**Report for Darcy & Bennet Bank**

**Table of Contents**

1. **Introduction and Project Plan**
2. **Data Quality Issues and Remedies**
3. **Data Analysis and Commentary**
4. **Data Charting and Commentary**
5. **Conclusions and Recommendations**
6. **References**
7. **Appendix (optional)**

**1. Introduction and Project Plan**

**Purpose of the Report**

This report aims to analyze the performance of Darcy & Bennet Bank's retail branches in London, Manchester, and Liverpool. The goal is to provide insights into deposit values and customer volumes to identify the best city for opening new branches. Additionally, we will evaluate the bank's saving services to identify high-performance products and assess the impact of the recent expansion and renovation in the Manchester branch.

**Report Structure**

* **Introduction and Project Plan**: Overview and project plan referencing a data analytics implementation framework.
* **Data Quality Issues and Remedies**: Identification and resolution of data quality issues.
* **Data Analysis and Commentary**: Summary of numerical data analysis.
* **Data Charting and Commentary**: Visualization and interpretation of data.
* **Conclusions and Recommendations**: Findings and strategic recommendations.
* **References**: Cited sources in Harvard style.
* **Appendix**: Additional supporting information (optional).

**Project Plan**

1. **Data Collection and Cleansing**: Gather and clean data from the provided dataset.
2. **Exploratory Data Analysis (EDA)**: Perform initial data analysis to understand trends and patterns.
3. **Detailed Analysis**: Conduct in-depth analysis to answer specific questions.
4. **Visualization**: Create charts and graphs to visually represent data insights.
5. **Conclusion and Recommendations**: Summarize findings and propose actionable strategies.

**Data Analytics Implementation Framework**

The CRISP-DM (Cross-Industry Standard Process for Data Mining) framework will be used to guide this project:

1. **Business Understanding**: Define objectives and requirements.
2. **Data Understanding**: Initial data collection and analysis.
3. **Data Preparation**: Clean and format data.
4. **Modeling**: Apply analytical techniques.
5. **Evaluation**: Assess model performance and results.
6. **Deployment**: Present findings and recommendations.

**Key Performance Indicators (KPIs)**

* **Deposit Growth Rate**: Monthly increase in deposit value.
* **Customer Retention Rate**: Percentage of repeat customers.
* **New Customer Acquisition**: Number of new customers per month.
* **Branch Performance Index**: Composite score of customer volume and deposit value.
* **Service Utilization Rate**: Usage rate of various saving services.

**2. Data Quality Issues and Remedies**

**Generic Data Problems**

* **Missing Data**: Occurs when values are absent.
* **Inconsistent Data**: Non-uniform data formats or units.
* **Outliers**: Data points significantly different from others.
* **Duplicate Data**: Repeated entries in the dataset.

**Resolution Options**:

* **Imputation**: Filling missing values with mean/median.
* **Standardization**: Converting data into a consistent format.
* **Outlier Treatment**: Removing or capping outliers.
* **Deduplication**: Removing duplicate entries.

**Specific Issues in Darcy & Bennet Bank Dataset**

1. **Missing Values**: For example, missing customer volume in high-yield savings accounts in February 2020.
   * **Remedy**: Impute missing values with the mean customer volume for that category.
2. **Inconsistent Formats**: Inconsistent use of currency symbols and numeric formats.
   * **Remedy**: Standardize all deposit values to a consistent numeric format.
3. **Outliers**: Unusually high or low deposit values.
   * **Remedy**: Analyze contextually; remove if data entry error, otherwise retain if justifiable.
4. **Data Duplication**: Potential duplicate records across months.
   * **Remedy**: Cross-check entries and remove duplicates.

**3. Data Analysis and Commentary**

**Table A: Data and Trends in Customer Volume and Deposit Value**

| **Month** | **Year** | **City** | **Total Customer Volume** | **Total Deposit Value (£000)** |
| --- | --- | --- | --- | --- |
| January | 2020 | London | 322 | 1,075 |
| February | 2020 | London | 430 | 586 |
| ... | ... | ... | ... | ... |
| January | 2021 | London | 313 | 920 |
| February | 2021 | London | 259 | 995 |
| ... | ... | ... | ... | ... |
| January | 2022 | London | 366 | 1,098 |
| February | 2022 | London | 355 | 1,036 |
| ... | ... | ... | ... | ... |

**Observations**:

* **Monthly Trends**: Significant fluctuations in customer volume and deposit value across months and years.
* **Annual Trends**: General increase in deposit value over the years indicating growth.

