high or low.

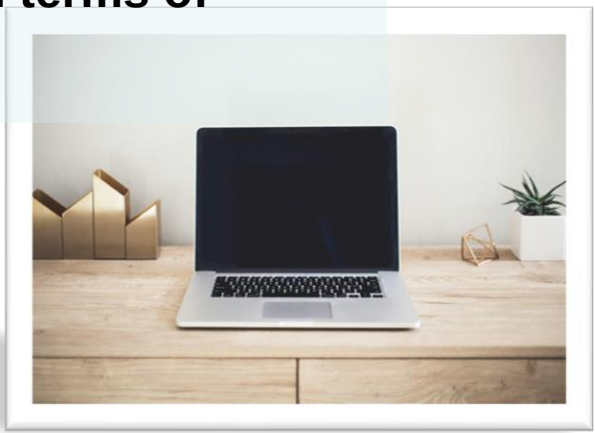
Identifying Top Customers: Through the use of Power BI's filtering and sorting capabilities, the top two customers with the highest account balances are identified and highlighted in the report. This helps the bank's management focus on key clients and design strategies to maintain and enhance these relationships.

Objectives:

The primary objective of this project is to analyze the customer data from a UK bank branch, focusing on several key performance indicators (KPIs). The analysis aims to determine the total number of unique customers across various regions and to examine the gender distribution percentages within each region. Additionally, the project will evaluate the average balance held by customers based on both job classifications and age ranges. Another objective is to identify the trends in the number of new customers onboarded each month during 2015, providing insights into customer acquisition patterns. Lastly, the project will determine the top two customers with the highest total account balance, allowing the bank to identify and prioritize its most valuable clients. These objectives will enable management to make data-driven decisions regarding customer engagement and business strategies.

Key Performance Indicators (KPIs):

1. **Number of Unique Customers: To determine the customer base spread across various regions.**
2. **Gender Distribution by Region: Understanding the percentage split of male and female customers in each region.**
3. **Average Balance by Job Classification: Insights into how job roles affect the average account balance.**
4. **Average Balance by Age Range: Evaluation of financial metrics based on age demographics.**
5. **Monthly New Customer Trends (2015): Tracking the number of new customers acquired every month.**
6. **Top Customers by Balance: Identifying the two most significant customers in terms of account balances.**



