Marketing Analytics Concepts

1. What is Place Analytics ?

Place Analytics is the process of analyzing where and how customers prefer to purchase a product or service. It looks at the effectiveness of distribution channels (supermarkets, online platforms, convenience stores, direct sales, etc.), customer satisfaction with these channels, and how location or accessibility influences buying decisions.

2. What is Promotion Analytics ?

Promotion Analytics evaluates the effectiveness of marketing campaigns and communication efforts in driving customer awareness, recall, engagement, and purchase decisions. It measures how well promotions (discounts, coupons, ads, influencer campaigns, etc.) influence consumer behavior.

3. Importance of Place Analytics

1. New Product Development (Product Launch Location)
2. Franchise Location
3. Warehouse Location

4. Steps in Place Analytics

1. Survey / Feedback
2. Clustering
3. Principal Component Analysis

5. Importance of Promotion Analytics

1. New Product Development (Promotion to a set of customers to position the product)
2. Maximum Return on Marketing Investment
3. Effective Budgets

6. Steps in Promotion Analytics

1. Survey / Feedback
2. Clustering
3. Principal Component Analysis

7. What is Principal Component Analysis?

Principal Component Analysis (PCA) is a dimensionality reduction technique used in data analysis and machine learning. It transforms a large set of variables into a smaller set of new variables (called principal components) that still capture most of the important information (variance) in the data.

8. Importance of Principal Component Analysis ?

1. Find hidden patterns in high-dimensional data
2. Removes Redundancy (when features are correlated)
3. Creates new principal components that summerizes the data

9. How Principal Component Analysis Works ?

1. Standardize the data
2. Identifies directions of maximum variance
3. Rotate the dataset in this direction (principal component)
4. Keep the top components that explain most variance, drop the rest

10. Why Principal Component Analysis is Used ?

1. To simplify datasets without losing much information
2. To visualize high-dimensional data in 2D or 3D plots
3. To speed up clustring process

11. What are two types of Machine Learning Algorithm ?

1. Supervised Learning
2. Unsupervised Learning

12. What is Supervised Learning?

Supervised Learning is a type of machine learning where the model is trained using labeled data (i.e., input features + known correct answers). The goal is to learn the relationship between inputs and outputs so the model can predict outcomes for new data.

13. What is Unsupervised Learning?

Unsupervised Learning is a type of machine learning where the model is trained on unlabeled data (i.e., only inputs, no correct answers). The goal is to discover hidden patterns, structures, or groupings in the data.

14. What is K Means Clustering ?

K-Means is an unsupervised machine learning algorithm used to group data points into K clusters based on their similarity. It assigns each data point to the nearest cluster center (called a centroid), and keeps updating centroids until the clusters are stable.

15. How K Means Clustering Works ?

1. Choose the cluster Range
2. Assign each datapoint to the nearest centroid
3. Recalculate Centroid (average of all points in the cluster)
4. repeat until centroid stops moving

16. Why k means clustering is preferred ?

1. Simplicity and Easy to Understand
2. Fast and Scalable
3. Works well in Practice
4. Flexibility
5. Integration with preprocessing
6. Human-Friendly Results

17. What is the usefulness of K Means Clustering ?

1. Helps identify natural customer segments (e.g. high spenders, discount lovers, loyal customers).
2. Simplifies large datasets into patterns.
3. Commonly used in marketing for segmentation, targeting, and positioning.

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18. What is Silhouette Score ?

The Silhouette Score is a metric that measures how well data points fit within their assigned cluster compared to other clusters. It compares the average distance to points in the same cluster (cohesion) vs. the average distance to points in the nearest other cluster (separation).

Score ranges from -1 to +1

19. How to Interpret Silhouette Score ?

+1 → Perfectly assigned (point is much closer to its own cluster than others).

0 → On the border between two clusters.

-1 → Possibly misclassified (closer to another cluster than its own).

20. Why Silhouette Score is useful ?

It helps decide optimal level of clusters(k)

High Silhouette Score = better define clusters