TDI EXCEL CAPSTONE PROJECT

Project Title: Loan Data Analysis Dashboard using Microsoft Excel

You have been hired as a Data Analyst for The Data Immersed (TDI), a financial services company specializing in providing loans to individuals and small businesses. The company is looking to better understand its loan portfolio, identify key risk factors, and improve customer satisfaction. Your task is to create a Loan Data Analysis Dashboard that will provide insights into the company's loan performance, customer demographics, and potential areas for improvement. This dashboard will be used by the management team to make data-driven decisions about loan approval processes, interest rates, and risk management.

Project Overview:

The goal of the Loan Data Analysis Dashboard Project is to develop an interactive dashboard that offers key insights into loan data. Using the provided dataset, you will clean and preprocess the data in Excel, perform analysis, and design an interactive dashboard that enables users to explore and visualize the data effectively. The dashboard should help management make informed decisions about loan approval criteria, risk mitigation, and profitability optimization.

Project Objectives:

1. Problem Statement Definition:

   - Clearly define the problem statement that the Loan Data Analysis Dashboard aims to address. Identify key challenges for TDI, such as high default rates, understanding borrower risk profiles, and optimizing interest rates for different customer segments.

2. Data Cleaning and Transformation:

   - Import the dataset into Excel and perform data cleaning to ensure accuracy. This includes handling missing values, removing duplicates, correcting data entry errors, and standardizing data formats. You may also create calculated columns (e.g., debt-to-income ratio, loan-to-value ratio) to support further analysis.

3. Data Analysis:

- Perform data analysis using Excel formulas, pivot tables, and charts. Key metrics to analyze include:

    - Loan default rates by customer demographics (e.g., income, employment length).

    - Interest rates and their impact on loan performance.

    - Loan amounts across different customer segments and loan purposes.

    - Loan approval rates by region and customer risk profiles.

4. Data Visualization with Excel:

   - Create an interactive Loan Data Analysis Dashboard in Excel. Use visual elements like bar charts, line graphs, histograms, and pivot charts to display key metrics. Implement features like slicers, filters, and conditional formatting to enhance interactivity and make the data easier to explore.

5. Dashboard Interactivity and User Experience:

   - Design the dashboard to be user-friendly, allowing users to easily filter the data by relevant factors such as loan purpose, customer credit score, and loan status. The dashboard should allow management to drill down into specific data segments to understand key trends.

6. Loan Risk and Profitability Insights:

   - Develop insights into high-risk loans by analyzing the relationship between credit score, loan amount, and interest rates. Provide recommendations for risk mitigation strategies, such as adjusting loan approval criteria or setting minimum credit score thresholds.

7. Loan Approval Optimization:

   - Identify patterns in loan approval and rejection rates based on borrower demographics and loan conditions. Provide suggestions on how TDI can adjust its approval process to increase profitability while minimizing default risk.

Project Deliverables:

1. Problem Statement Document:

   - A document that clearly defines the problem TDI faces regarding loan performance and risk management. This document should outline the specific challenges the dashboard is intended to solve.

2. Cleaned and Preprocessed Dataset:

   - An Excel file with the cleaned dataset, showing the steps taken to address missing data, duplicates, and outliers. The cleaned data should be ready for analysis.

3. Excel Data Analysis:

   - The Excel workbook should contain sheets with relevant pivot tables, formulas, and charts that provide insights into key metrics such as loan performance, risk factors, and customer segmentation.

4. Loan Data Analysis Dashboard:

   - An interactive dashboard in Excel that includes visualizations, filters, and drill-down capabilities. The dashboard should be intuitive, allowing management to explore the data and gain insights into loan trends, risks, and opportunities.

5. Key Insights and Recommendations:

   - Power Point Slides summarizing the key insights derived from the data analysis. This report should include actionable recommendations on how TDI can improve its loan approval process, reduce defaults, and enhance profitability.

6. Project Documentation:

Comprehensive documentation detailing the project scope, problem statement, data cleaning and transformation processes,Excel dashboard features.

Project Timeline:

You have one week to complete the project. Use your time wisely, and don't hesitate to ask for assistance if needed. Good luck and have fun exploring the world of data analysis!

Good Luck!