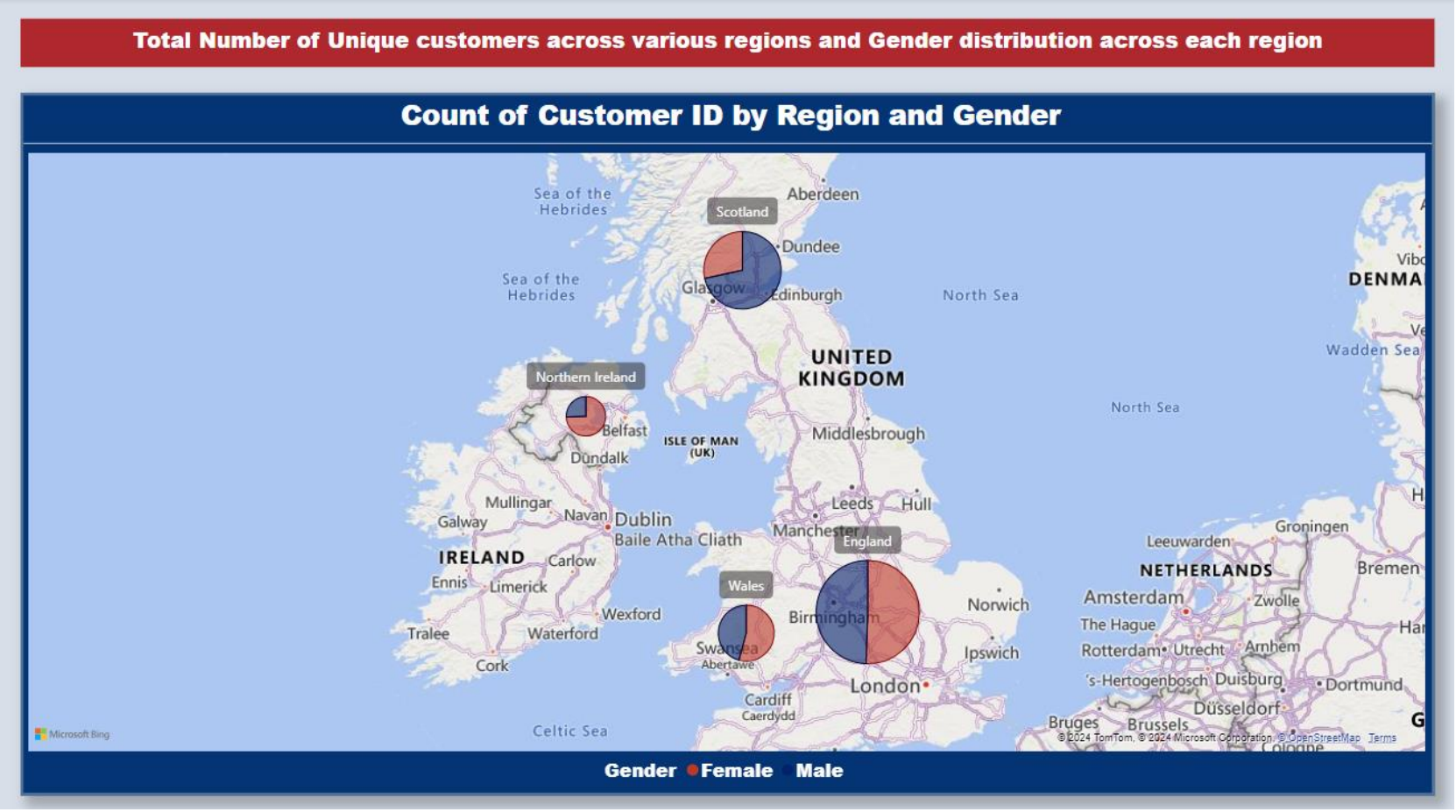
Data: cardioActivities.csv

A1 | Customer ID

	A	B	C	D	E	F	G	H	I	J	K
1	Customer ID	Name	Surname	Gender	Age	Region	Job Classification	Date Joine	Balance	BankField1	BankField2
2	100000001	Simon	Walsh	Male	21	England	White Collar	05.Jan.15	113810.2		
3	400000002	Jasmine	Miller	Female	34	Northern I	Blue Collar	06.Jan.15	36919.73		
4	100000003	Liam	Brown	Male	46	England	White Collar	07.Jan.15	101536.8		
5	300000004	Trevor	Parr	Male	32	Wales	White Collar	08.Jan.15	1421.52		
6	100000005	Deirdre	Pullman	Female	38	England	Blue Collar	09.Jan.15	35639.79		
7	300000006	Ava	Coleman	Female	30	Wales	Blue Collar	09.Jan.15	122443.8		
8	100000007	Dorothy	Thomson	Female	34	England	Blue Collar	11.Jan.15	42879.84		
9	200000008	Lisa	Knox	Female	48	Scotland	Other	11.Jan.15	36680.17		
10	300000009	Ruth	Campbell	Female	33	Wales	White Collar	11.Jan.15	74284.35		
11	100000010	Dominic	Parr	Male	42	England	White Collar	12.Jan.15	10912.45		
12	100000011	Dominic	Lewis	Male	40	England	White Collar	12.Jan.15	39667.83		
13	100000012	Benjamin	Grant	Male	39	England	White Collar	12.Jan.15	32281.62		
14	100000013	Ryan	MacDonal	Male	24	England	White Collar	12.Jan.15	40781.63		
15	200000014	Thomas	Lawrence	Male	46	Scotland	Other	12.Jan.15	48791.46		
16	300000015	Madeleine	Marshall	Female	36	Wales	Other	12.Jan.15	2846.03		
17	100000016	Nicholas	Newman	Male	42	England	White Collar	14.Jan.15	2116.85		
18	200000017	Grace	Hill	Female	31	Scotland	Other	14.Jan.15	10356.31		
19	200000018	Samantha	Coleman	Female	42	Scotland	Other	14.Jan.15	3801.69		
20	100000019	William	Ince	Male	40	England	Blue Collar	15.Jan.15	65534.69		
21	100000020	Audrey	Jones	Female	46	England	Blue Collar	15.Jan.15	11462.64		
22	300000021	Boris	Johnston	Male	37	Wales	Other	16.Jan.15	31778.9		
23	200000022	Jason	Butler	Male	58	Scotland	Blue Collar	18.Jan.15	21252.97		
24	300000023	Deirdre	McDonald	Female	41	Wales	White Collar	18.Jan.15	66785.78		
25	200000024	Carl	Quinn	Male	52	Scotland	Blue Collar	19.Jan.15	6580.81		
26	100000025	Jennifer	Hughes	Female	38	England	White Collar	20.Jan.15	20505.32		
27	200000026	Richard	Fraser	Male	55	Scotland	Blue Collar	21.Jan.15	43249.26		

