Phase 2

Innovation

CUSTOMER

SEGMENTATION

USING

DATA SCIENCE

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Customer segmentation using data science is a process that involves dividing a customer base into distinct groups based on shared characteristics. These steps can help you effectively leverage data science for customer segmentation:

1.**Define Objectives**:

* Clearly define the goals and objectives of customer segmentation. Understand what you want to achieve through segmentation, such as improving marketing campaigns, product development, or customer service.

**2.Data Collection**:

* Gather relevant data from various sources, including CRM systems, transaction records, web analytics, surveys, and social media. Ensure that the data is comprehensive and up-to-date.

**3.Data Cleaning and Preprocessing**:

* Clean and preprocess the data to handle missing values, duplicates, outliers, and inconsistencies. Data quality is crucial for accurate segmentation.

**4.Feature Selection and Engineering**:

* Identify and select the most relevant features (attributes or variables) for segmentation. You may also create new features through feature engineering to capture specific customer behaviours or attributes.

**5.Exploratory Data Analysis (EDA)**:

* Conduct EDA to gain insights into the data. Visualization and statistical analysis can help you understand the distribution of data, identify patterns, and assess the relationships between variables.

6.**Normalization or Standardization**:

* Normalize or standardize the data if necessary. This step ensures that features with different scales contribute equally to the segmentation process.

**7.Customer Segmentation Techniques**:

* Choose appropriate segmentation techniques based on your objectives and data. Common methods include:

**1.K-Means Clustering**: Divides customers into clusters based on similarity.

**2.Hierarchical Clustering**: Groups customers into a hierarchy of clusters.

**3.DBSCAN**: A density-based method for discovering clusters of varying shapes.

**4.Principal Component Analysis (PCA)**: A dimensionality reduction technique that can be used before clustering.

**5.Machine Learning Algorithms**: Utilize supervised or unsupervised learning algorithms, such as decision trees, random forests, or neural networks, for segmentation.

**8.Model Training**:

* Train the chosen segmentation model on the pre-processed data. For instance, if you are using K-Means clustering, determine the number of clusters (K) and run the algorithm.

**10.Interpretation of Results**:

* Analyse the characteristics of each customer segment to understand what distinguishes one segment from another. This may involve using data visualization tools to explore the clusters visually.

**11.Profile Creation**:

* Create customer profiles for each segment. These profiles should include demographic, behavioural, and other relevant information about the customers in each group.

**12.Implement Segmentation**:

* Apply the segmentation insights to marketing campaigns, product recommendations, personalized content, or customer support strategies.

**13.Monitoring and Maintenance**:

* Continuously monitor the effectiveness of your customer segments and update them as necessary. Customer behaviour and preferences can change over time.

**14.Feedback Loop**:

* Collect feedback on the segmentation's impact on your business objectives and use this feedback to refine and improve the segmentation strategy.