MARKET SEGMENTATION ANALYSIS

TEN STEPS OF MARKET SEGMENTATION ANALYSIS

Step 1: Deciding (not) to Segment

Step 2: Specifying the Ideal Target Segment

Step 3: Collecting Data

Step 4: Exploring Data

Step 5: Extracting Segments

Step 6: Profiling Segments

Step 7: Describing Segments

Step 8: Selecting the Target Segment(s)

Step 9: Customising the Marketing Mix

Step 10: Evaluation and Monitoring

Step 1: Deciding (Not) to Segment

1.1 Implications of Committing to Market Segmentation:

- **Strategic Alignment:**
    - Ensure that market segmentation aligns with the company's overall strategic goals.
    - Evaluate whether segmentation supports long-term objectives and competitive positioning.
- **Resource Allocation:**
    - Assess the resources needed, including budget, personnel, and technology.
    - Determine if the company has the capacity to invest in segmentation and adapt to new strategies.
- **Product and Service Adaptation:**
    - Understand that segmentation may require significant changes to products or services.
    - Consider the implications for product customization, new product development, and service modifications.
- **Pricing Strategy:**
    - Analyse how segmentation might influence pricing strategies for different segments.
    - Evaluate the potential need for differentiated pricing or promotional strategies.
- **Distribution Channels:**
    - Assess the need to modify or expand distribution channels to reach different segments effectively.
    - Consider the logistical challenges and costs associated with multi-channel distribution.
- **Internal Organizational Structure:**

- Recognize that segmentation may necessitate changes in organizational structure.
- Prepare for adjustments in roles, responsibilities, and departments to align with segmentation efforts.

- **Customer Experience:**
  - Consider how segmentation will enhance or alter customer experience.
  - Evaluate the potential for improved customer satisfaction and loyalty through targeted offerings.

1.2 Implementation Barriers:

- **Leadership Support:**
  - Ensure that senior management is committed to the segmentation strategy.
  - Obtain necessary resources and backing from leadership to drive the initiative.
- **Organizational Culture:**
  - Address potential resistance to change within the organization.
  - Foster a market-oriented culture that values and supports segmentation efforts.
- **Training and Expertise:**
  - Assess the need for specialized training for staff involved in segmentation.
  - Ensure that teams have the necessary skills and knowledge for effective segmentation and analysis.
- **Resource Constraints:**
  - Evaluate the financial and structural capacity of the organization.
  - Address any limitations that could impact the successful implementation of segmentation strategies.
- **Planning and Process Issues:**
  - Develop clear objectives and a comprehensive plan for segmentation.

- Allocate sufficient time and resources to ensure thorough planning and execution.

1.3 Step 1 Checklist:

- **Market Orientation:**
  - Determine if the organization is market-oriented and willing to embrace the changes required for segmentation.
- **Readiness for Change:**
  - Evaluate if the organization is prepared for the structural and procedural changes associated with segmentation.
- **Resource Assessment:**
  - Review the availability of resources, including financial, technological, and human resources.
- **Cost-Benefit Analysis:**
  - Conduct a cost-benefit analysis to ensure that the benefits of segmentation outweigh the costs.
- **Long-Term Commitment:**
  - Assess the organization's willingness to make a long-term commitment to segmentation and its associated changes.
- **Risk Management:**
  - Identify potential risks associated with segmentation and develop strategies to mitigate them.

Step 2: Specifying the Ideal Target

2.1 Segment Evaluation Criteria:

- **Knock-Out Criteria:**
  - **Definition:**
    - Essential, non-negotiable features a segment must possess to be considered for targeting.

- **Examples:**
    - **Size:** The segment must be large enough to justify the investment. For example, a segment with a population of at least 50,000.
    - **Measurability:** The segment must be quantifiable, with clear metrics for size and characteristics.
    - **Accessibility:** The segment must be reachable through existing or feasible marketing channels.
    - **Responsiveness:** The segment must be responsive to marketing efforts and capable of generating a return on investment.
    - **Compatibility:** The segment must align with the organization's capabilities and strategic objectives.

