**Cow and Buffalo Milk Company: Merchant Analysis and Credit Scoring**

**Introduction**

The goal of this project is to assist Cow and Buffalo Milk Company in targeting the right customers, increasing sales, and improving efficiency in allocating advertising spend. This README provides an overview of the project, including the dataset, approach, how to run the code, and the findings.

**Dataset**

The dataset used for this project consists of merchant data, including information such as annual revenue, spending score, city, most purchased product, repayment score, and cluster number.

**Approach**

1. **Clustering Analysis:** Perform KMeans clustering to group merchants based on their annual revenue and spending score.
2. **Credit Scoring Algorithm:** Develop a credit scoring algorithm using payment history and city data to evaluate the creditworthiness of merchants.
3. **Nature Parameter Creation:** Assign a nature parameter to each merchant based on their cluster group, such as Careful, Spendthrift, General, Target, and Miser.

**How to Run the Code**

The project consists of three Jupyter Notebook files:

* **Final\_Capstone\_Project.ipynb:** Performs clustering analysis, credit scoring algorithm, and nature parameter creation.
* **Credit\_Worthiness.ipynb:** Focuses on developing the credit scoring algorithm.
* **Credit\_Scoring\_Algorithm.ipynb:** Explores and analyzes payment history data to develop the credit scoring algorithm.

To run the code:

1. Ensure Python and Jupyter Notebook are installed on your system.
2. Download the dataset (**data.xlsx**) and the Jupyter Notebook files.
3. Open each Jupyter Notebook file and execute the cells sequentially.

**Findings**

1. Identified clusters of merchants based on their annual revenue and spending score.
2. Developed a credit scoring algorithm to evaluate the creditworthiness of merchants.
3. Assigned nature parameters to merchants based on their cluster groups.
4. Analyzed spending score distribution by city and most purchased product.
5. Determined the most creditworthy merchants and those with lower creditworthiness.

**Advice to Cow and Buffalo Milk Company**

Based on the findings, it is advised to target merchants belonging to specific cluster groups with higher creditworthiness and favorable spending habits. Additionally, allocate advertising spend more efficiently by focusing on cities and products with higher spending scores.

**CSV File Output**

The final analyzed data, including merchant details, cluster numbers, and nature parameters, is exported to a CSV file (**analyzed.csv**) for further analysis and reporting.

**Conclusion**

This project provides valuable insights and recommendations to Cow and Buffalo Milk Company to optimize their sales strategies and enhance customer targeting efforts.