

ISTANBUL TECHNICAL UNIVERSITY  
MSc BIG DATA AND BUSINESS ANALYTICS

CUSTOMER ANALYTICS  
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## Customer Lifetime Value (CLV) for Migros

Migros is the one of the biggest supermarket firm in retail sector. In this study, Migros customer loyalty card system is investigated in Turkey. Firstly SQL database created, and then dummy data are derived via Python. To generate dummy data, “faker” library is used.

With dummy database, Customer Lifetime Value (CLV) analysis is applied. (Method: Predictive Analysis, Techniques: Statistics). CLV is a prediction of the net profit attributed to the entire future relationship with a customer. The calculation of CLV can be based on:

- ARPU/ARPA (Historic CLV)
- RFM (only applicable to the next period)
- CLV Formula (historic CLV)
- Probability/Econometrics/Persistence Models/Machine Learning/Growth and dissemination models such as:
  - Moving Averages, Regressions, Bayesian Inference, Pareto/NBD (Negative Binomial Distribution)

Also, SQL Alchemy is used. Created fake data is taken with SQL queries. These are written at the dataframe. Basic CLV is calculated with them. Annual basic CLV is formulated  $52(a)*(t)$ .

s: average customer spend per visit

c: weekly average number of visits

a: weekly average customer value  $a = \frac{\sum_{i=1}^n s_i}{n}$

t: average customer life (accepted 20 years for this study)