Marketing Analytics Exam 2024 – 2nd call

You will have **60 minutes** to answer eight multiple-choice questions and to solve two exercises (the first with 3 tasks) using Microsoft Excel. By the end of the exam, you must submit the form by answering the questions, indicating possible assumptions made in the exercise resolution, and uploading the .xlsx file containing all the calculations performed during the test.

In the uploaded Excel file, you need to state and highlight the solutions of the exercise clearly. **If the answers to the exercise are not clearly presented, the exercise will not be considered as valid.**

* Obbligatoria

* Questo modulo registrerà il tuo nome, inserire il nome.

1

Name *

2

Surname *

3

Personal Code *

4

Exercise

An online education platform is launching a special membership offer, providing exclusive access to premium e-learning courses to its existing users. This membership includes unlimited access to all courses with the following stipulations:
- The membership duration is for one year;
- The full registration fee of €50 is exempted for this special offer.
- The gross margin is 40% on the standard price.
- A promotional monthly rate of €28.99, reduced from the standard €36.99, with payments required at the start of every month. After one year, standard prices are restored.

Should the membership be canceled before the completion of one year, the next payments will be halted upon cancellation. Additionally, the full registration fee will be included in the final bill. Upon reaching the 12-month, members can cancel it without any charges.

The anticipated retention rates on a monthly basis are:
- From months 2 to month 4: 88%
- From the 5th to the 9th: 91%
- For months 10 & 11: 94%
- For the last month: 99%

Assume that half of the customers remain customers even after one year. Due to the high competition in the industry and frequent service innovation, it is expected that all such contracts will be terminated within 14 months with a constant churn rate.

Task a

Let's set DR = 1% (monthly). What is the CLV of a customer signing a contract for the promotional package?

Please report here the value (in €):

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Task b

On average, 20% of the targeted customers would accept the offer and the expected ROI is 20%. What is the acquisition spending?

Please report here the value (in €/customer):

Il valore deve essere un numero

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Task c

Assess the median lifetime of a customer.

Please report here the value (in months):

7

Exercise 2

A company offering on-demand services has a constant monthly retention rate of 90%. Its customers pay a fixed subscription fee at the beginning of every month. Assess the expected lifetime of a customer surviving at least 3 months.

Please report here only the final value expressed in months:

8

Please report here any assumption you relied on for the exercises (PLEASE REPORT YOUR HYPOTHESES ALSO IN THE EXCEL FILE):

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Upload here your solution. Please rename it as follows: PERSONALCODE_EXAM.XSLX (e.g., 10530677_EXAM.xlsx)**:** *

Carica file

Limite del numero di file: 1 Limite di dimensioni del file singolo: 100MB Tipi di file consentiti: Word, Excel, PPT, PDF, Immagine, Video, Audio

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What is a crucial assumption needed to use the CLV calculation in the picture? (1.5 punti)

$$CLV = \frac{M * RR}{(1 + DR - RR)}$$

- ○ Customers should decrease their spending over time
- ○ RR and DR should change over time
- ● None of the above
- ○ Time horizon should be maximum 2 year

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If monthly RR is 95%, what is the yearly RR? (1.5 punti)

- ○ 0,9025
- ○ 11,4%
- ○ 0,9747
- ● None of the above

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Which of the following is true about VIF in PLS-SEM? (1.5 punti)

- ◯ A high VIF value indicates a strong correlation between independent variables.
- ◯ VIF measures collinearity and should be higher than 5 to apply PLS-SEM.
- ◯ VIF is an index of explanatory power of the model.
- ◯ None of the above

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In PLS-SEM, Cronbach's alpha is used to assess: (1.5 punti)

- ◯ Indicator Reliability
- ◯ Convergent Validity
- ◯ Discriminant Validity
- ● None of the above

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When setting the time frame for assessing customer behavior in the context of horizontal Reg-RFM analysis, which of the following considerations is always true? (1.5 punti)

- ◯ The time frame should be as short as possible to account for changes in customers behaviour over the years
- ◯ The time frame should be fixed at one year to simplify the analysis
- ◯ The time frame should focus exclusively on the most recent transactions to capture the latest trends
- ● None of the above

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Imagine that your company wants to identify loyal customers to reward them with a dedicated offer. Which variables would you use to segment you customer base? (1.5 punti)

- [x] Regularity, Frequency, Monetary
- [ ] Recency, Frequency, Monetary **Also this answer has been considered as correct during the correction**
- [ ] Psychografic variables
- [ ] None of the above

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With respect to RFM Analysis, which of the following is true? (1.5 punti)

- [ ] Loyal customers typically skew the models influencing monetary values, since those tend to buy cheap products to test the company's products
- [ ] Recency, Frequency, and Monetary values are usually more than enough to fully predict the purchasing behaviours of all the customers.
- [ ] New customers do not typically influence frequency values.
- [ ] None of the above

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With respect to k-means clustering, which of the following is false when choosing k: (1.5 punti)

- [ ] Solution with too few clusters may not adequately capture the diversity
- [ ] Solution with too many clusters will be increasingly difficult to interpret and to manage implementation
- [ ] [redacted]n analysis of variance on the variables used among the identified clusters can contribute in defining the optimal number
- [x] The number of clusters is a result of the k-means algorithm because the iterations stop when centroids of newly formed clusters do not change