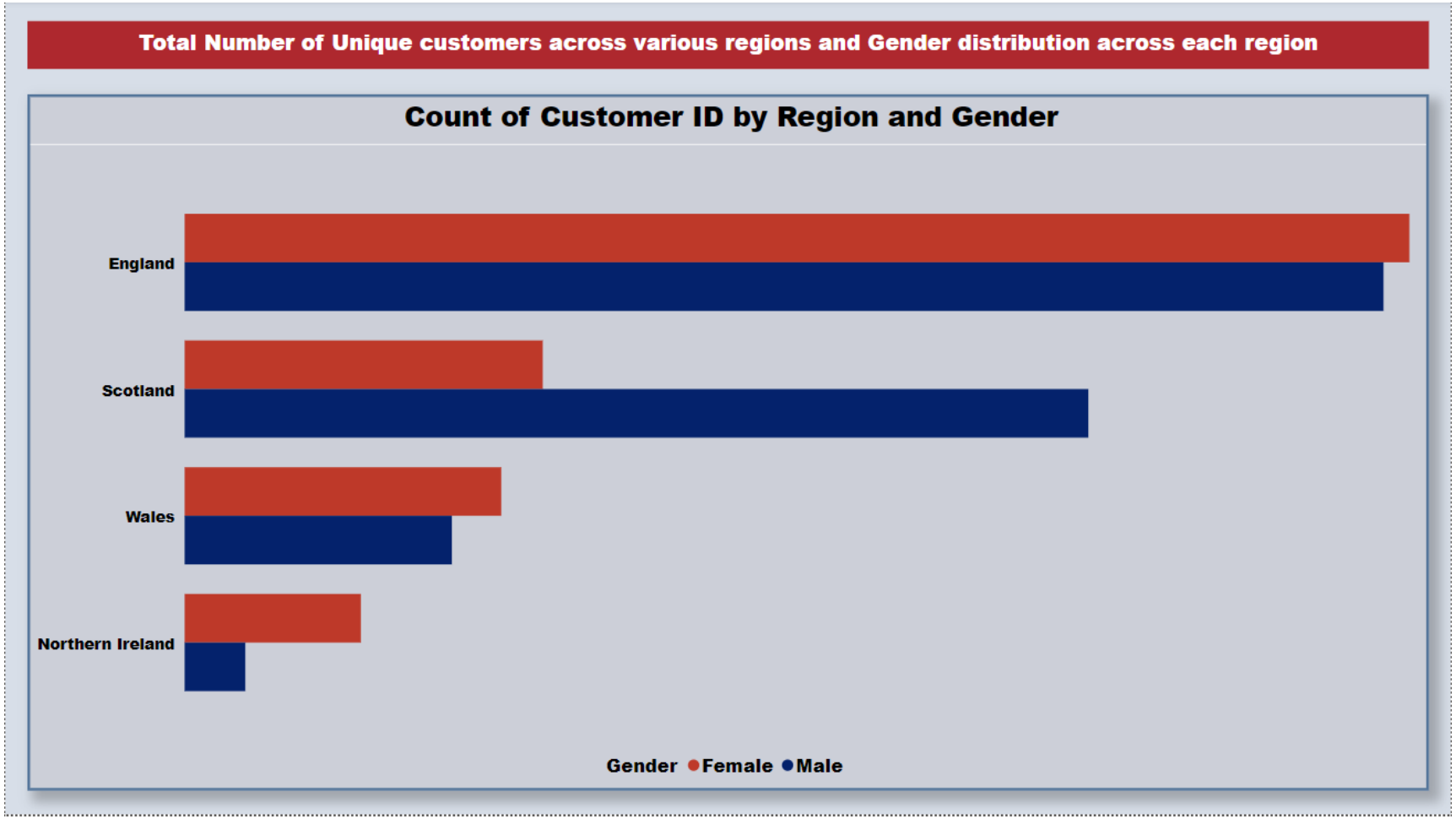
KPI 1: A Map visual in Power BI helps in the following ways to analyze the "Number of Unique Customers" across regions:

- **Geographical Representation**: It visually plots the customer distribution, allowing you to see where most customers are located geographically.
- **Data Clarity**: Different regions are highlighted based on customer density, making it easy to identify areas with the highest or lowest customer counts.
- **Interactive Filtering**: You can interact with the map to filter specific regions and view the exact customer count, enhancing data exploration and comparison between regions.



