**Loan Analysis Report - HSBC UK**

**Introduction**

In a highly competitive banking environment, a detailed understanding of loan applicant profiles is essential. This report presents a detailed analysis of data from HSBC UK, aimed at identifying key trends and supporting strategic decision-making. The analysis is based on a dataset comprising 45,000 records and 14 variables, including information on applicant profiles, loan characteristics, and credit history.

1. **Objectives and Tools**
2. **Objectives of the Analysis**

The main objectives of this analysis are:

1. **Evaluate the risk associated with HSBC UK's loan portfolio** to identify default trends.
2. **Understand borrower characteristics and their impact on loan performance**.
3. **Optimise lending strategies** by identifying profitable customer segments.
4. **Develop data-driven insights** to improve credit risk management.
5. **Visualise key trends and KPIs using Power BI** to support strategic decision-making.
6. **Tools**
7. **Python**:For initial exploration and data quality validation.
8. **SQL Server**: For preparing and analysing data using SQL scripts.
9. **Power BI**: For creating interactive dashboards and visualizing key metrics.
10. **Methodology**

The analysis will be conducted using a combination of **SQL, Python, and Power BI**, following these key steps:

1. **Data Extraction & Cleaning** 
   * Query the loan dataset from HSBC's dataset.
   * Perform data cleaning, handling missing values, and removing duplicates.
2. **Exploratory Data Analysis (EDA)** 
   * Analyse loan distribution, borrower profile and loan performance.
   * Identify correlations between key variables.
3. **Advanced Analytics** 
   * Analyse borrower solvency and behavioural and time trends.
   * Identify high-risk segments.
4. **KPI Development & Dashboarding**
   * Develop visual reports highlighting key insights.
   * Present findings to stakeholders with actionable recommendations.
5. **Exploratory Data Analysis (EDA)**

The EDA phase will include:

* **Descriptive Statistics**: Distribution of loan status, loan amount and interest rate.
* **Correlation Analysis**: Understanding relationships between variables (e.g., loan distribution by borrower education, Income vs Loan amount).
* **Trend Analysis**: Loan approval trends and most valuable customer segments.

1. **Advanced Analytics**

This phase will involve:

* **Clustering Analysis**: Identifying borrower segments based on financial behaviour.
* **Creditworthiness Evaluation**: Assessing optimal thresholds for loan approvals.

**Key Performance Indicators (KPIs)**

The following KPIs will be measured:

1. **Loan Approval Rate**: Percentage of loan applications approved.
2. **Average Loan Amount**: Mean loan disbursed to customers.
3. **Interest Rate Distribution**: Spread of interest rates across different borrower profiles.
4. **Credit Score Distribution**: Analysis of borrower creditworthiness.
5. **Profitability Index**: Revenue generated from interest payments.
6. **Power BI Dashboard & Visualisation Strategy**

Power BI will be used to create interactive dashboards featuring:

* **Loan Portfolio Summary**: Summary statistics on loan disbursement, approvals, and rejections.
* **Loan Portfolio Overview**: Approvals rate by segment, credit score impact, Interest revenue, loan distribution by sector, and high-value customer insights.

1. **Strategic Recommendations**
2. **Optimizing Loan Allocation Criteria**
3. **Professional Experience and Loan Acceptance**

**Strategy**: Prioritize borrowers with greater professional stability by adjusting eligibility criteria.

**Action**:

* Offer preferential rates to applicants with significant professional experience
* Develop solutions for young professionals with little experience by integrating other stability criteria (banking history, type of employment contract).

1. **Real Estate Ownership and Loan Acceptance**

**Strategy**: Reassess risk criteria for homeowners and tailor offers to the most reliable profiles.

**Action**:

* Analyse why homeowners have a lower acceptance rate than renters and adjust risk assessment criteria.
* Develop refinancing or debt consolidation offers for homeowners to better meet their needs.

1. **Default History and Loan Acceptance**

**Strategy**: Implement a more nuanced scoring model for borrowers with a history of default.

**Action**:

* Introduce a "second chance" program with small loans and strict monitoring for borrowers with a history of default but recent improvement in their financial behaviour.
* Add mandatory insurance to loans for these profiles to reduce the risk of default.

1. **Credit Score and Acceptance Rate**

**Strategy**: Refine credit score analysis to identify critical acceptance thresholds.

**Action**:

* Implement more precise credit score intervals to detect the highest-risk profiles.
* Offer credit improvement solutions (financial education, personalized monitoring) for borrowers close to the acceptance threshold.

1. **Optimization of Loan Management and Borrower Behaviour**
2. **Relationship Between Borrowed Amount and Speed ​​of Repayment**

**Strategy**: Adapt the repayment term and terms based on the borrowed amount and risk profile.

**Action**:

* Develop small-amount loans with more competitive rates to encourage rapid repayment.
* Offer flexible repayment options for large loans to avoid defaults.

1. **Loan Acceptance According to Purpose**

**Strategy**: Prioritize loans for less risky uses while optimizing approval for other categories.

**Action**:

* Strengthen evaluation criteria for loans intended for risky uses such as personal investments.
* Encourage loans for debt consolidation and medical expenses with favourable terms for these segments.

**Conclusion**

This analysis provides HSBC UK with actionable insights into its loan portfolio. By optimising lending strategies and focusing on profitable segments, HSBC can **enhance profitability while minimising risk**. The next steps include implementing the recommendations and monitoring key performance indicators (KPIs) to evaluate their impact.