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BUSINESS CASE EXAMPLE: BANK CUSTOMER SEGMENTATION

Business Cases with Data Science

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Summary

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1. Business situation
 2. Key problems
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 5. Demonstration
 6. Business impact and deployment

Business situation

Business case example: Bank customer segmentation

Business situation

A Portuguese banking institution made several marketing campaigns to sell its customers a term deposit (*). The marketing campaigns were based on phone calls. Often, more than one contact to the same client was required, in order to access if the product (bank term deposit) would be ('yes') or not ('no') subscribed.

* A term deposit is a fixed-term investment that includes the deposit of money into an account at a financial institution. Term deposit investments usually carry short-term maturities ranging from one month to a few years and will have varying levels of required minimum deposits [from Investopedia.com]

Key problems

Business case example: Bank customer segmentation

Key problems

Using the data collected from the campaigns, the bank wants to understand better its customers so that it can create products suitable for the different type of customers and improve its marketing campaigns conversion

Data

Business case example: Bank customer segmentation

Data

The dataset is composed of four types of variables:

- Customer data
- Current campaign data
- Other campaigns data
- Generic social and economic context data
- Subscription info

(more information in the Python notebook)

Assignment

Business case example: Bank customer segmentation

Assignment

1. Explore the data and identify the variables that should be used to segment customers
2. Use K-Means clustering to identify customers segments
 1. Justify your selection of K (taking into consideration the business use)
 2. Use PCA to reduce dimensionality and speed-up model development
3. Suggest business applications for the findings

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Demonstration

Business case example: Bank customer segmentation

Demonstration

1. Copy from the files folder the dataset “bank-additional-full_miss.csv”
2. Copy and open the Jupyter notebook “BankCustomersSegmentation_WithPCA.ipynb”
3. Follow the presentation of the notebook

Business impact and deployment considerations

Business case example: Bank customer segmentation

Business impact ^(1/2)

- Bank customers seem to be divided into 6 segments:
 - With customers from clusters 0 and 1 showing some demographic similarities
 - With customers from clusters 4 and 5 showing some behavioral similarities
- Targeted marketing initiatives:
 - Approach and language for customers of clusters 0 and 1 should be more direct and simpler
 - Many customers from cluster 1 will probably have children. Therefore, they could be targeted for a different type of insurances or savings deposits related to children going to college (an ambition for these customers)

Business impact (2/2)

- Targeted marketing initiatives:
 - Approaches to customers from cluster 3 should be done using other methods more suitable for the cluster's age group, such as face-to-face meetings when the customer visits the bank
 - High-end products and savings products should be targeted to clusters 4 and 5 as these customers have high acquisitive power
 - Clusters 2, 4, and 5 have a higher number of highly educated customers with administrative jobs with an active age. These customers could be the target for product cross-selling or a bundled discount with other products such as gym membership

Deployment considerations

- The bank systems might need to be changed so that when a customer requiring a face-to-face meeting (cluster 3) visits the bank, it warns a bank collaborator
- Segmentation analysis does not require data extraction and analysis to be fully automated
- This is a type of analysis that can be done cyclically, for example, every 6 months
- Analysts should look for changes between analysis
- Additional demographic and behavioral data should be captured, such as the number of children, salary estimate, and credit card usage, among other

Questions?

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