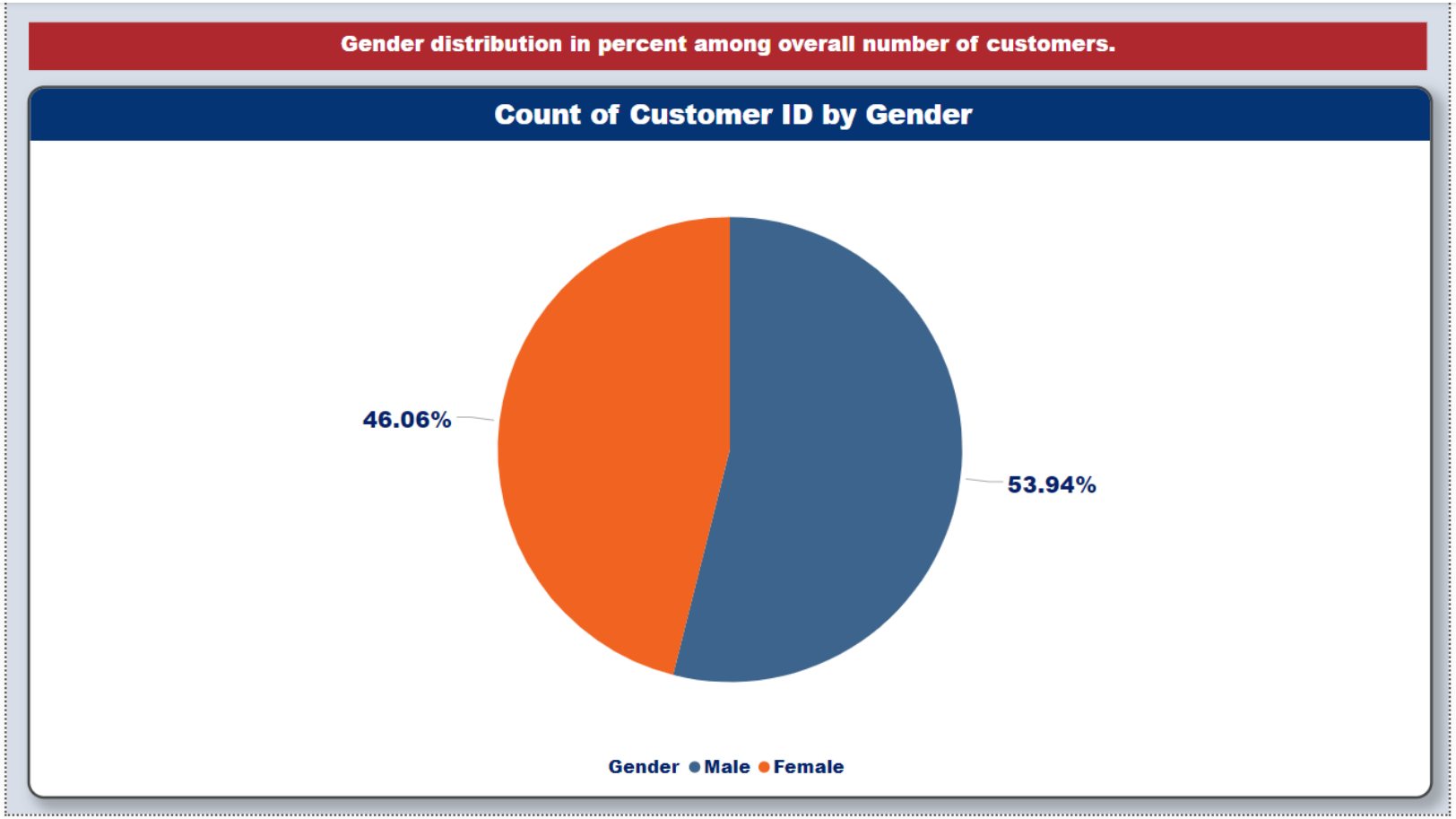
KPI 1: A Clustered Bar Chart in Power BI aids in analyzing the "Number of Unique Customers" across regions by:

- Category Comparison: It clearly displays customer numbers across multiple regions side by side, making it easy to compare values across categories.
- **Detailed Breakdown:** Each bar represents the total number of customers per region, providing a straightforward view of regional distribution without overlapping data points.
- **Interactive Insights:** The chart allows filtering and drilling down into specific regions, giving a deeper understanding of customer demographics and trends at a glance.



