MKTG 580 Project Report

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CONJOINT ANALYSIS: FORTE HOTEL DESIGN

1. Executive Summary

1.1.   Introduction

Forte Hotels, a leading European hotel chain, has a diverse portfolio of hotel brands, including Le Meridien and Forte Crest. Forte is looking to introduce a new venture in the United States market. They aim to blend the sophistication of European hospitality with the functional nature and convenience expected by American business guests.

1.1.1. Background of the case

Forte's strategy is twofold: leveraging the established Forte brand to assure European travelers of comfort and service while appealing to American travelers with a blend of pampering and functionality. The hotel's ambiance will be European, but its facilities and services will rival those of renowned American chains like Hilton and Marriott.

1.1.2. Summary of Forte Hotel Case

Market research highlights key factors influencing business travelers' hotel choices, including price, location, brand name, safety, cleanliness, and unique amenities. Forte Executive Innes aims to be mid-priced, strategically located near suburban commercial centers, and benefit from the established Forte brand name.

Forte Hotels' entry into the U.S. market with Forte Executive Innes represents a strategic endeavor to capitalize on the growing influx of European business travelers. By blending European elegance with American functionality, and leveraging the established Forte brand, the chain aims to carve a niche in the competitive hospitality landscape, offering a compelling option for discerning business travelers.

1.1.3. What to do with respect to new Hotel Design

1.1.3.1.   Key Findings

Business travelers have a strong preference for small suites, speaker phones, a combination of exercise room and pool facilities, fruit and cheese as an extra amenity, and restaurant delivery.

1.1.3.2.   Recommendations

- Forte hotels should consider designing their new hotel with a focus on small suites, offering speaker phones, and a combination of exercise rooms and pool as amenities available.
- They should also consider offering fruit and cheese as extras and prioritize restaurant delivery services.

2. Conjoint Analysis

2.1. Study Design: attributes and levels of attributes.

To refine the hotel's characteristics, Forte is conducting a conjoint analysis study involving 40 business respondents.

This analysis focuses on five key attributes: room type, business amenities, leisure facilities, extras, and restaurants delivery, to determine the optimal combination of options that will resonate with the target market. These key attributes have their respective levels as shown below:

Conjoint Study Design
Attributes and attribute levels of the Conjoint study.

Attributes / Level	Level 1	Level 2	Level 3	Level 4				
Room	Small Suite	Large Room	Room Office		1	2	3	
Bus Amenities	Internet access	Speaker phone	Room fax		1	2	3	
Leisure	Exercise room	Pool	Exercise room + Pool		1	2	3	
Extras	Shoe shine	Tape library	Fruit and cheese	Newspaper	1	2	3	4
Rest Delivery	Yes	No			1	2		

Consequently, to prepare for conjoint analysis, the attribute levels were coded using a series of numbers to represent the attribute level as shown on the table above.

2.2. Fractional Factorial Design

The total possible profiles that can be generated from the attribute levels are about 216 (3 x 3 x 3 x 4 x 2), We therefore need to reduce the number of profiles for evaluation while maintaining a proper representation of all possible options that can be offered, using Fractional Factorial Design we are able to come up with an array of 16 profiles each comprising of an assortment of attribute levels developed to represent possible combinations of package options available. The bundles were then presented to respondents for preference rating.

	A	B	C	D	E
1	room	amenity	leisure	extras	delivery
2	1	1	1	1	1
3	2	2	3	1	2
4	3	3	2	1	1
5	2	2	2	1	2
6	1	2	2	2	1
7	2	1	2	2	2
8	3	2	3	2	1
9	2	3	1	2	2
10	1	3	3	3	2
11	2	2	1	3	1
12	3	1	2	3	2
13	2	2	2	3	1
14	1	2	2	4	2
15	2	3	2	4	1
16	3	2	1	4	2
17	2	1	3	4	1

The resulting bundle packages to be presented to respondents are as shown on table

Bundles

Attribute levels for a full-profile, fractional design Conjoint study

Attributes / Bundle	Bundle 1	Bundle 2	Bundle 3	Bundle 4	Bundle 5	Bundle 6	Bundle 7	Bundle 8	Bundle 9	Bundle 10	Bundle 11	Bundle 12	Bundle 13	Bundle 14	Bundle 15	Bundle 16
Room	Small Suite	Large Room	Room Office	Large Room	Small Suite	Large Room	Room Office	Large Room	Small Suite	Large Room	Room Office	Large Room	Small Suite	Large Room	Room Office	Large Room
Bus Amenities	Internet access	Speaker phone	Room fax	Speaker phone	Speaker phone	Internet access	Speaker phone	Room fax	Room fax	Speaker phone	Internet access	Speaker phone	Speaker phone	Room fax	Speaker phone	Internet access
Leisure	Exercise room	Exercise room +Pool	Pool	Pool	Pool	Pool	Exercise room +Pool	Exercise room	Exercise room +Pool	Exercise room	Pool	Pool	Pool	Pool	Exercise room	Exercise room +Pool
Extras	Shoe shine	Shoe shine	Shoe shine	Shoe shine	Tape library	Tape library	Tape library	Tape library	Fruit and cheese	Fruit and cheese	Fruit and cheese	Fruit and cheese	Newspaper	Newspaper	Newspaper	Newspaper
Rest Delivery	Yes	No	Yes	No	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	No	Yes

