

## Project Extension: Banking System Analytics with Power BI

### Overview

This project extension will leverage the MySQL banking database you created and use Power BI to visualize and analyze the data. The goal is to create insightful reports and dashboards that provide a clear understanding of the bank's operations, customer behavior, and financial metrics. This will help you gain practical experience in data visualization and business intelligence using Power BI.

### Objectives

Connect Power BI to the MySQL banking database.

Create interactive reports and dashboards that provide insights into various aspects of the banking system.

Use Power BI features to enhance data analysis and presentation.

### Requirements

#### Data Connection:

Establish a connection between Power BI and the MySQL database.

Import the necessary tables (Customer, Account, Transaction, Employee, Branch) into Power BI.

#### Data Preparation:

Ensure the data is clean and properly formatted for analysis.

Create necessary relationships between tables within Power BI.

#### Reports and Dashboards:

##### Customer Analysis:

Report on customer demographics (e.g., age distribution, geographical distribution).

Dashboard showing total number of customers, new customers per month, and high-value customers (balance > \$10,000).

##### Account Analysis:

Report on account types and distribution (checking vs. savings).

Dashboard showing total balance per account type, average balance per account, and accounts opened per month.

### Transaction Analysis:

Report on transaction types and volume (deposits, withdrawals, transfers).

Dashboard showing total transaction volume, average transaction amount, and transaction trends over time.

### Branch and Employee Analysis:

Report on branch performance (e.g., number of accounts, total balance per branch).

Dashboard showing employee distribution across branches, tenure analysis, and branch with the highest performance.

### Interactive Features:

Use slicers to filter data by different dimensions (e.g., time period, branch, account type).

Implement drill-down capabilities to explore detailed data from summary views.

Create interactive charts and graphs to enhance data visualization.

### Power BI File:

Submit the Power BI (.pbix) file containing all reports and dashboards.

Ensure all connections and data transformations are included within the file.

### Documentation:

Submit a document explaining each report and dashboard, including:

The purpose and insights of each visualization.

Steps to interact with the dashboard (filters, drill-downs).

### Evaluation Criteria

#### Data Connection and Preparation (20%):

Successful connection to the MySQL database.

Correct and efficient data import and preparation.

#### Reports and Dashboards (50%):

Relevance and clarity of the visualizations.

Interactivity and usability of the dashboards.

Depth of insights provided by the reports.

Documentation and Presentation (20%):

Clarity and completeness of the documentation.

Effectiveness of the presentation in conveying key findings.

Advanced Features (10%):

Implementation and accuracy of advanced visualizations and analyses (if applicable).

Tips for Success

Familiarize yourself with Power BI's interface and features before starting the project.

Pay attention to data accuracy and ensure your visualizations are based on clean and reliable data.

Think about the story you want to tell with your data and design your dashboards to communicate that story effectively.

Make use of Power BI's rich set of visualizations to make your reports engaging and informative.