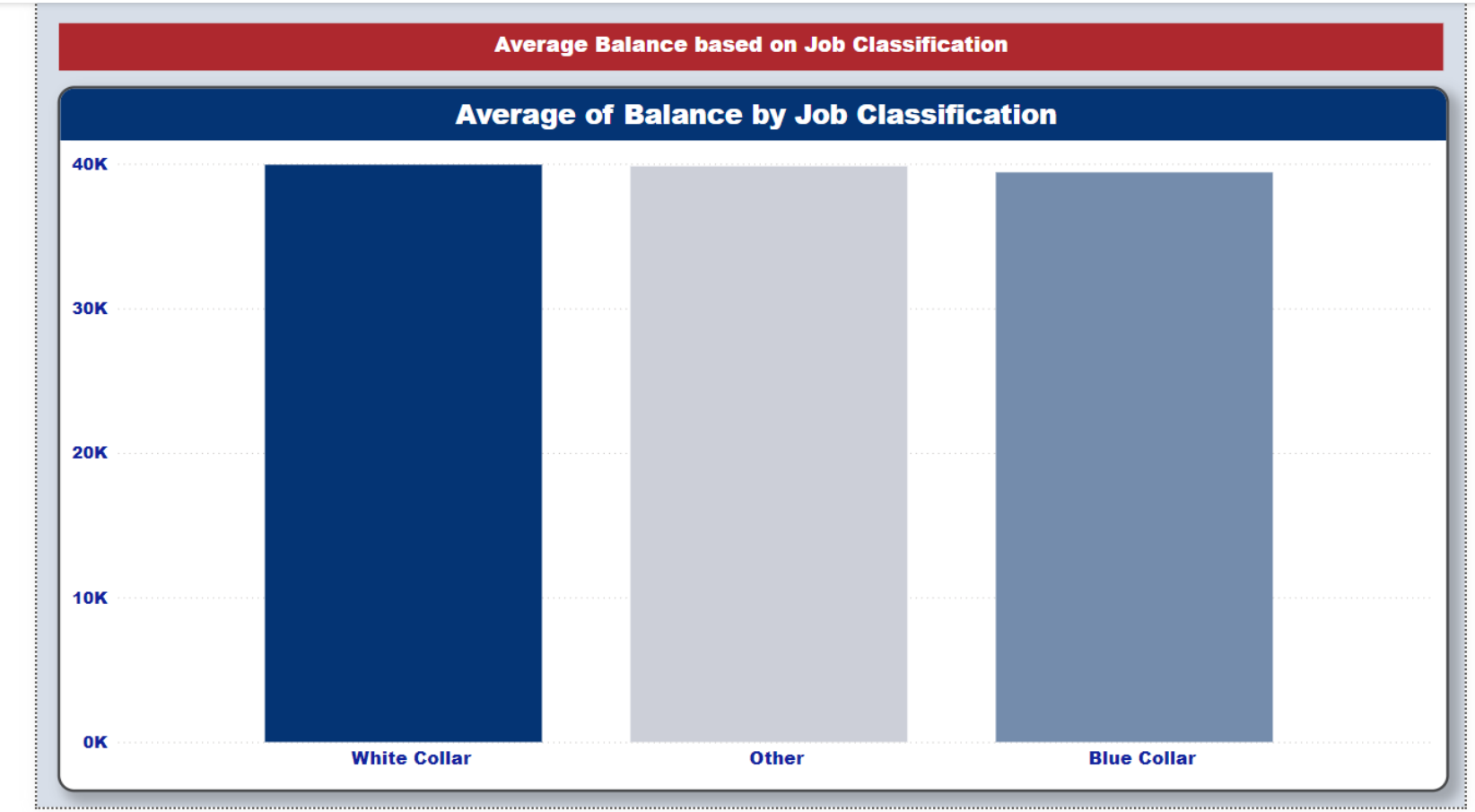
KPI 2: A Pie Chart in Power BI helps in visualizing the "Gender Distribution by Region" by:

- **Proportional Representation:** It effectively displays the percentage split of male and female customers within each region, making it easy to compare gender proportions.
- **Clear Visual Segmentation:** Each segment represents a gender category, providing an immediate understanding of which gender dominates in specific regions.
- Quick Insights: The pie chart allows for an easy-to-digest, at-a-glance view of gender distribution, helping to spot trends or imbalances in customer demographics across regions.



KPI 3: A Clustered Column Chart in Power BI helps to analyze the "Average Balance by Job Classification" by:

- **Comparison of Job Roles**: It displays the average account balances for different job classifications side by side, making it easy to compare the financial standing of each group.
- **Highlighting Trends**: The vertical bars visually represent the differences in average balances across job roles, revealing trends or disparities based on profession.
- **Interactive Filtering**: The chart allows users to drill down into specific job categories, offering deeper insights into how specific roles impact average balances.