2.3.   Summary of part-worth utility estimates

Part-worth utility estimates were measured from the preference ratings received from respondents on the respective profiles as shown below.

```{r}
# Measurement of part-worths utilities (all respondents):
partutilities=caPartUtilities(y=preferences,x=profiles,z=levelnames)
print(head(partutilities))
```

The resulting estimates were as presented in table below:

respondent no.	intercept	small suite	large room	room office	internet	speaker phon	room fax	exercise roor	pool	exercise + poc	shoe shine	tape library	fruit chees	newspape	yes	no
1	40.25	-5.25	1.75	3.5	23.625	-6.75	-16.875	-4.75	1.75	3	6.062	-2.188	3.062	-6.937	-3.813	3.813
2	41.458	-4.333	15.667	-11.333	-2.875	3.5	-0.625	-14.75	14	0.75	1	-1	1.25	-1.25	4.5	-4.5
3	46.583	12.292	-10.583	-1.708	8.125	-10.25	2.125	0.375	6.75	-7.125	-8.562	3.437	-2.813	7.937	8.062	-8.062
4	44.417	-1.75	-8.75	10.5	0.167	10.917	-11.083	-5.458	5.417	0.042	8.937	-0.563	-10.812	2.438	-8.312	8.312
5	54.5	10.583	-17.667	7.083	-7.542	5.833	1.708	-7.542	5.833	1.708	8.5	-8.75	2.75	-2.5	5.375	-5.375
6	43.167	20.625	-17.25	-3.375	-0.75	1.25	-0.5	-13.167	-0.417	13.583	1.188	-0.563	-0.812	0.188	-8.063	8.063
7	30.125	6.417	-0.833	-5.583	-2.208	9.667	-7.458	-5.083	-8.833	13.917	-2.875	6.125	1.375	-4.625	-4.375	4.375
8	35.917	4.542	-7.083	2.542	-13.333	-2.583	15.917	-0.25	-3.25	3.5	-2.437	-0.938	-6.437	9.812	-6.563	6.563
9	45.083	0.583	-10.917	10.333	-1	10.75	-9.75	7.208	-5.417	-1.792	-2.688	-9.938	11.562	1.062	6.688	-6.688
10	47.708	0.708	8.583	-9.292	-0.25	-8.25	8.5	-1.292	-13.417	14.708	-3.688	-7.688	8.312	3.063	4.937	-4.937
11	42.875	-9.667	13.083	-3.417	1.833	-1.917	0.083	25.833	-4.917	-20.917	-0.937	4.313	-4.188	0.812	1.188	-1.188
12	43.833	-4.167	-10.667	14.833	1.5	-5	3.5	4.333	-0.667	-3.667	-8	-2.5	4	6.5	12.5	-12.5
13	38.125	6.125	-8	1.875	-6.792	-1.667	8.458	3.042	-3.333	0.292	17.875	-2.125	-4.125	-11.625	-3.25	3.25
14	46.833	-7.125	9.75	-2.625	-0.792	10.083	-9.292	14.208	0.083	-14.292	2.688	4.938	-5.063	-2.563	7.188	-7.188
15	49.083	-1	14	-13	4.292	-7.833	3.542	-3.375	12.5	-9.125	2.75	-8.25	7	-1.5	5.25	-5.25
16	46.208	-1.125	7.75	-6.625	-7.375	6.75	0.625	-5.583	-12.083	17.667	-1.313	-6.063	1.938	5.438	-9.813	9.813
17	41.792	-14.417	-9.167	23.583	-8.958	-2.333	11.292	3.083	0.833	-3.917	-1.625	4.875	1.625	-4.875	-2.875	2.875
18	38.417	12.75	-12.25	-0.5	-3.542	11.583	-8.042	0.25	-5.25	5	-1.188	-3.938	3.313	1.813	-5.563	5.563
19	36.792	-0.708	-9.333	10.042	-6.333	-9.833	16.167	-7.25	6.5	0.75	1.125	3.875	-4.625	-0.375	1.375	-1.375
20	39.125	-12.583	-2.833	15.417	-1	9.5	-8.5	-3.042	1.333	1.708	3.125	-3.125	8.625	-2.625	6.5	-6.5
21	51.042	30.333	4.083	-34.417	2.417	1.417	-3.833	1.083	-4.917	3.833	-2.187	-2.188	2.062	2.312	-2.688	2.688
22	37.208	8.167	-0.083	-8.083	-0.708	10.417	-9.708	-6.292	10.083	-3.792	7.938	-1.563	1.937	-8.313	-4.313	4.313
23	46.083	-6.792	6.833	-0.042	0.75	12	-12.75	-14.042	10.833	3.208	-6	4.75	-0.75	2	6	-6
24	47.083	18.333	-16.667	-1.667	7.833	-7.667	-0.167	2	5	-7	2	-5.5	0.5	3	1.75	-1.75
25	42.917	5.667	-15.333	9.667	-1.792	11.833	-10.042	-1.042	-0.167	1.208	-2.25	-7	13	-3.75	-3.375	3.375
26	43.167	-9.917	2.583	7.333	-3.083	-7.083	10.167	4.708	0.083	-4.792	10.187	-2.562	-8.562	0.938	-7.938	7.938
27	44.458	21.417	1.167	-22.583	-6.667	9.833	-3.167	4.542	-5.333	0.792	-3.875	3.375	0.625	-0.125	5.25	-5.25
28	41.833	-2	-9.5	11.5	0.792	3.667	-4.458	-11.625	11	0.625	-3.625	1.625	6.625	-4.625	4.75	-4.75
29	40.792	16.083	-12.667	-3.417	9.208	0.833	-10.042	-1.083	5.667	-4.583	-1.25	-5.75	1	6	7.25	-7.25
30	42.208	10.792	-8.333	-2.458	-11.833	0.167	11.667	2.333	-3.167	0.833	0.875	-2.375	8.125	-6.625	-9.375	9.375
31	46.208	5.75	-8.5	2.75	-1.583	-8.833	10.417	1.125	3	-4.125	-8.625	-0.125	5.875	2.875	8.125	-8.125
32	47.667	-4.583	20.167	-15.583	2.792	-6.333	3.542	-1.375	11	-9.625	-3.625	2.875	1.125	-0.375	-4.875	4.875
33	44.125	-6.917	-1.167	8.083	-12.625	10	2.625	-0.833	-10.833	11.667	-2.125	1.625	-5.375	5.875	-5.75	5.75
34	48.417	8.833	-14.167	5.333	-15.458	-4.333	19.792	-3.292	0.333	2.958	3.125	1.375	-3.625	-0.875	-6.75	6.75
35	39.833	12.875	0	-12.875	6.542	-0.333	-6.208	-8.25	-0.5	8.75	-4.125	0.375	1.875	1.875	5	-5
36	41.708	-0.333	-13.583	13.917	-6.958	5.917	1.042	4.458	-6.417	1.958	-12.938	-3.688	14.563	2.062	-2.063	2.063
37	47.083	-0.542	-12.417	12.958	-1.75	-7.25	9	8.333	0.083	-8.417	-1.438	0.313	-4.937	6.062	-7.688	7.688
38	45.167	9.458	-12.167	2.708	5.25	-6	0.75	-16.875	0.5	16.375	-5.75	3	-2	4.75	-5.25	5.25
39	51.583	0.583	12.083	-12.667	-7.708	3.917	3.792	8.917	-15.583	6.667	4.812	0.563	-4.687	-0.688	3.938	-3.938
40	46.667	-9.708	2.667	7.042	-0.958	-9.333	10.292	0.5	7.5	-8	13.125	-3.625	-7.875	-1.625	7.375	-7.375
TOTAL	1747.54	119.999	-129.751	9.749	-58.747	36.253	22.503	-39.92	15.58	24.33	4.186	-50.566	35.438	10.936	0.309	-0.309

