**Advanced Market Segmentation Using Deep Clustering**

**Phase 1: Problem Definition and Data Understanding**

**1.1 Project Overview**

The primary objective of this project is to implement advanced market segmentation using deep clustering techniques. Market segmentation is essential for identifying distinct groups of customers based on their behavior, preferences, or demographics. Traditional clustering methods struggle with high-dimensional data, leading to suboptimal segmentation. To address this, we leverage deep learning, specifically auto encoders, to extract meaningful latent features and enhance the clustering process.

The goal is to divide customers into distinct segments using unsupervised learning, which can then be targeted with tailored marketing strategies, personalized recommendations, or improved customer service. The project aims to provide businesses with a deep understanding of customer groups, leading to more informed decision-making.

**1.2 Objective of the Project**

* **Objective**: The objective of this project is to implement a **clustering** model that can identify distinct customer segments based on their behaviors, demographics, and engagement with products or services.
* **Target Users**: This project is primarily aimed at businesses and marketers who want to gain insights into customer behaviors and preferences. It is also valuable for data scientists and machine learning practitioners interested in applying deep learning techniques to clustering problems.

**Potential Applications**:

Mention the application of the projects in real world

**1.3 Dataset Overview and Data Requirements**

To achieve the goal of customer segmentation, the dataset needs to include features related to customer behaviors, demographics, and engagement with products or services. The dataset format must support both categorical and continuous data types to enable comprehensive analysis.

**Overview of your dataset**

**Dataset name and its format**

**Explanation of all the features in the datasets with its importance**

**Screenshots of the datasets**

**1.4 Conclusion of Phase 1**

Phase 1 has provided a comprehensive understanding of the project’s objectives, data requirements, and the sources of data that will be used. The dataset, containing both demographic and behavioral features, will be preprocessed and explored to prepare it for deep learning techniques in the subsequent phases. The goal of market segmentation will be achieved by applying advanced deep clustering methods, which will be the focus of the next phases of the project.