- **Attractiveness Criteria:**
    - **Definition:**
        - Criteria used to assess how appealing a segment is, based on factors like growth potential, profitability, and competitive intensity.
    - **Examples:**
        - **Growth Potential:** Evaluate the segment's potential for future growth. For example, a rapidly expanding market with increasing consumer demand.
        - **Profitability:** Assess the segment's potential to generate significant profit. Consider factors like purchasing power and willingness to pay.
        - **Competitive Intensity:** Analyze the level of competition within the segment. A less competitive segment might offer more opportunities for differentiation.
        - **Fit with Brand:** Ensure the segment aligns with the brand's image and values.
        - **Regulatory Environment:** Consider any regulatory issues that might affect the segment's attractiveness.

2.2 Knock-Out Criteria:

- **Purpose:**
    - Automatically eliminate segments that do not meet fundamental requirements.
- **Implementation:**
    - **Set Clear Thresholds:** Define specific thresholds for each knock-out criterion to objectively evaluate segments.
    - **Apply Criteria Rigorously:** Use a consistent approach to filter out segments that fail to meet essential requirements.
- **Examples:**
    - **Segment Size:** Disqualify segments that are too small to be economically viable.
    - **Homogeneity:** Exclude segments with too much variability in preferences or needs.
    - **Capability Fit:** Disregard segments that the organization lacks the resources or expertise to serve effectively.

2.3 Attractiveness Criteria:

- **Purpose:**
    - Evaluate and rank segments based on their overall appeal and strategic fit.
- **Implementation:**
    - **Weighting Factors:** Assign weights to each attractiveness criterion based on its importance to the organization's objectives.
    - **Scoring System:** Develop a scoring system to rate each segment against the attractiveness criteria.
    - **Comparison:** Compare segments based on their attractiveness scores to identify the most promising opportunities.
- **Examples:**
    - **Market Growth Rate:** Rate segments with high growth rates more favorably.

- **Profit Margins:** Prioritize segments with higher potential profit margins.
- **Consumer Needs Alignment:** Assess how well the segment's needs align with the organization's offerings.

2.4 **Implementing a Structured Process:**

- **Purpose:**
  - Ensure a systematic approach to segment evaluation and selection.
- **Steps:**
  - **Develop Evaluation Criteria:** Define and agree upon knock-out and attractiveness criteria.
  - **Collect Data:** Gather relevant data on potential segments to assess against the criteria.
  - **Use Evaluation Tools:** Apply tools such as segment evaluation plots to visualize and analyze segment attractiveness and fit.
  - **Involve Key Stakeholders:** Engage relevant organizational units in the evaluation process to ensure comprehensive analysis.
- **Visualization:**
  - **Segment Evaluation Plot:** Use graphical representations to compare segments based on attractiveness and organizational fit.
  - **Heat Maps:** Employ heat maps to highlight segments with high potential based on multiple criteria.
  - **Scorecards:** Develop scorecards to summarize segment evaluations and support decision-making.

Step 3: Collecting Data

3.1 Segmentation Variables:

- **Definition:**
  - Variables used to divide the market into distinct segments. These can be either demographic, psychographic, behavioral, or geographic in nature.

- **Segmentation Variables:**
    - **Commonsense Segmentation:**
        - Uses straightforward, often single variables to segment the market.
        - **Example:** Using gender as a segmentation variable to create segments of men and women.
        - **Descriptor Variables:** Characteristics used to describe and differentiate segments in more detail.
            - **Examples:** Age, income, number of vacations taken, benefits sought.
    - **Data-Driven Segmentation:**
        - Employs multiple segmentation variables to identify or create market segments.
        - **Example:** Using benefits sought (e.g., relaxation, adventure) alongside socio-demographic variables (e.g., age, gender) to identify distinct segments.
        - **Advantages:**
            - Provides a more nuanced understanding of consumer preferences and behaviors.
            - Allows for more targeted marketing strategies.

