**Data Analysis Documentation Report**

**Introduction**

This documentation report provides an overview of the data analysis conducted using Power BI. The analysis focuses on the **Loan\_Records\_Data**, **Home\_Loan\_Data**, **BankerData**, and **CustomerData** tables.

**Table Relationships**

1. **Loan\_Records\_Data:**
   * Primary Key: **Transaction\_ID**
   * Foreign Key: **Loan\_ID**
2. **Home\_Loan\_Data:**
   * Primary Key: **Loan\_ID**
3. **Banker\_Data:**
   * Primary Key: **Banker\_ID**
4. **Customer\_Data:**
   * Primary Key: **Customer\_ID**

**Data Preprocessing**

1. Imported data from the respective data sources, (Provided as csv files).
2. Established relationships between tables based on primary and foreign keys.

**Key Performance Indicators (KPIs)**

**For Bankers (Banker\_Data)**

1. **Number of Bankers:**
   * Count of unique bankers.
2. **Average Tenure of Bankers:**
   * Calculated using the difference between the current date and the **Date\_Joined** column.
3. **Bankers Experience:**
   * Bankers categorized as Fresher, Experienced and highly experienced on the basis of average tenure such as (0-3 fresher,3-10 experienced, greater than 10 highly experienced.
4. **Bankers Full Name:**
   * By merging first name and last name.

**For Customers (Customer\_Data)**

1. **Number of Customers:**
   * Count of unique customers.
2. **Customer\_since:**
   * . Calculated using the difference between the current date and the **customer\_since date** column.
3. **Customer Full Name:**
   * By merging first name and last name.

**Home\_Loan\_Data**

1. **Loan Amount:**
   * Calculate by multiplying property value to loan percent.
2. **Total Loan Amount:**
   * Sum of all loan amounts.
3. **Average Property value:**
   * Calculated as the average property value column.

**For Loan Transactions (Loan\_Records\_Data)**

* 1. **Number of Transactions:**
  + Count of total loan transactions.

**Visualizations**

1. **Banker Performance Dashboard**
   * Card for total no. of bankers, pie chart for gender, stacked column cart for loan approval rate by banker.
   * Pie chart for total bankers by banker experience.
   * Slicer for average tenure.
2. **Customer Engagement Dashboard**
   * Pie charts, bar charts, and maps for customer-related metrics.
   * Card for total customers, area chart for no. of customer by year, line chart for no. of customer by nationality.
3. **Loan Portfolio Dashboard**
   * Donut chart, funnel charts, clustered chart and slicers for loan-related metrics.
   * Cards for total no. of loans and sum of loan amount.
   * Donut chart for average property loan by loan percent, funnel charts for no. of loan by property type.
   * Clustered chart for count of loan id by loan term.
   * Slicer for joint loan.
4. **Transaction Insights Dashboard**
   * Card, Line charts, and bar charts for transaction-related metrics.
   * Card for no. of transactions.
   * Bar chart for no. of transactions by month.

**Business Questions**

**Value would be generated by using these dashboards**

Informed Decision-Making

Improved Banker experience

Enhanced Customer Experience

Optimized Operations for loan sanctioning

Total loan value from a bank

Identification of Growth Opportunities

**Additional data can be helpful to add more insights and value to the team**

1. **Customer Satisfaction Surveys**
   * Collect feedback directly from customers through surveys.
   * Include satisfaction ratings, comments, and suggestions.
   * Analyze survey results to identify areas for improvement.
2. **Marketing Campaign Data**
   * Include data on marketing campaigns, channels, and performance.
   * Analyze the impact of marketing efforts on customer acquisition and engagement.
   * Evaluate the return on investment (ROI) for different marketing channels.
3. **Economic Indicators**
   * Incorporate economic indicators that may impact the housing market.
   * Include data on interest rates, inflation rates, and housing market trends.
   * Analyze how external factors influence loan demand and customer behavior.
4. **Competitor Data**
   * Gather information on competitors' loan offerings and market share.
   * Compare interest rates, loan terms, and customer satisfaction.
   * Identify opportunities to differentiate your services.
5. **Social Media Analytics**
   * Monitor social media platforms for mentions of your company.
   * Analyze sentiment, engagement, and trends related to your brand.
   * Use social media data to understand customer perceptions and preferences.
6. **Historical Loan Data:**
   * Incorporate historical loan performance data.
   * Analyze default rates, repayment patterns, and risk factors.
   * Use historical data to improve loan underwriting processes.