A summary of the part worth estimates is as follows :

Room Type(Small Suite, Large Room, Room Office) :

- Small Suite has a total part worth utility of 119.999 while large room has a total part worth utility of -129.751. This indicates that there is higher preference for small suites compared to large rooms and room office.
- Room office has a total part worth of 9.749 suggesting it was also generally preferable but to a less extent.

Business Amenities (Internet , Speaker Phone, Room Fax):

- Internet has total part worth of -58.747 indicating less preference.
- Speaker phone has total part worth of 36.253 suggesting is preferred.
- Room Fax has 22.503 suggesting it is also preferred.

Leisure (Exercise Room, Pool, Exercise + Pool)

- Exercise room + Pool combined has a total part worth utility of 24.33, indicating a preference for this option.
- Pool has a total part worth utility of 15.58, suggesting it is also preferred.
- Exercise room alone, has a total utility of -39.92, indicating a lower preference compared to the rest.

Extras (Shoe Shine, Tape Library, Fruit and Cheese, Newspaper):

- Fruit and cheese have a total part worth utility of 35.438, indicating a preference for this extra.
- Shoeshine has a total part worth utility of 4.186, suggesting it is also preferred, though on the lower extent compared to other extras available.
- Tape Library has a total utility of -50.566, indicating it is less preferred compared to other extras available.
- Newspaper has a total utility of 10.9369, suggesting it is also preferred.
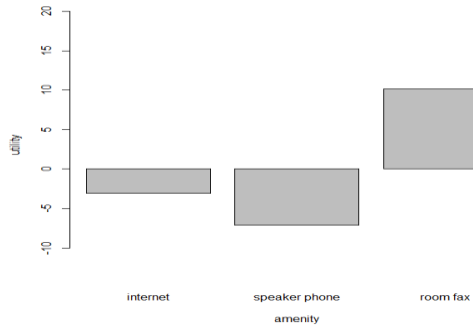
Restaurant Delivery(Yes/No):

- Yes was positive indicating high preference for having restaurant delivery.