3.2 **Importance of Data Quality:**

- **Essential Characteristics:**
    - **Accuracy:** Data must be accurate and correctly reflect consumer characteristics and behaviors.
    - **Completeness:** Data should be comprehensive, covering all relevant aspects of the segmentation variables.
    - **Relevance:** Data must be pertinent to the segmentation objectives and directly related to the market segments being analyzed.

- **Impact on Segmentation:**
    - **Accuracy of Segment Assignment:** High-quality data ensures that consumers are accurately classified into the appropriate segments.
    - **Effective Marketing Mix:** Accurate segment descriptions lead to better-targeted product offerings, pricing strategies, and communication plans.

3.3 Sources of Empirical Data:

- **Surveys:**
    - **Advantages:**
        - Can be designed to collect specific information related to segmentation variables.
        - Allows for direct questioning of consumers about their preferences, behaviors, and demographics.
    - **Disadvantages:**
        - Responses may not always accurately reflect actual behavior, particularly for socially desirable answers.
        - Survey design must be carefully managed to avoid biases and ensure data quality.
- **Observations:**
    - **Examples:**
        - Scanner data from retail purchases linked to loyalty programs.
        - Observations of consumer behavior in physical or online settings.
    - **Advantages:**
        - Reflects actual consumer behavior rather than self-reported intentions.
        - Provides real-time data that can be used for segmentation.
- **Experimental Studies:**
    - **Types:**

        - Field experiments (e.g., testing consumer responses to different advertising campaigns).
        - Laboratory experiments (e.g., controlled settings to observe consumer reactions).
        - Choice experiments and conjoint analysis (e.g., assessing consumer preferences for various product attributes).
    - **Advantages:**
        - Offers insights into how specific variables or stimuli influence consumer preferences.
        - Helps in understanding the impact of different attributes on consumer choices.

3.4 Segmentation Criteria:

- **Definition:**
    - The overarching basis for segmenting the market, broader than individual segmentation variables.
- **Types of Criteria:**
    - **Geographic Segmentation:**
        - **Definition:** Divides the market based on location, such as country, region, or city.
        - **Advantages:** Simplifies targeting and communication, especially useful for international markets.
        - **Disadvantages:** May not capture other relevant factors like consumer preferences or behaviors.
    - **Socio-Demographic Segmentation:**
        - **Definition:** Based on demographic factors like age, gender, income, and education.
        - **Advantages:** Provides clear criteria for segment membership and can be effective for certain product categories.

        - **Disadvantages:** May not fully explain product preferences or account for underlying motivations.
    - **Psychographic Segmentation:**
        - **Definition:** Based on psychological criteria such as beliefs, interests, and lifestyle.
        - **Advantages:** Reflects deeper motivations and consumer behavior, leading to more targeted marketing.
        - **Disadvantages:** More complex to implement and requires accurate psychographic data.
    - **Behavioral Segmentation:**
        - **Definition:** Based on actual consumer behaviors, such as purchase frequency, spending amounts, and brand loyalty.
        - **Advantages:** Directly reflects consumer actions and is highly relevant for targeting.
        - **Disadvantages:** May not be applicable to potential customers who have not yet made a purchase, and collecting comprehensive data can be challenging.

3.5 Key Considerations:

- **Choosing Segmentation Criteria:**
    - **Simplicity vs. Complexity:** Select criteria that balance simplicity and effectiveness. If simpler criteria meet your needs, they are preferable to more complex approaches.
    - **Alignment with Product/Service:** Ensure that the chosen criteria align with the product's nature and market dynamics.
- **Integrating Data Sources:**
    - **Combining Data:** Use a mix of data sources to gain a comprehensive view of market segments.

- **Ensuring Data Quality:** Maintain high data quality across all sources to ensure accurate segmentation and effective marketing strategies.

