Banking Customer Insights & Strategic Dashboard - Work Breakdown Structure (WBS)

This Work Breakdown Structure (WBS) outlines the hierarchical decomposition of the Banking Customer Insights & Strategic Dashboard project into manageable and deliverable-oriented components.

1. Project Management & Planning

* 1.1. Project Initiation
    * 1.1.1. Define Project Scope & Objectives
    * 1.1.2. Identify Key Stakeholders
    * 1.1.3. Establish Communication Plan
* 1.2. Resource Planning
    * 1.2.1. Identify Required Tools (Python, Power BI, MySQL)
    * 1.2.2. Allocate Time/Effort per Phase
* 1.3. Quality Assurance & Review
    * 1.3.1. Conduct Peer Reviews (if applicable)
    * 1.3.2. Internal Progress Reviews

2. Phase 1: Project Definition & Data Acquisition

* 2.1. Problem & Aim Definition
    * 2.1.1. Articulate Problem Statement
    * 2.1.2. Define Project Aim and Specific Objectives
* 2.2. Data Sourcing & Initial Setup
    * 2.2.1. Identify Primary Dataset (`Banking.csv`)
    * 2.2.2. Load Data into Pandas DataFrame
        * 2.2.2.1. Import necessary libraries (pandas, numpy, matplotlib, seaborn)
        * 2.2.2.2. Execute `pd.read_csv("Banking.csv")`
    * 2.2.3. Test Database Connectivity (MySQL)
        * 2.2.3.1. Explore `Connect_MySql.ipynb`
        * 2.2.3.2. Verify connection capability
* 2.3. Initial Data Understanding
    * 2.3.1. Understand Banking Terminology
        * 2.3.1.1. Perform `df.describe()`
        * 2.3.1.2. Perform `df['column'].value_counts()`
        * 2.3.1.3. Conduct online research for banking terms

3. Phase 2: Data Preprocessing & Cleaning

* 3.1. Data Inspection & Profiling
    * 3.1.1. Check Dataset Dimensions (`df.shape`)
    * 3.1.2. Verify Data Types and Non-Null Counts (`df.info()`)
    * 3.1.3. Generate Numerical Summaries (`df.describe()`)
* 3.2. Data Type Conversion
    * 3.2.1. Convert `Joined Bank` column to Datetime format (`pd.to_datetime()`)
* 3.3. Handle Data Quality Issues (if any)
    * 3.3.1. Identify Missing Values (N/A in this project, but standard task)
    * 3.3.2. Address Inconsistent Formats (N/A in this project, but standard task)
    * 3.3.3. Identify and Assess Outliers (N/A in this project, but standard task)

4. Phase 3: Feature Engineering

* 4.1. `Income Band` Creation
    * 4.1.1. Define Binning Logic for `Estimated Income` (0-100k, 100k-300k, 300k+)
    * 4.1.2. Implement Categorical Binning in Pandas
    * 4.1.3. Validate `Income Band` distribution

5. Phase 4: Exploratory Data Analysis (EDA)

* 5.1. Univariate Analysis
    * 5.1.1. Analyze Numerical Column Distributions (Histograms, KDE plots)
    * 5.1.2. Analyze Categorical Column Distributions (Bar plots, `value_counts()`)
    * 5.1.3. Document Key Observations (e.g., dominant income band, gender split)
* 5.2. Bivariate/Multivariate Analysis
    * 5.2.1. Generate Correlation Matrix (Heatmaps for numerical columns)
    * 5.2.2. Perform Cross-Tabulations (Categorical vs. Categorical)
    * 5.2.3. Create Comparative Plots (e.g., Box plots for numerical by categorical)
    * 5.2.4. Document Key Insights (e.g., strong account relationships, risk vs. lending)
* 5.3. Insight Translation
    * 5.3.1. Translate Statistical Findings into Business-Relevant Insights
    * 5.3.2. Emphasize "So What?" for each observation

6. Phase 5: Data Visualization & Dashboarding (Power BI)

* 6.1. Data Preparation for Power BI
    * 6.1.1. Export Cleaned & Engineered Dataset (if not direct connection)
* 6.2. Dashboard Design & Layout
    * 6.2.1. Sketch Dashboard Wireframe
    * 6.2.2. Design Intuitive & Visually Appealing Layout
* 6.3. KPI Implementation
    * 6.3.1. Create Measures for Total Deposits, Total Loans, Average Income, Customer Count
* 6.4. Visual Development
    * 6.4.1. Build Customer Segmentation Charts (Age, Income Band, Nationality, etc.)
    * 6.4.2. Develop Product Penetration Visuals (Loans, Credit Cards, Deposits by segment)
    * 6.4.3. Create Risk Analysis Visuals
* 6.5. Interactivity Implementation
    * 6.5.1. Implement Slicers and Filters
    * 6.5.2. Configure Cross-Highlighting/Filtering

7. Phase 6: Reporting & Documentation

* 7.1. Project Report Compilation
    * 7.1.1. Draft Abstract/Executive Summary
    * 7.1.2. Write Introduction (Problem Statement, Aim)
    * 7.1.3. Detail Dataset Description
    * 7.1.4. Document Methodology (Data Loading, Preprocessing, EDA, Visualization)
    * 7.1.5. Summarize Key Findings & Insights
    * 7.1.6. Outline Challenges Encountered & Solutions
    * 7.1.7. Conclude Project Outcomes
    * 7.1.8. Define Future Scope
    * 7.1.9. List Tools & Technologies Used
* 7.2. Code Documentation
    * 7.2.1. Ensure Jupyter Notebooks are Well-Commented
    * 7.2.2. Organize Code into Logical Sections