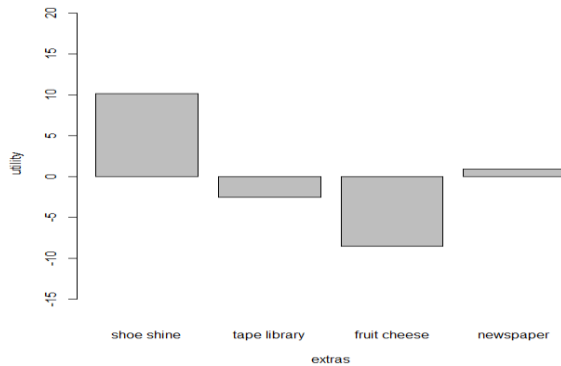## 2.4.   Case Study: Nissa's Ratings

2.4.1. Nissa's Preference Results

Nissa was respondent no. 26, analysis in her preference ratings on the profile presented to her was conducted and the following were the results:
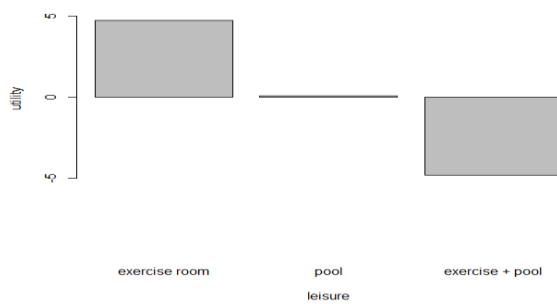
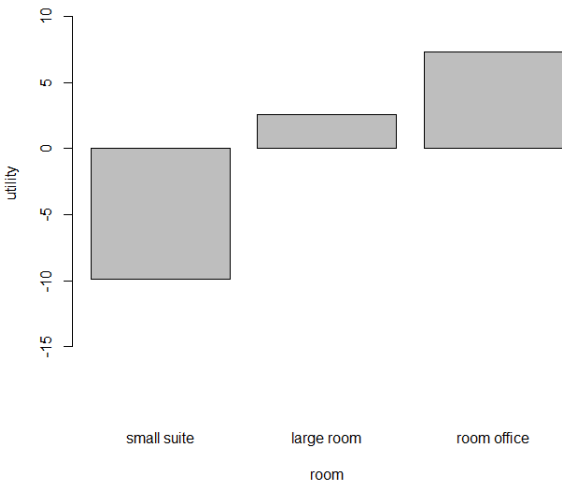**Business Amenities**: Nissa preferred having a room fax compared to other amenites available.
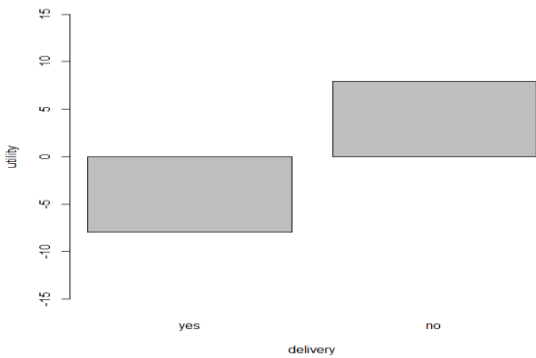

Extras: Nissa preferred having shoe shine extras.

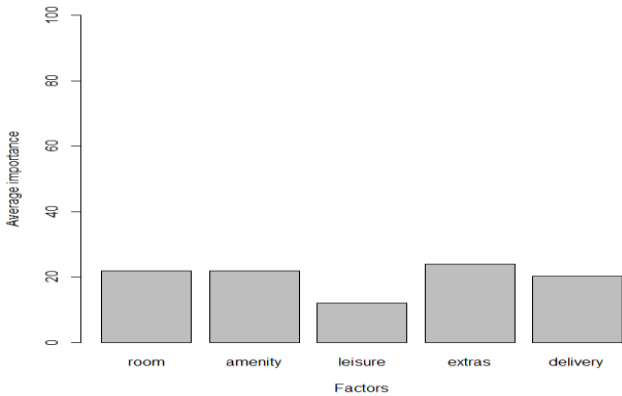**Leisure**: Nissa preferred having an exercise room.

Room Type: Nissa preferred having a room office

Restaurant Delivery: Nissa preferred not having restaurant delivery.

Average Importance of attributes: Nissa had the least importance for leisure,she seems to highly value room type, business amenities , extras being the most important.

2.4.2. The most preferred profile for Nissa (26)

Nissa's most preferred profile is profile 8 as it records the highest utility of 66 among all her ratings .