Step 4: Exploring Data

4.1 A First Glimpse at the Data:

- **Exploratory Data Analysis (EDA):**
  - **Purpose:** Initial examination of data to understand its structure, quality, and characteristics before applying advanced analytical methods.
  - **Tasks:**
    - **Data Cleaning:** Identify and correct errors or inconsistencies.
    - **Preprocessing:** Prepare data for analysis by handling missing values, normalizing, or transforming variables.
    - **Understanding Data:** Review data distributions, variable types, and overall dataset characteristics.
- **Guidance for Segmentation:**
  - **Understand Data Characteristics:** Helps in selecting appropriate segmentation methods by revealing patterns, trends, and relationships.
  - **Identify Suitable Algorithms:** Determine which segmentation algorithms are best suited based on data characteristics like dimensionality, scale, and distribution.
  - **Example:** Using a dataset of travel motives from 1000 Australian residents, explore the data to identify patterns and prepare for further analysis.

4.2 Data Cleaning:

- **Checking Accuracy:**
  - **Verification:** Ensure that all data values are recorded correctly and fall within plausible ranges.
  - **Consistency:** Confirm that categorical variables use consistent labels and numeric variables have realistic values.

- **Example:** Verify that income categories fall within reasonable ranges and correct any anomalies.

- **Correcting Errors:**
  - **Identification:** Detect and address errors such as incorrect sorting or mislabeling.
  - **Adjustment:** Modify data entries or re-order categories to ensure proper analysis.
  - **Example:** Re-order income categories if they are not correctly sorted due to data import issues.

4.3 Descriptive Analysis:

- **Purpose:**
  - **Understanding Data:** Provides a summary of data characteristics and helps avoid misinterpretation of more complex analyses.
  - **Foundation for Further Analysis:** Offers basic insights that guide more detailed analytical procedures.
- **Numeric Summaries:**
  - **Statistics:** Use commands or tools to obtain summary statistics such as mean, median, range, and quartiles for numeric variables.
  - **Frequency Counts:** Calculate frequency distributions for categorical variables to understand their prevalence.
- **Graphical Representations:**
  - **Histograms:** Display the distribution of numeric variables and help visualize their shape (e.g., unimodal, skewed).
  - **Boxplots:** Provide a visual summary of data distribution, highlighting medians, quartiles, and outliers.
  - **Scatter Plots:** Show relationships between two numeric variables and identify trends or correlations.

- **Bar Plots:** Illustrate the frequency of categorical variables and their relative importance.
- **Mosaic Plots:** Visualize associations between multiple categorical variables to identify patterns and relationships.

4.4 Pre-Processing:

- **Categorical Variables:**
  - **Merging Levels:** Combine overly detailed categories to simplify analysis and create more balanced frequency distributions.
  - **Conversion:** Convert categorical variables to numeric if appropriate, such as transforming ordinal scales into numeric values for easier analysis.
- **Numeric Variables:**
  - **Standardization:** Normalize numeric variables to a common scale to ensure they have equal influence on segmentation results, especially important for distance-based methods.
  - **Example:** Standardize travel motive variables to ensure that each variable contributes equally to the analysis.

4.5 Principal Components Analysis (PCA):

- **Purpose:**
  - **Dimensionality Reduction:** Reduce the number of variables by transforming them into principal components that capture the most variation in the data.
  - **Visualization:** Simplify the visualization of high-dimensional data by representing it in lower dimensions.
- **Procedure:**
  - **Covariance/Correlation Matrix:** PCA is performed on the covariance or correlation matrix of numeric variables. Use the correlation matrix if variables have different ranges.
  - **Transformation:** Convert the data into principal components, which are uncorrelated and ordered by the amount of variation they capture.

- **Visualization:**
    - **2D Plot:** Plot the first two principal components to visualize the data in a 2-dimensional space.
    - **Scatter Plot Matrix:** Use scatter plot matrices to examine relationships between multiple principal components and gain further insights.

