

Analysis of the data provided in the SPSS for Windows file 'Coursework\_MAXSHOP\_2009\_10.SAV' with SPSS for Windows software. Writing of a small report (maximum 30 pages) with the answers to the questions in next page, the most important results and main conclusions of the data analysis.

**MAXSHOP.SAV file:** the database consists of a sample of 1000 observations on several variables collected from a survey applied to Maxshop clients. Maxshop is a wholesale company with seven shops located in Lisbon, Oporto, Braga, Aveiro, Setúbal, Faro and Coimbra, selling food and non food products for retail firms operating in different sectors: restaurants, coffee shops and snack bars, hotels, night clubs and bars, food retail and non food retail companies. Two of these shops (Lisbon and Oporto) are considered large with an estimated population of 3000 clients each, the other five shops are medium with an estimated population of 2200 clients each.

Three classes of information were collected.

- The first class concerns the information about the client: type of enterprise and the shop visited.
- The second part of the questionnaire is about the reasons to visit Maxshop and the clients shopping behavior: their main objective and visit frequency.
- The last part of the questionnaire intends to collect information about the clients level of satisfaction: different aspects related to the shop and the employees service as well as the overall level of satisfaction with these two dimensions (shop and employees).

## Your report should answer the following questions:

1. How can this sample of Maxshop clients be characterized in terms of following characteristics: type of company, shop visited, main objective when visiting Maxshop and frequency of visit. Describe the sample information using appropriate graphical presentations and measures of association. The following table shows the estimated population of clients for each shop and its distribution by type of client. Considering this information, comment the representativeness of the collected sample of clients.

Type of clients			Estimated population	
Group	Subgroup	Type	Shops 1 & 2	Shops 3 to 7
Food	HORECA	Restaurants	700	500
		Coffee shops /Snacks	500	400
		Hotels	300	200
		Bars/Night clubs	200	200
		Total	1700	1300
		Food retail	400	300
Non food	Non food retail		550	350
	Others		350	250
	Total		900	600
Total estimated population of clients by shop			3000	2200
Shop 1: Lisbon; Shop 2: Oporto; Shop 3: Aveiro; Shop 4: Setúbal; Shop 5: Faro Shop 6: Coimbra; Shop 7: Braga				

2. Does the “Satisfaction with Products Price” follow a normal distribution? Use the appropriate descriptive statistics and graphics to answer this question and give the interpretation of all presented results.

3. Construct a 95% confidence interval for the mean “Satisfaction with Service” and interpret the result.

4. The national Manager of Maxshop has stated in a meeting with local managers that at least 45% of Maxshop clients would visit the shops to buy only food products. Setúbal shop manager disagreed and declared that, according to the results from his shop, the true value was at least 60%. The other shops managers present in the meeting were really puzzled and did not know who to believe. Can you help them and make it clear which of the two managers is correct?

5. Can we decide that clients of Braga shop have a mean satisfaction level for “Products quality and diversity” at least equal to 7 (continuous scale from 1 to 10)?
6. Is the average satisfaction with “Products price” higher for those clients who buy only food products than for those who buy only non-food products?
7. Is the average satisfaction with “Service” equal to the average “Overall level of satisfaction with Maxshop”?
8. Is the average “Overall level of satisfaction” the same for clients with different visit frequency?
9. Is the distribution of satisfaction with the “Frontline service” equal for clients of Lisbon and Oporto?
10. Does the distribution of the “Overall level of satisfaction with Maxshop employees” vary for different type of clients?
11. Is the sample of clients from Aveiro shop representative of the different population type of clients (restaurants, coffee-shops, etc.) estimated for that region?
12. Is there any significant relation between the type of client and the clients acquaintance with any of Maxshop managers? Are these variables significantly associated?

Your report should include an Introduction with the main objectives of the study and a Conclusion with the most important results from your analysis. You should include in your report only those SPSS outputs you find important to describe the data and support your analysis; any other outputs considered relevant should be included in the appendix. Bibliographic references used to do the coursework should be included at the end.

Note: Please, verify the necessary assumptions for each estimation method and use the proper non-parametric alternatives whenever necessary.

Delivery date: 21<sup>st</sup> of May

Questionnaire number \_\_\_\_\_

### I. Client characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Type of Client	Restau- rant	Coffee shop/Snack	Hotel	Bar/Night club	Food retail	Non-food retail	Others (non-food)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Shop	Lisbon	Oporto	Aveiro	Setúbal	Faro	Coimbra	Braga

### II. Reasons to visit Maxshop and shopping behaviour

#### 1 – Which is your main objective when visiting MAXSHOP?

<input type="checkbox"/>	Buy food products	(1) <input type="text"/>
<input type="checkbox"/>	Buy non food products	(2) <input type="text"/>
<input type="checkbox"/>	Buy both, food and non-food products	(3) <input type="text"/>

Do you also visit: 1.a) non-food sections 1.b) food sections	Always (1)	Most often (2)	Quite seldom (3)	Never (4)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

#### 2 – How frequently do you visit MAXSHOP?

1. Every day	<input type="text"/>	⇒ How many times per day?	_____
2. Every week	<input type="text"/>	⇒ How many times per week?	_____
3. Every month	<input type="text"/>	⇒ How many times per month?	_____
4. Seldom	<input type="text"/>	⇒ How many times per year?	_____

### III. Satisfaction with Maxshop

#### 1 – Which is your level of satisfaction with the following aspects of Maxshop?

Use the following continuous scale, choosing any value between 1 and 10, where

1 = Not satisfied at all

10 = Completely satisfied

	1	2	3	4	5	6	7	8	9	10
a) Shop's overall aspect and cleanness										
b) Products quality and diversity										
c) Information available to clients										
d) Service										
e) Timetable and accesses										
f) Products price										

#### 1a – Which is your overall level of satisfaction with Maxshop?

Use the following continuous scale, choosing any value between 1 and 10, where

1 = Completely dissatisfied

10 = Completely satisfied

1	2	3	4	5	6	7	8	9	10

#### 2 – Which is your level of satisfaction with the following aspects relative to MAXSHOP employees?

Use the following ordinal scale:

1 = Strongly dissatisfied

2 = Very much dissatisfied

3 = Dissatisfied

4 = Neither dissatisfied  
nor satisfied

5 = Satisfied

6 = Very much satisfied

7 = Strongly satisfied

a) Frontline service	1	2	3	4	5	6	7
b) Phone service	1	2	3	4	5	6	7
c) Technical and product knowledge	1	2	3	4	5	6	7
d) Physical appearance	1	2	3	4	5	6	7
e) Politeness	1	2	3	4	5	6	7
f) Professionalism	1	2	3	4	5	6	7

#### 2a – Which is your overall level of satisfaction with Maxshop employees?

1	2	3	4	5	6	7
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#### 3 – Are you acquainted with any of MAXSHOP managers at your shop?

1. None

2. Just a few

3. Some

4. Almost all