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> print(totalutilities)
         [,1]    [,2]   [,3]    [,4]    [,5]    [,6]    [,7]    [,8]    [,9]   [,10]   [,11]   [,12]   [,13]   [,14]   [,15]   [,16]
 [1,] 56.125 48.125 30.875 46.875 24.000 69.000 34.000 22.000 28.000 29.750 76.000 36.250 26.875 16.125 29.125 57.875
 [2,] 25.000 57.875 49.000 71.125 58.125 62.750 37.875 36.250 34.000 51.625 38.000 80.375 48.875 73.750 13.125 58.250
 [3,] 66.875  2.000 53.250 15.875 66.875 46.250 39.000 33.875 43.000 31.375 48.875 37.750 55.250 60.875 34.875 53.000
 [4,] 38.000 63.875 49.875 69.250 50.125 49.000 57.000 26.875 29.125 22.000 58.000 32.875 69.750 24.125 71.125 30.000
 [5,] 63.875 47.500 83.000 51.625 73.375 21.000 65.750 16.875 65.875 43.250 57.250 56.625 68.875 47.250 52.000 33.875
 [6,] 43.000 50.000 32.000 36.000 56.000 32.250 46.000 19.750 84.125  5.125 45.875 17.875 72.875 17.125 36.125 30.875
 [7,] 22.000 54.375  1.000 31.625 39.125 28.750 49.875 27.250 48.750 30.875 19.250 27.125 37.125  4.000 28.875 32.000
 [8,] 17.875 33.875 42.125 27.125 27.125 17.875 31.875 50.125 60.000 13.000 22.000 10.000 51.000 44.750 52.000 22.250
 [9,] 55.875 33.750 44.250 30.125 47.750 11.125 61.125 15.000 39.000 70.375 53.875 57.750 45.375 26.750 67.750 39.125
[10,] 48.125 54.125 34.750 26.000 24.000 30.000 42.125 50.875 75.000 60.000 28.125 47.875 24.875 59.375 27.000 78.750
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[12,] 50.000  4.000 66.000  7.000 44.000 19.000 60.000 26.000 31.000 49.000 51.000 44.000 28.000 55.000 52.000 50.000
[13,] 55.125 49.875 59.750 46.250 33.875 21.125 33.250 42.750 52.125 24.125 29.000 17.750 30.875 20.375 33.000  8.750
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[15,] 57.000 43.625 60.125 65.250 49.750 66.375 16.125 49.750 44.250 64.125 54.625 80.000 46.000 82.875 18.125 62.000
[16,] 21.000 86.875 17.000 57.125 23.875 38.250 48.125 52.750 75.125 47.250 31.875 40.750 55.000 38.125 56.000 59.875
[17,] 17.000 27.625 73.000 32.375 27.875 32.250 61.125 54.750 39.250 32.125 61.750 29.875 23.875 37.000 64.125 12.000
[18,] 41.125 47.125 17.875 36.875 48.000 19.000 45.000 20.000 57.000 35.750 38.000 30.250 64.875  9.125 57.125 23.875
[19,] 25.000 18.125 72.000 23.875 38.000 30.125 43.000 38.875 47.000  7.125 41.000 20.875 31.000 51.125 28.000 22.875
[20,] 32.125 44.125 57.000 43.750 34.750 21.000 63.125  9.125 21.875 57.875 57.000 62.250 28.250 33.000 51.875 40.875
[21,] 80.000 60.875  3.000 52.125 73.000 53.125 17.000 52.875 86.125 57.000 18.875 51.000 82.875 46.000 24.125 61.000
[22,] 42.000 56.000 33.125 69.875 60.000 49.250 29.875 23.875 38.125 38.875 44.750 55.250 61.875 24.875 29.250 20.000
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[24,] 79.000 16.000 54.000 28.000 59.000 36.000 27.000 25.000 57.000 27.000 57.000 30.000 64.000 40.000 41.000 36.000
[25,] 40.125 41.750 36.750 40.375 49.875 22.000 55.250 12.875 56.125 48.000 67.000 48.875 59.875 10.250 63.000 19.875
[26,] 37.125 52.000 63.000 56.875 15.750 48.125 28.125 66.000 38.000 26.875 46.875 22.250 35.125 49.000 57.000 30.875
[27,] 65.125 47.125 14.750 41.000 79.000 31.750 41.125 45.125 58.875 65.875  5.250 56.000 65.000 42.250 30.875 44.875
[28,] 30.125 28.250 61.000 38.625 60.875 41.000 64.000 13.125 37.875 35.750 67.000 58.375 45.125 39.000 36.000 33.875
[29,] 71.000 15.875 39.000 26.125 64.875 30.000 35.125  4.000 36.000 36.125 46.000 42.875 62.125 37.000 35.875 46.000
[30,] 35.000 45.125 39.750 41.125 38.250 25.875 29.000 54.875 83.000 35.125 42.250 29.625 52.750 26.375 45.000  6.875
[31,] 51.000  8.000 61.875 15.125 54.125 30.875 44.000 41.000 56.000 44.000 48.125 45.875 40.875 62.125 36.000 43.000
[32,] 36.000 53.125 38.125 73.750 45.750 89.375 14.125 77.750 43.000 56.375 51.875 68.750 52.250 77.125 28.875 55.750
[33,] 15.875 68.250 36.125 45.750 32.250 26.875 69.750 52.125 51.875 41.000 29.125 31.000 48.000 34.875 73.000 42.125
[34,] 34.875 42.750 70.250 40.125 47.875 27.250 47.000 58.875 83.125 16.250 41.750 19.875 59.125 46.750 52.000 14.125
[35,] 51.875 39.125 21.125 29.875 57.250 41.250 40.750 20.750 52.125 38.125 29.875 45.875 48.750 40.000 15.250 62.000
[36,] 23.875 25.125 35.250 16.750 35.125 13.125 57.750 32.000 61.000 51.000 58.875 40.125 45.000 22.750 70.125 23.125
[37,] 44.000 25.250 60.000 33.750 32.000 41.000 37.000 60.000 49.875 23.125 61.125 14.875 53.125 42.125 74.875 22.875
[38,] 32.000 42.875 38.125 27.000 46.875 47.000 56.000 25.125 75.000  2.875 56.875 20.250 59.125 33.750 35.000 54.125
[39,] 62.125 75.125 35.875 52.875 45.000 37.000 54.000 73.000 54.000 75.750  7.000 51.250 35.875 55.125 47.125 65.875
[40,] 57.000 37.750 92.000 53.250 38.875 44.875 40.125 49.125 24.000 40.000 45.000 47.000 26.125 72.875 35.875 46.125
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2.5. Profile with highest total utility.