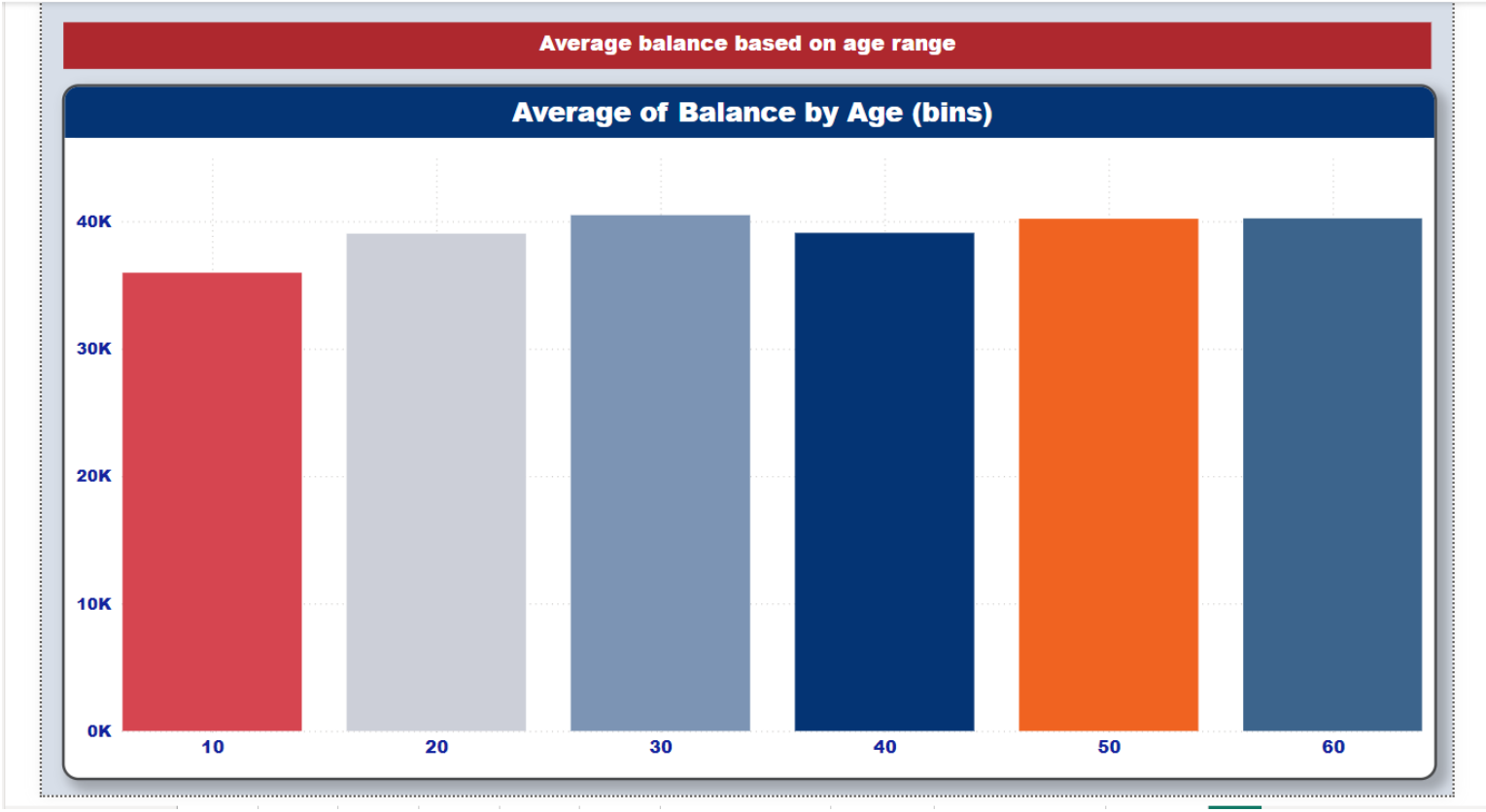


KPI 4: A Clustered Column Chart in Power BI helps to evaluate the "Average Balance by Age Range" by:

- **Age Group Comparisons**: Using the bin method for age grouping, it visually compares the average account balances across different age ranges, allowing for easy identification of which age groups hold higher or lower balances.

