

WEEK 10 and 11 PROBLEMS

Please wait, we will start shortly.

Tag us on discourse

- | | | |
|-----------------------------------|---|--------------|
| 1. Prof. Dr. Malolan Sundararaman | - | @Milo |
| 2. Prof. Swaminathan | - | @ram158 |
| 3. TA Kalpita | - | @23ds1000135 |

Problem 1

A leading European two-wheeler manufacturer is trying to build an ideal scooter for the Indian market. Which of the following tools will help him understand: how important the attributes such as Engine Capacity, LED Lights, Fuel Efficiency, and Smart Connect Technology are to the customers?

1. Data Envelopment Analysis
- ~~2. Conjoint Analysis~~
3. Both Data Envelopment Analysis & Conjoint Analysis

Problem 2

Which of the following is not a form of conjoint analysis?

1. Choice based
2. Adaptive based
3. Full profile
4. Menu-based
5. None of these

Problem 3

Use Cases for Conjoint Analysis

1. Product Development
2. Pricing Strategy
3. Market Segmentation
4. Competitive Analysis
5. All of these

Problem 4

Which of the following is not a standard format used for collecting data in order to perform the conjoint analysis?

1. Ranking → statistical
2. Pairwise preferences ← ↗ $\{j, k\}$ ← pairwise preference optimization method.
3. Rating → statistical
- ✓ 4. None of these

Problem 5

What is the purpose of doing a conjoint analysis?

1. To find the attribute values for an ideal product
2. To understand the importance of each attribute from the customer's point of view
3. To find the attribute values for an ideal product & to understand the importance of each attribute from the customer's point of view
4. None of these

Problem 6

In a conjoint problem with 4 products and 2 attributes, how many pair-wise preferences are possible? Example: (1,2) says that option 1 is preferred over 2 & (1,3) says that option 1 is preferred over 3.

- 1. 8
- 2. 6
- 3. 16
- 4. 18

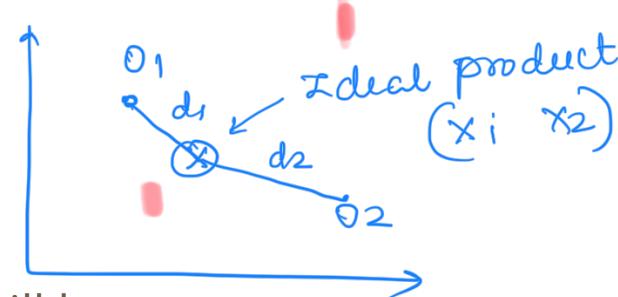
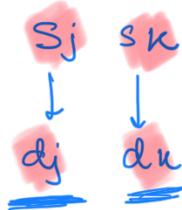
$$\begin{aligned} {}^4C_2 &= \frac{n(n-1)}{2} & n \rightarrow \text{no. of options} \\ &= \frac{4(4-1)}{2} \\ &= \underline{\underline{6}} \end{aligned}$$

Problem 7

In the pairwise comparison, which of the following is true:

- 1. We want to minimize the violation with regard to wrong preferences
- 2. Objective function is to maximize the goodness of fit or minimize poorness of fit
- 3. We want to maximize the violation with regard to wrong preferences
- 4. We want to rank the pairwise comparison to maximize consumer satisfaction

Problem 8



The objective of the conjoint analysis problem will be _____

1. Minimize the squared distance between the attribute combination for the ideal product and the customer preferences
2. Minimize the squared distance between the attribute combination for the ideal product and the attribute combination for each possible variant chosen by the customers
3. Minimize the distance between the possible customer preferences
4. Minimize the distance between the attribute combination for the ideal product and the customer preferences

$s_j \neq s_k$

Problem 9

Let's say a customer wants to buy a car and has 3 brands to choose from; 2 engine options; and 3 type of gear boxes. How many options will the customer rate or rank for performing the conjoint analysis?

↓
statistical

- 1. 8
- 2. 6
- 3. 16
- 4. 18

$$\begin{array}{c} \text{Brands} \\ 3 \times 2 \times 3 \\ \hline \text{engine} \qquad \qquad \qquad \text{gearbox} \end{array}$$

Problem 10

What is the format of data needed for performing the conjoint analysis using the Statistical or Linear Regression Approach?

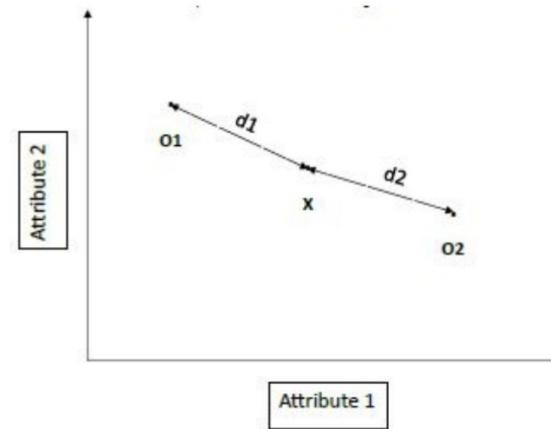
- 1. Consumer Choice Data is Ranking or Ratings Brand
 - 2. Consumer Choice Data is Pairwise Comparison Battery
 - 3. Value of the attributes are continuous Camera
 - 4. Value of the product attributes are categorical
-

Problem 11

A customer is trying to choose between two products O1 and O2. In the diagram below, points O1, O2 represent the coordinates of the two products on two attributes. "X" represents the coordinates of the ideal product. Which of the following are true?

$$d_2 < d_1$$

- 1. Customers will prefer O2 when $d_1 < d_2$ \times
- ✓ 2. Customers will prefer O1 when $d_2 > d_1$



Problem 12

A manufacturer is going to make a product, and he is exploring possible variants (V1, V2, V3, V4, V5) to it. The variants of the products are determined by 3 attributes (A1, A2, A3). The variant-wise attribute scores are presented in the Table 1. The pairwise preferences data based on the consumer's evaluation is going to be collected. Using this information, answer the given subquestions.

Variant Attribute	V1	V2	V3	V4	V5
A1	2	1	3	5	6
A2	3	2	2	4	2
A3	2	4	5	4	3

Table-1

Problem 12

What type of Conjoint Analysis is performed here?

- 1. Choice-Based Conjoint Analysis
- 2. Adaptive Conjoint Analysis
- 3. Full-profile Conjoint Analysis
- 4. Menu-based Conjoint Analysis

Problem 12

How many pairs (for comparisons) will be generated in this problem?

$$n \text{C}_2 \quad n \rightarrow \text{no. of options} \rightarrow \frac{n(n-1)}{2}$$

$$5 \text{C}_2 \quad \frac{5 \cdot (4)}{2} = \underline{\underline{10}}$$

Problem 13

Let's say a customer wants to buy a car and has 3 brands to choose from; 2 engine options; and 3 type of gear boxes. This customer is shown all possible combination available. What type of Conjoint Analysis is performed here?

- 1. Choice-Based Conjoint Analysis
- 2. Adaptive Conjoint Analysis
- 3. Full-profile Conjoint Analysis
- 4. Menu-based Conjoint Analysis

Problem 14

In which of the following do we estimate betas to find the part worth of attributes?

1. Mathematical approach - Optimisation Method
2. Statistical approach - Linear Regression