NOVA IMS
Information Management School

04

# BUSINESS CASE: MARKET BASKET ANALYSIS

**Business Cases with Data Science**

# SUMMARY

1. Business situation
2. Key problems
3. Data
4. Assignment

# 1.
# BUSINESS SITUATION

# BACKGROUND

The restaurant business is more competitive now than ever before. The known slogan about customers, “if I build it, they will come” is no longer valid (1, 2). Especially because, today, many customers do not go to restaurants, they order the food and beverages to wherever they are (home, office, or any other location).

Like in many other industries, in the restaurant industry, competition ferociously. The continuous opening of new competing restaurants, with new concepts and new type of offerings, put high pressure in established restaurants to maintain their operation operating at normal levels (3).

# INTRODUCTION

C, a company created more than two decades ago, owns several restaurants in Cyprus. These restaurants are grouped into different brands, according to the restaurants concept, location, and type of cuisine.

One of the first brands created by C, specialized in Asian food, mainly in Chinese food, is struggling to maintain their profit margin and continuous growth due to increasing competition and customers' changes of habits. To try to revert this process, C wants to take advantage of their sales data to understand customers' patterns of consumption and preferences.

# 2.
# KEY PROBLEMS

# KEY PROBLEMS (1/2)

C has several questions that it hopes to get answers to:

- Are there any differences between dine-inn customers and delivery customers?
- Is the product offering adequate (e.g., do customers make strange combination of products) ?
- Are there any patterns in consumption that may indicate tendencies?

# KEY PROBLEMS (2/2)

By answering the previous questions, C expects to get insights that may be useful in terms:

- Creation of set menus
- Introduction of new products
- Understand substitute products
- Recommending/promoting cross-selling
- Customer segmentation
- Other possible results depending on the findings

# 3.
# DATA

# WARNING

This is real data. Some quality issues may arise.

Please, do not share the data with elements outside this course.

# DATASETS (1/2)

Only one dataset is provided: **AsianRestaurant_Cyprus_2018.txt**

This dataset comprises data from all sales transactions made in one of the most popular restaurants of the chain in Nicosia, capital of Cyprus. The dataset includes information about the items, including quantities and prices, as well as some customer details.

# DATASETS (2/2)

The data for this business case could be enriched with data from other sources that could explain consumption in restaurants, such as:

**Holidays**: to, for example, identify patterns in festive days. This information is available at https://www.timeanddate.com/holidays/cyprus/2018

**Weather conditions**: to, for example, identify patterns according to weather conditions. This is information is available at https://www.wunderground.com/history/monthly/cy/τύμβου/LCEN

Among other possible types of data and sources

# ASIANRESTAURANT_CYPRUS_2018.TXT (1/2)

Each row in the dataset represents a document line (invoice line). The dataset is composed of the following columns:

**DocNumber**: number of the document. The document number repeats in as many rows as the rows in the original document (invoice)

**ProductDesignation**: product designation

**ProductFamily**: name of the family of the product. A product can only be member of one only family

**Qty**: quantity

**TotalAmount**: sale price of the total quantity

**InvoiceDateHour**: date and hour when the document was issued

# ASIANRESTAURANT_CYPRUS_2018.TXT (2/2)

**EmployeeID**: ID of the employee who issued the document

**IsDelivery**: indication if sale was a delivery or a dine-inn (1: delivery, 0: dine-inn)

**Pax**: number of persons at the table

**CustomerID**: ID of the customer (if a customer record was assigned to the sale)

**CustomerCity**: city of the customer (usually only employed in delivery)

**CustomerSince**: date of creation of the customer

# 4.
# ASSIGNMENT

# ASSIGNMENT:

1. Do a thorough data exploratory analysis to try to find interesting patterns
2. Take advantage of data visualization to demonstrate any relevant patterns
3. Do a market basket analysis to try to answer the business questions
4. Based on the patterns and insights obtained present recommendations aligned with C's objectives

# REFERENCES

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1. Davis, B., Lockwood, A., Alcott, P., Pantelidis, I. (2018). *Food and Beverage Management (sixth edition)*. Rouledge, Oxon
2. Fatt, R. (2012). *Restaurant Marketing in the New Economy*. Firepower publishing, WA
3. Riesco, J. L. (2010). *Restaurant Marketing Strategies*. Riesco Consulting Inc.