The profile with the highest total utility was found to be Profile 09 recording a total utility of 1949.

|	profile01	profile02	profile03	profile04	profile05	profile06	profile07	profile08	profile09	profile10	profile11	profile12	profile13	profile14	profile15	profile16	
1	56	48	31	47	24	69	34	22	28	30	76	36	27	16	29	58	
2	25	58	49	71	58	63	38	36	34	52	38	80	49	74	13	58	
3	67	2	53	16	67	46	39	34	43	31	49	38	55	61	35	53	
4	38	64	50	69	50	49	57	27	29	22	58	33	70	24	71	30	
5	64	47	83	52	73	21	66	17	66	43	57	57	69	47	52	34	
6	43	50	32	36	56	32	46	20	84	5	46	18	73	17	36	31	
7	22	54	1	32	39	29	50	27	49	31	19	27	37	4	29	32	
8	18	34	42	27	27	18	32	50	60	13	22	10	51	45	52	22	
9	56	34	44	30	48	11	61	15	39	70	54	58	45	27	68	39	
10	48	54	35	26	24	30	42	51	75	60	28	48	25	59	27	79	
11	61	31	35	47	32	56	22	85	7	77	31	46	26	53	63	39	
12	50	4	66	7	44	19	60	26	31	49	51	44	28	55	52	50	
13	55	50	60	46	34	21	33	43	52	24	29	18	31	20	33	9	
14	63	48	45	62	62	54	52	59	4	83	31	69	40	52	59	46	
15	57	44	60	65	50	66	16	50	44	64	55	80	46	83	18	62	
16	21	87	17	57	24	38	48	53	75	47	32	41	55	38	56	60	
17	17	28	73	32	28	32	61	55	39	32	62	30	24	37	64	12	
18	41	47	18	37	48	19	45	20	57	36	38	30	65	9	57	24	
19	25	18	72	24	38	30	43	39	47	7	41	21	31	51	28	23	
20	32	44	57	44	35	21	63	9	22	58	57	62	28	33	52	41	
21	80	61	3	52	73	53	17	53	86	57	19	51	83	46	24	61	
22	42	56	33	70	60	49	30	24	38	39	45	55	62	25	29	20	
23	26	56	44	64	73	63	72	25	23	56	51	81	58	59	40	65	
24	79	16	54	28	59	36	27	25	57	27	57	30	64	40	41	36	
25	40	42	37	40	50	22	55	13	56	48	67	49	60	10	63	20	
26	37	52	63	57	16	48	28	66	38	27	47	22	35	49	57	31	
27	65	47	15	41	79	32	41	45	59	66	5	56	65	42	31	45	
28	30	28	61	39	61	41	64	13	38	36	67	58	45	39	36	34	
29	71	16	39	26	65	30	35	4	36	36	46	43	62	37	36	46	
30	35	45	40	41	38	26	29	55	83	35	42	30	53	26	45	7	
31	51	8	62	15	54	31	44	41	56	44	48	46	41	62	36	43	
32	36	53	38	74	46	89	14	78	43	56	52	69	52	77	29	56	
33	16	68	36	46	32	27	70	52	52	41	29	31	48	35	73	42	
34	35	43	70	40	48	27	47	59	83	16	42	20	59	47	52	14	
35	52	39	21	30	57	41	41	21	52	38	30	46	49	40	15	62	
36	24	25	35	17	35	13	58	32	61	51	59	40	45	23	70	23	
37	44	25	60	34	32	41	37	60	50	23	61	15	53	42	75	23	
38	32	43	38	27	47	47	56	25	75	3	57	20	59	34	35	54	
39	62	75	36	53	45	37	54	73	54	76	7	51	36	55	47	66	
40	57	38	92	53	39	45	40	49	24	40	45	47	26	73	36	46	
TOTAL UTILITY	1773	1682	1800	1674	1870	1522	1767	1551	1949	1649	1750	1706	1930	1666	1764	1596	27649

