**Power BI Project Overview Document**

**Project Title: Credit Card Customer & Transaction Analytics**

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**1. Project Objective**

The objective of this project was to design and develop two interactive Power BI dashboards that provide actionable insights into **credit card customers** and **credit card transactions**.

The dashboards aim to help business teams understand customer demographics, income patterns, spending behavior, and overall credit card usage trends.

Both dashboards were made fully interactive with filters for Gender, Age Group, and Income Group, as well as Transaction Week and Expense Type in the transaction analysis report.

**2. Approach**

The project was completed in two phases:

**Phase 1 – Data Preparation**

* Imported **Customer Data** and **Transaction Data** into Power BI.
* Cleaned and transformed the data using Power Query.
* Created new calculated columns using DAX for:
  + Age Group (18–25, 26–35, 36–45, 46–55, 56+)
  + Income Group (Low, Medium, High)
  + Total Revenue
  + Credit Usage %
  + Week Number
  + Current Week Revenue and Previous Week Revenue
* Ensured relationships between Customer and Transaction tables were properly defined using Customer ID as a key.

**Phase 2 – Dashboard Development**

* Designed **two dashboards**:
  1. **Customer Analysis Dashboard** – Focused on customer demographics, income, credit limits, and card usage.
  2. **Credit Card Transaction & Revenue Dashboard** – Focused on spending patterns, transaction frequency, and revenue performance.
* Added slicers for Gender, Age Group, Income Group, Card Category, and Expense Type for interactivity.
* Used consistent color themes (blue-orange for Customer, yellow-purple for Transaction) for visual distinction.

**3. Key Insights**

**From Customer Analysis Dashboard**

* Majority of customers (around 80%) fall between the 36–55 age range, with female customers representing 58% of the total.
* Blue Card is the most popular card category, used by over 90% of customers.
* Businessmen and White-Collar employees have the highest average income.
* High-income group customers have the highest credit limits, averaging around 14K.
* Graduates form the largest segment by education level, suggesting a more financially aware customer base.

**From Credit Card Transaction & Revenue Dashboard**

* **Total Revenue:** 45.52M generated from ~0.67M transactions.
* **WoW Growth:** 35.04% increase in recent weeks, indicating strong transaction momentum.
* **Blue Card** holders contribute to nearly 89% of total transactions.
* **Bills, Entertainment, and Fuel** are the top three spending categories.
* **Online transactions** make up ~27% of total volume, showing increasing digital adoption.
* **Male customers** show slightly higher revenue contribution compared to females, but females have higher average income per transaction.

**4. Challenges Faced**

* **Data cleaning:** Some columns contained missing or inconsistent values (e.g., age, income, credit score) which required logical imputation and data type corrections.
* **Age Group and Income Group DAX:** Creating accurate dynamic groups using SWITCH(TRUE()) required testing and validation.
* **Performance optimization:** While handling large data tables, query folding and relationship validation were key to maintaining dashboard performance.
* **WoW Growth calculation:** Needed proper use of DAX time intelligence functions (CALCULATE, DATEADD) for accurate week-over-week comparison.

**5. Tools & Techniques Used**

* **Power BI Desktop**
* **Power Query** for data transformation
* **DAX (Data Analysis Expressions)** for calculated columns and measures
* **Interactive Visuals:** Cards, Bar Charts, Donut Charts, Line Charts, and Tables
* **Slicers:** Gender, Age Group, Income Group, Card Category, Expense Type, Week Number

**6. Conclusion**

The dashboards successfully visualize and summarize key business metrics across both customer and transaction domains.

They enable stakeholders to:

* Identify top-performing customer segments,
* Track spending and revenue trends, and
* Make data-driven decisions for marketing and credit policy improvements.

Both dashboards meet all project requirements with a clean layout, strong interactivity, and valuable insights.

**THANK YOU**