**Bank Loan Report – Project Overview**

**Purpose:**

In this project I am developing a comprehensive Bank Loan Report, aiming to provide insights into key loan-related metrics and their changes over time. The report will help to make data-driven decisions, track loan’s portfolio condition, and identify trends that can inform the lending strategies.

First, the key performance indicators will be created to present total loan applications, total funded amount, total amount received, average interest rate, and average debt-to-income ratio (DTI), together with month-to-date analysis and month-over-month changes.

Then the good loans and bad loans metrics will be developed, based on the loan status. Additionally, the charts presenting critical loan-related metrics and trends will be created to provide a clear and insightful view of the lending operations, enabling to gain valuable insights into various loan parameters, such as monthly trends, regional activity, loan terms, employment length, loan purpose, or home ownership.

Lastly, the detailed view will be enabled to provide a consolidated view of all the essential information within the loan data. It will serve as a one-stop solution for users seeking detailed insights into the loan portfolio, borrowers' profile, and loan performance.

**Technologies used:**

The first step is to utilize MS SQL Server Management Studio to query the dataset and document the queries and the query results. I used the following SQL functionalities:

* Creating database
* SELECT
* WHERE
* COUNT
* SUM
* GROUP BY
* ORDER BY
* DATENAME
* MONTH
* YEAR
* Aliases
* AVG
* ROUND
* CASE statement

The next step is to build visuals and dashboard in Tableau and compare the results to the SQL queries, to ensure accuracy and correctness on created calculations. Functionalities in Tableau included:

* Connection to the database
* Aggregate functions (COUNT, SUM, AVG)
* IF statement
* Creating Parameter
* Creating KPI’s
* Creating charts (Line Chart, Bar Chart, Map, Treemap, Donut Chart)
* Formatting visuals (fonts, numbers, colors, tooltips)
* Navigation
* Filters

**Steps:**

1. Create DB in SSMS and load data from csv file.
2. Verify the data types and correct any errors during loading.
3. Query database to extract necessary data for the reporting, which will then be compared against data in Tableau to ensure accuracy.
4. Connect to the dataset in Tableau.
5. Create calculated fields for each of KPI and check against SQL query results. If the numbers do not match, there must be some errors in calculations in Tableau.
6. Create custom charts and grid views.
7. Create the parameter for dynamic charts, and a calculated field to use this parameter in a conditional statement.
8. Adjust tooltips, coloring, fonts, and other formatting options.
9. Create dashboard with the custom background designed in PowerPoint and add navigation buttons to move across particular reports.
10. Create dashboard filters that apply to all charts and KPI’s.

**Summary:**

To summarize, the final product to be delivered to the stakeholders will include a complete dashboard with a comprehensive view on key loan-related metrics. The dashboard features dynamic charts that allow for real-time analysis and decision-making, supported by filtering options for customization according to specific requirements. Additionally, the dashboard provides detailed insights into the loan portfolio, enabling stakeholders to make informed decisions and optimize lending strategies effectively. Through this deliverable, the project aims to streamline data-driven decision-making processes and enhance the understanding of the loan portfolio's performance and trends.

**Skills**:

With this project I showcase a range of skills essential for a data analyst role:

SQL Skills: the use of various SQL functionalities highlights my ability to manipulate data effectively and extract relevant information for analysis purposes.

Data Visualization: Through Tableau, I present my ability to create visually appealing and insightful dashboards and visualizations. This includes creating various chart types (e.g., line charts, bar charts, maps), formatting visuals, and designing dashboards for easy navigation and interpretation.

Analytical Skills: By developing key performance indicators (KPIs), comparing data between SQL and Tableau, and analyzing trends and patterns in loan-related metrics, I demonstrate strong analytical skills in interpreting data to derive actionable insights.

Communication: The project involves creating a comprehensive report that communicates insights effectively to stakeholders.