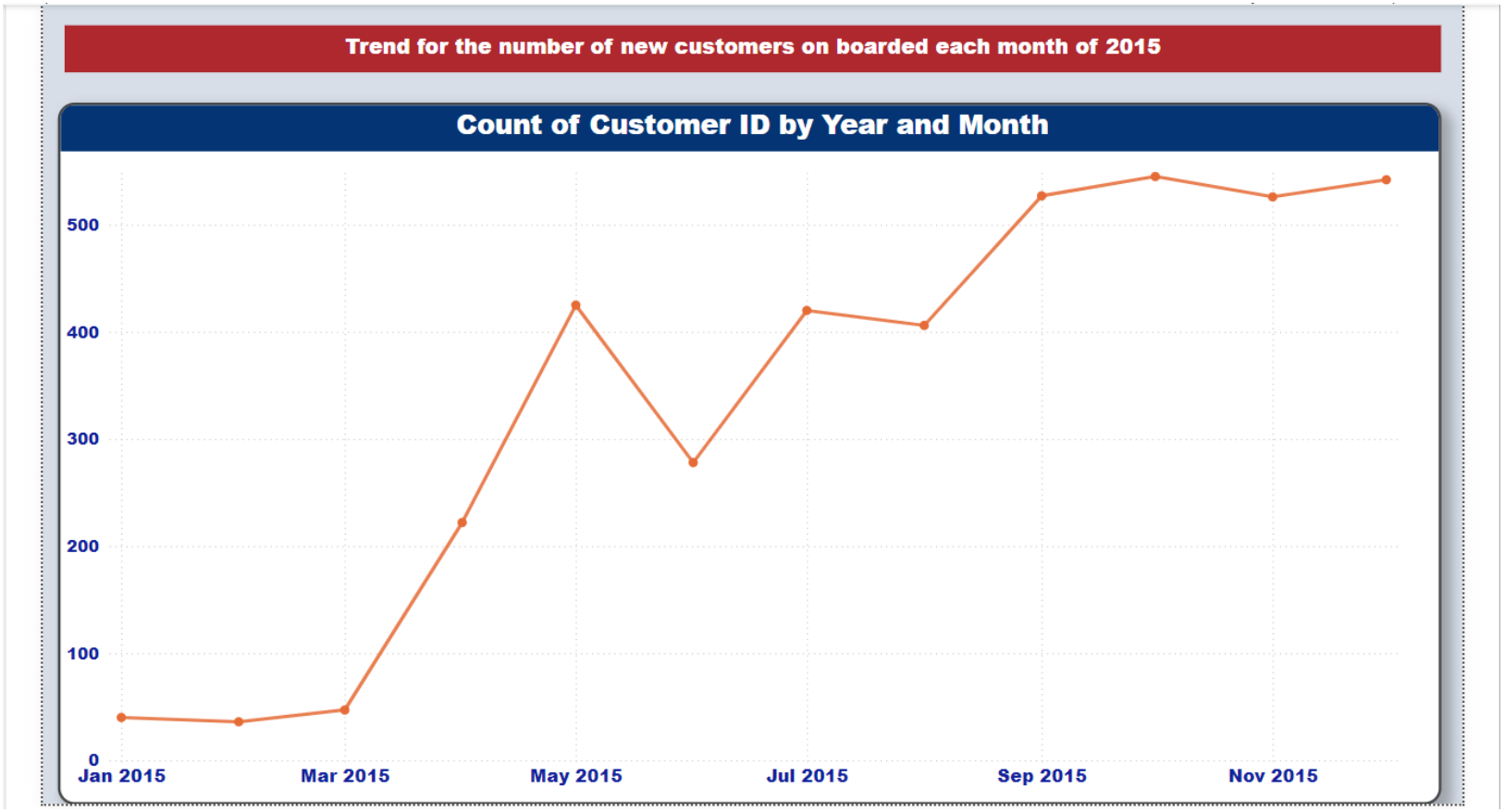
- **Clear Data Trends**: The vertical bars highlight trends in financial behavior based on age demographics, making it straightforward to spot patterns in saving or spending habits.

- . **Interactive Data Exploration**: Users can interact with the chart to focus on specific age groups or further filter by other metrics, enhancing insights into the relationship between age and financial status.