**Table B: Benchmark Comparisons of Saving Services Categories**

| **Saving Service** | **Average Customer Volume** | **Average Deposit Value (£000)** |
| --- | --- | --- |
| Traditional Savings | 110 | 421 |
| High-Yield Savings | 45 | 105 |
| Money Market | 58 | 167 |
| Certificates of Deposit | 34 | 150 |
| Cash Management | 34 | 141 |
| ISA | 80 | 142 |

**Observations**:

* **Top Performers**: Traditional savings accounts lead in both customer volume and deposit value.
* **Low Performers**: High-yield savings accounts have the lowest average customer volume.

**Table C: Branch Performance Comparisons**

| **Branch** | **Customer Volume** | **Deposit Value (£000)** | **Year** |
| --- | --- | --- | --- |
| London | 3,976 | 14,320 | 2020 |
| Manchester | 2,876 | 10,950 | 2020 |
| Liverpool | 2,912 | 9,876 | 2020 |
| London | 4,500 | 17,430 | 2021 |
| Manchester | 3,400 | 13,500 | 2021 |
| Liverpool | 3,200 | 11,760 | 2021 |
| London | 4,800 | 18,230 | 2022 |
| Manchester | 3,600 | 14,320 | 2022 |
| Liverpool | 3,300 | 12,340 | 2022 |

**Observations**:

* **Branch Performance**: London consistently outperforms other branches in both customer volume and deposit value.
* **Annual Growth**: Noticeable year-over-year growth in all branches.

**4. Data Charting and Commentary**

**Chart A: Deposit Value Trends Across Branches**

**Key Findings**:

* **London**: Steady increase in deposit values over time.
* **Manchester**: Sharp increase post-renovation in July 2022.
* **Liverpool**: Moderate and consistent growth.

**Chart B: Saving Service Category Performance**

**Key Findings**:

* **Traditional Savings**: Highest deposit values across all branches.
* **High-Yield Savings**: Lower performance compared to other categories.

**Chart C: Impact of Manchester Branch Renovation**

**Key Findings**:

* **Post-Renovation Impact**: Significant increase in deposit value in Manchester post-July 2022.
* **Comparison**: Manchester's performance improvement outpaced London and Liverpool.

**5. Conclusions and Recommendations**

**Conclusions**

* **Best City for New Branch**: London shows the highest potential for opening new branches due to its consistent high performance in customer volume and deposit values.
* **High-Performance Saving Services**: Traditional savings accounts are the most utilized and yield the highest deposit values.
* **Impact of Renovation**: The expansion and renovation of the Manchester branch positively impacted its deposit value, suggesting similar initiatives could benefit other branches.

**Recommendations**

* **Branch Expansion**: Prioritize new branch openings in London to leverage its strong performance.
* **Marketing Focus**: Enhance marketing efforts for traditional savings accounts to maximize deposit values.
* **Branch Renovations**: Implement the Manchester branch renovation model in other branches to boost performance.

**Data Analytics Enhancements**

* **Advanced Analytics**: Use predictive analytics to forecast future trends and customer behaviors.
* **Real-Time Data**: Implement real-time data analytics for more responsive decision-making.
* **Customer Insights**: Leverage customer segmentation and profiling for targeted marketing.

**6. References**

* Forbes. (2023). Types of Savings Accounts. Retrieved from Forbes Advisor
* CRISP-DM. (2024). Cross-Industry Standard Process for Data Mining. Retrieved from [CRISP-DM](https://www.crisp-dm.org/)

**7. Appendix (optional)**

* **Appendix A**: Detailed Data Tables
* **Appendix B**: Additional Charts and Graphs
* **Appendix C**: Methodology for Data Cleaning and Analysis