**Business Requirements Document (BRD)**

**Business Problem**

**Lack of Understanding of Different Customer Profiles Leading to Untargeted Marketing Strategies:**

* Many businesses, including retail stores, often struggle with understanding the diverse needs and behaviors of their customers. Without a clear understanding of who their customers are, they tend to use broad, untargeted marketing strategies that do not cater to the specific preferences of different customer groups. This can result in inefficient use of marketing resources, lower customer satisfaction, and missed opportunities for maximizing sales.

**Business Objectives**

**To Improve Customer Satisfaction and Sales by Understanding Customer Segments:**

* The primary goal of this project is to enhance customer satisfaction and increase sales by identifying and understanding distinct customer segments. By grouping customers with similar characteristics and behaviors, the business can tailor its marketing strategies and offerings to meet the specific needs of each segment. This targeted approach is expected to result in more effective marketing campaigns, better customer engagement, and higher conversion rates.

**Functional Requirements**

**Data Analysis:**

* **Importing and Understanding Data:** Import the dataset into the analysis environment and perform an initial examination to understand its structure and content.
* **Data Cleaning:** Process the data to handle missing values, outliers, and ensure it is in a suitable format for analysis.
* **Exploratory Data Analysis (EDA):** Conduct descriptive statistics and create visualizations to explore the data and identify patterns and relationships.

**Clustering:**

* **Feature Selection:** Select relevant features for clustering (e.g., Age, Annual Income, Spending Score).
* **Clustering Algorithm:** Apply the K-Means clustering algorithm to segment the customers into distinct groups.
* **Cluster Evaluation:** Evaluate the quality of the clusters using appropriate metrics and visualization techniques.

**Visualization:**

* **Matplotlib:** Use Matplotlib to create visualizations that illustrate the distribution of data and the results of clustering.
* **Power BI:** Develop interactive dashboards in Power BI to present the customer segments and facilitate the exploration of insights by stakeholders.

**Non-functional Requirements**

**Performance:**

* **Efficient Data Processing:** Ensure that the data processing and analysis steps are optimized to handle the dataset efficiently, minimizing the time required for computations.
* **Scalability:** Design the solution to scale with increasing data volumes. As the business grows and more customer data is collected, the analysis process should still perform efficiently.

**Scalability:**

* **Handling Large Datasets:** The system should be capable of handling large datasets without significant performance degradation.
* **Adaptability:** The clustering and visualization methods should be adaptable to changes in the data, such as the addition of new features or new customer records.

**Usability:**

* **User-friendly Visualizations:** The visualizations created should be easy to interpret and provide clear insights into the customer segments.
* **Interactive Dashboards:** Power BI dashboards should be designed with user-friendly interfaces that allow stakeholders to interact with and explore the data intuitively.
* **Documentation and Training:** Provide comprehensive documentation and training for end-users to ensure they can effectively use the analysis tools and understand the results.

By addressing both functional and non-functional requirements, the project aims to deliver a robust solution that not only segments customers effectively but also provides actionable insights through user-friendly visualizations and dashboards. This will enable the business to implement more targeted and effective marketing strategies, ultimately leading to improved customer satisfaction and increased sales.