2.6.   Result for all respondents' preferences.

According to conjoint analysis conducted on preference ratings for all respondents, the results are as follows:
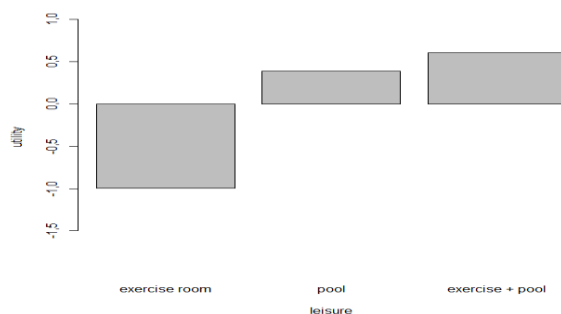
Average Importance: Room type recorded the highest importance followed by amenity, leisure, extras, delivery in that order.
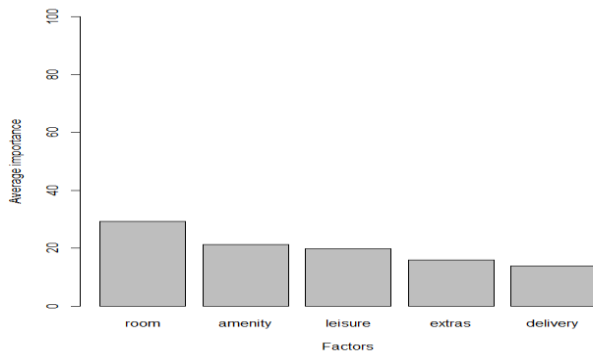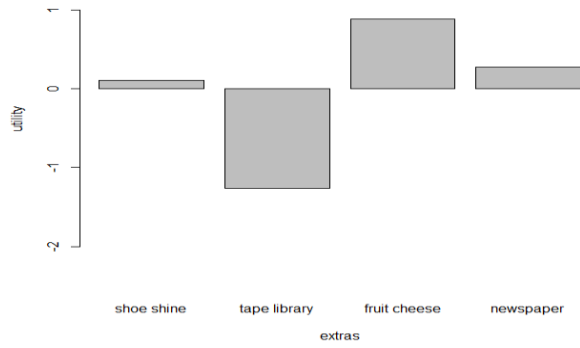

Amenity: Speaker Phone and Room fax were preferred, with speaker phone being most preferred.
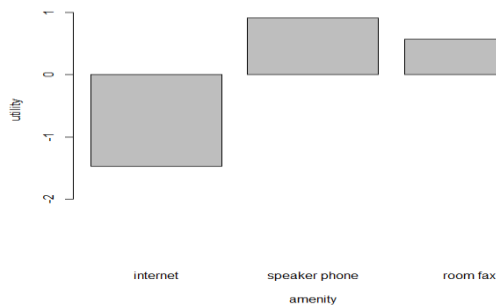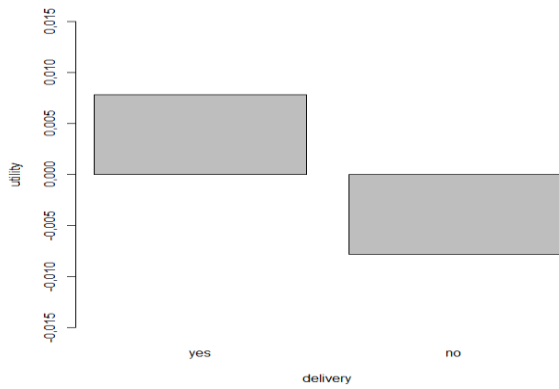

Leisure: A combination of Exercise room + pool was more preferred.

Extras: Fruit Cheese was most preferred. Newspaper and shoe shine were also preferred but to lesser extents respectively.

Restaurant Delivery: Having restaurant delivery was preferred.

3. Segmentation

Segmentation was performed using k-means clustering algorithm to segment respondents based on their preferences for different profiles in a conjoint analysis.

As a result, the respondents were assigned into three clusters with cluster on e having the most respondents.

Profiling :

- Cluster 1 – largest cluster, value room type and amenities

- Cluster 2 – value leisure and extras

- Cluster 3 – least concerned with features offered by hotel

Further visualization conducted using a ggplot, gives a color- coded cluster assignment of the respondents.
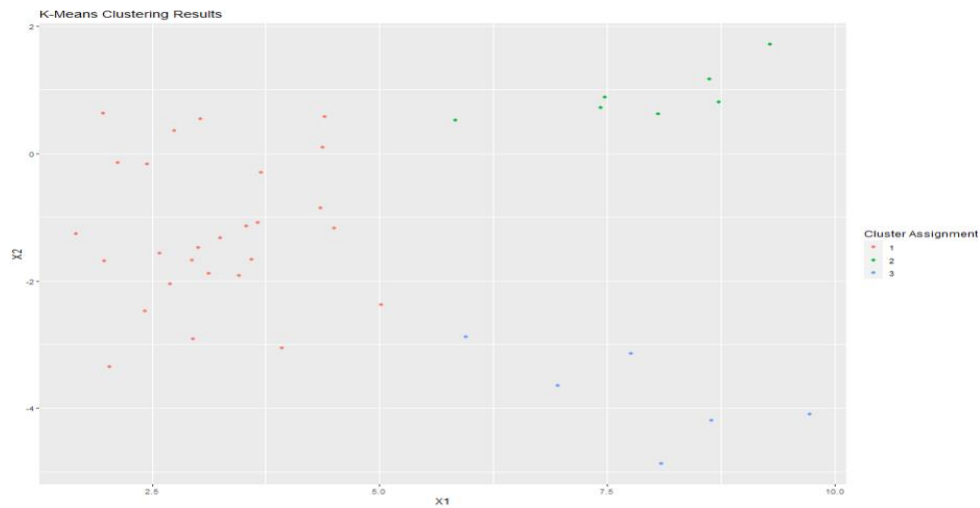
4. Market share estimate