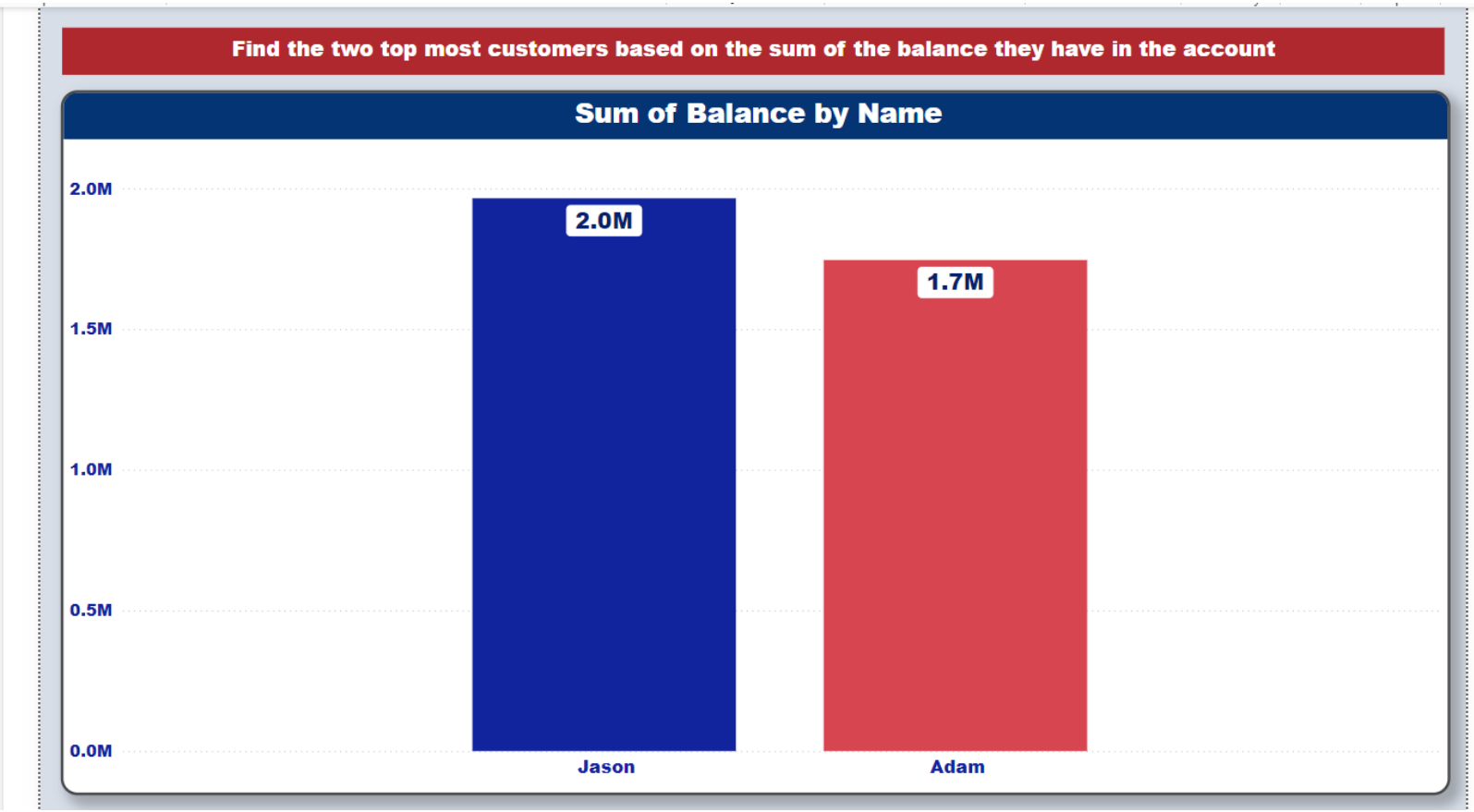
KPI 5: A Line Chart in Power BI helps track the "Monthly New Customer Trends (2015)" by:

- **Time-Based Visualization**: It provides a clear representation of new customer acquisition trends over the months in 2015, making it easy to see patterns or seasonal spikes.
- **Continuous Flow**: The line smoothly connects data points, allowing you to observe how the number of new customers changes month-to-month.
- **Trend Analysis**: The visual enables quick identification of growth periods, declines, or consistent trends in customer acquisition, helping to analyze overall performance across the year.



KPI 6: A Clustered Column Chart in Power BI helps identify the "Top Customers by Balance" by:

- **Direct Comparison**: It clearly displays the account balances of the top two customers, Jason and Adam, side by side, allowing for an easy comparison of their financial significance.
- **Highlighting Key Customers**: The chart emphasizes Jason and Adam as the two customers with the highest account balances, visually showcasing their importance in terms of financial value.
- **Data Visibility**: The vertical columns provide a straightforward and concise view of how Jason and Adam stand out from others, helping prioritize key relationships.



Conclusion:

Power BI empowers the bank to move beyond static reports by providing interactive, real-time insights. Its capabilities enable dynamic filtering, drill-downs into specific data points, and the generation of visually engaging reports that drive decision-making at every level of management.