Key Points:

- **Exploring Data:** Essential for preparing and understanding the dataset before applying more complex analytical techniques.
- **Data Cleaning:** Critical for ensuring accuracy and consistency in the dataset, which affects the reliability of subsequent analyses.
- **Descriptive Analysis:** Provides foundational insights and helps guide the choice of advanced analytical methods.
- **Pre-Processing:** Necessary to prepare data for analysis, including normalizing variables and simplifying categorical data.
- **PCA:** Useful for reducing dimensionality, visualizing data, and identifying key patterns and structures.

Step 5: Extracting Segments

5.1 Grouping Consumers:

- **Exploratory Nature:**
    - **Initial Approach:** Market segmentation is inherently exploratory, involving iterative analysis to discover meaningful consumer groupings.
    - **Data Dependency:** The quality and structure of the data, as well as the chosen segmentation method, heavily influence the outcomes.
    - **Unstructured Data:** Often, consumer data is unstructured, and segmentation methods help in organizing this data into actionable segments.
- **Clustering Methods:**

- **Purpose:** Clustering methods are used to group consumers into segments based on similarities and differences in their profiles.
- **Types of Clustering:**
  - **Hierarchical Clustering:** Creates a hierarchy of clusters by either:
    - **Divisive Clustering:** Starting with all data in one cluster and splitting it iteratively.
    - **Agglomerative Clustering:** Starting with individual data points and merging them into larger clusters iteratively.
  - **K-Means Clustering:** Partitions data into a specified number of clusters (k) based on similarity, minimizing variance within each cluster.
  - **DBSCAN (Density-Based Spatial Clustering):** Groups together closely packed points and identifies outliers as noise.
- **Choosing Methods:** Selection depends on data characteristics, the number of variables, and the desired number of segments.

5.2 Distance-Based Methods:

- **Distance Measures:**
  - **Symmetric Binary Distance:**
    - **Definition:** Measures similarity between binary variables by treating 0s and 1s equally.
    - **Usage:** Suitable for datasets with binary features (e.g., yes/no responses).
  - **Asymmetric Binary Distance:**
    - **Definition:** Focuses on common 1s and is useful when some dimensions are rare or less relevant.
    - **Usage:** Helps in datasets where certain features are more critical than others.

- **Hierarchical Methods:**
    - **Divisive Clustering:**
        - **Approach:** Begins with one large cluster and splits it into smaller clusters.
        - **Usage:** Useful for understanding hierarchical relationships in data.
    - **Agglomerative Clustering:**
        - **Approach:** Starts with individual data points and merges them into larger clusters.
        - **Usage:** Helps in identifying clusters based on a similarity or distance measure.
    - **Deterministic Algorithm:**
        - **Definition:** Provides consistent results each time applied to the same dataset.
        - **Usage:** Ensures reproducibility and reliability in clustering results.

5.3 Model-Based Methods:

- **Mixture Models:**
    - **Definition:** Statistical models that assume each market segment follows a specific distribution with defined characteristics.
    - **Components:**
        - **Gaussian Mixture Models (GMM):** Assumes segments are normally distributed and uses probability distributions to assign data points to clusters.
        - **Latent Class Analysis (LCA):** Identifies hidden subgroups in the data based on observed variables.
    - **Usage:** Provides a probabilistic approach to segmentation, offering insights into the likelihood of data points belonging to different segments.

- **Exploratory Nature:**
    - **Flexibility:** Allows for different assumptions and models to identify segments based on empirical data.
    - **Application:** Useful when the data does not fit well into predefined cluster structures or when exploring complex patterns.

5.4 Algorithms with Integrated Variable Selection:

- **Variable Selection:**
    - **Purpose:** Identifies and selects the most relevant variables for segmentation, reducing the impact of redundant or noisy data.
    - **Methods:**
        - **Biclustering:** Identifies subgroups of variables and observations that exhibit similar patterns.
        - **VSBD (Variable Selection for Binary Data):** Focuses on selecting important variables in binary datasets to improve segmentation results.
- **Factor-Cluster Analysis:**
    - **Definition:** Compresses segmentation variables into factors before clustering, simplifying the analysis.
    - **Procedure:** Uses techniques like Principal Component Analysis (PCA) to reduce dimensionality and identify key factors that explain variance in the data.