To calculate the total market share estimate for each of the profile we use the formula below:

Market share = (Total profile utility / sum total utilities) * 100

Profile 9 had the highest market share of about 7%.

	profile01	profile02	profile03	profile04	profile05	profile06	profile07	profile08	profile09	profile10	profile11	profile12	profile13	profile14	profile15	profile16	
1	56	48	31	47	24	69	34	22	28	30	76	36	27	16	29	58	
2	25	58	49	71	58	63	38	36	34	52	38	80	49	74	13	58	
3	67	2	53	16	67	46	39	34	43	31	49	38	55	61	35	53	
4	38	64	50	69	50	49	57	27	29	22	58	33	70	24	71	30	
5	64	47	83	52	73	21	66	17	66	43	57	57	69	47	52	34	
6	43	50	32	36	56	32	46	20	84	5	46	18	73	17	36	31	
7	22	54	1	32	39	29	50	27	49	31	19	27	37	4	29	32	
8	18	34	42	27	27	18	32	50	60	13	22	10	51	45	52	22	
9	56	34	44	30	48	11	61	15	39	70	54	58	45	27	68	39	
10	48	54	35	26	24	30	42	51	75	60	28	48	25	59	27	79	
11	61	31	35	47	32	56	22	85	7	77	31	46	26	53	63	39	
12	50	4	66	7	44	19	60	26	31	49	51	44	28	55	52	50	
13	55	50	60	46	34	21	33	43	52	24	29	18	31	20	33	9	
14	63	48	45	62	62	54	52	59	4	83	31	69	40	52	59	46	
15	57	44	60	65	50	66	16	50	44	64	55	80	46	83	18	62	
16	21	87	17	57	24	38	48	53	75	47	32	41	55	38	56	60	
17	17	28	73	32	28	32	61	55	39	32	62	30	24	37	64	12	
18	41	47	18	37	48	19	45	20	57	36	38	30	65	9	57	24	
19	25	18	72	24	38	30	43	39	47	7	41	21	31	51	28	23	
20	32	44	57	44	35	21	63	9	22	58	57	62	28	33	52	41	
21	80	61	3	52	73	53	17	53	86	57	19	51	83	46	24	61	
22	42	56	33	70	60	49	30	24	38	39	45	55	62	25	29	20	
23	26	56	44	64	73	63	72	25	23	56	51	81	58	59	40	65	
24	79	16	54	28	59	36	27	25	57	27	57	30	64	40	41	36	
25	40	42	37	40	50	22	55	13	56	48	67	49	60	10	63	20	
26	37	52	63	57	16	48	28	66	38	27	47	22	35	49	57	31	
27	65	47	15	41	79	32	41	45	59	66	5	56	65	42	31	45	
28	30	28	61	39	61	41	64	13	38	36	67	58	45	39	36	34	
29	71	16	39	26	65	30	35	4	36	36	46	43	62	37	36	46	
30	35	45	40	41	38	26	29	55	83	35	42	30	53	26	45	7	
31	51	8	62	15	54	31	44	41	56	44	48	46	41	62	36	43	
32	36	53	38	74	46	89	14	78	43	56	52	69	52	77	29	56	
33	16	68	36	46	32	27	70	52	52	41	29	31	48	35	73	42	
34	35	43	70	40	48	27	47	59	83	16	42	20	59	47	52	14	
35	52	39	21	30	57	41	41	21	52	38	30	46	49	40	15	62	
36	24	25	35	17	35	13	58	32	61	51	59	40	45	23	70	23	
37	44	25	60	34	32	41	37	60	50	23	61	15	53	42	75	23	
38	32	43	38	27	47	47	56	25	75	3	57	20	59	34	35	54	
39	62	75	36	53	45	37	54	73	54	76	7	51	36	55	47	66	
40	57	38	92	53	39	45	40	49	24	40	45	47	26	73	36	46	
TOTAL UTILITY	1773	1682	1800	1674	1870	1522	1767	1551	1949	1649	1750	1706	1930	1666	1764	1596	27649
MARKET SHARE	6.41253	6.0834	6.51018	6.05447	6.76335	5.50472	6.39083	5.60961	7.04908	5.96405	6.32934	6.17021	6.98036	6.02553	6.37998	5.77236	

5. Appendix

5.1. Forte Hotel Questionnare

Forte Hotel
Questionnaire.docx

5.2. Forte Conjoint R Code

conjoint forte hotel
final.R

5.3. Forte R Studio results

Forte-r-results.html