5.5 Data Structure Analysis:

- **Stability-Based Validation:**
    - **Definition:** Assesses the stability and reliability of segmentation results by testing solutions across different methods or slight modifications to the data.
    - **Purpose:** Ensures that identified segments are robust and not artifacts of the specific analytical approach.
- **Insights:**
    - **Identify Distinct Segments:** Helps in determining whether distinct, well-separated market segments exist.

- **Number of Segments:** Guides decisions on the appropriate number of segments to extract based on data structure and stability.

Key Points:

- **Grouping Consumers:** Use various clustering methods to organize consumers into segments based on similarities.
- **Distance-Based Methods:** Measure similarity or dissimilarity between profiles using different distance measures.
- **Model-Based Methods:** Utilize statistical models to identify segments based on distributional assumptions.
- **Algorithms with Integrated Variable Selection:** Refine segmentation by selecting relevant variables and reducing data dimensionality.
- **Data Structure Analysis:** Validate segmentation results by testing stability and ensuring robustness.

Step 6: Profiling Segments

6.1 Identifying Key Characteristics of Market Segments

- **Purpose of Profiling:**
  - **Understanding Segments:** Profiling helps in understanding the distinct characteristics and behaviors of each market segment identified through segmentation.
  - **Actionable Insights:** Provides actionable insights into each segment's needs, preferences, and attributes, which can guide targeted marketing strategies.
- **Profiling Process:**
  - **Individual Description:** Describe each segment individually, outlining key characteristics such as demographics, psychographics, and behaviors.
  - **Comparison:** Compare segments to identify differences and similarities. This helps in understanding how segments relate to one another and what differentiates them.

- **Examples:** If segments are based on vacation activities, profiling might involve detailing what specific activities (e.g., adventure travel, cultural experiences) define each segment and how they differ from other segments.

6.2 Traditional Approaches to Profiling Market Segments

- **Challenges:**
  - **Oversimplified Summaries:** Traditional methods often involve summaries that might be too simplistic or fail to capture the complexity of segments.
  - **Complex Tables:** Results are sometimes presented in complex tables that can be difficult to interpret and may not provide a clear overview of segment characteristics.
- **Example:**
  - **Australian Vacation Motives Data:** Traditional tables might list mean values of various segmentation variables (e.g., income, age) for each segment. However, such tables can become cumbersome and may not effectively convey the nuances of each segment.

6.3 Segment Profiling with Visualisations

- **Importance of Visualization:**
  - **Enhanced Interpretation:** Graphical representations can make it easier to interpret complex data and understand the relationships between variables.
  - **Clarity:** Visualizations often provide a clearer overview of segment characteristics compared to tables or text alone.
- **Recommendations:**
  - **Visualizations for Analysis:** Use visual tools such as histograms, bar charts, and scatter plots to represent segment data. These tools help in exploring and comparing segment characteristics.
  - **Preferred Formats:**
    - **Single or Two-Dimensional Graphs:** Often preferred for their simplicity and ease of understanding. Examples include bar charts for categorical data and scatter plots for numeric data.

        - **Comparison of Solutions:** Use visualizations to compare different segmentation solutions, assess their effectiveness, and determine which solution provides the most actionable insights.

- **Graphical Statistics:**
    - **Tracking Developments:** Visualizations can help track segment development over time, allowing for monitoring changes and trends within segments.
    - **Simplified Analysis:** Graphical statistics can simplify the analysis process, making it less tedious and reducing the risk of misinterpretation.

REPLICATION OF MCDONALDS CASE STUDY IN PYTHON

Github link : https://github.com/santhipsengottuvel/Feynn-Labs-Internship/blob/main/Study%20Task%20(Market%20Segmentation)/Code%20Replication/Mc_Donalds_Case_Study.ipynb