POLIMI GRADUATE SCHOOL OF MANAGEMENT

INFRAMODULO 1 - MACHINE LEARNING

CLASSIFICATION WITH ORANGE

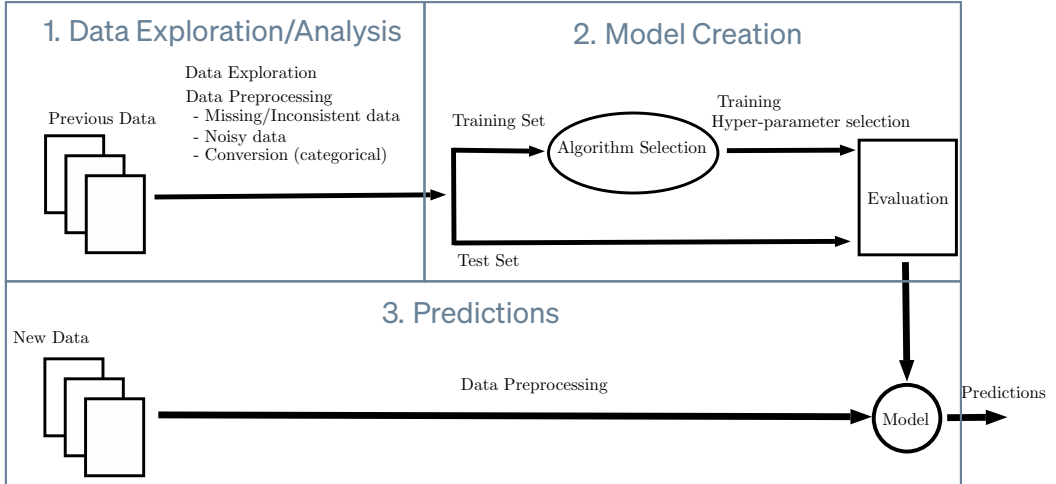Andrea Mor - andrea.mor@polimi.it - https://github.com/mrondr/Generali2023

THE PROBLEM: BANK TELEMARKETING[1]

Attribute		Type	Description/Values
Personal	age	num	Age of the potential client
	job	cat	admin., blue- collar, entrepreneur, housemaid, … , unknown
	marital_status	cat	divorced, married, single, unknown
	education	cat	basic.4y, basic.6y, basic.9y, high.school, … , unknown
Bank	default	cat	The client has credit in default: no,yes,unknown
	housing	cat	The client has a housing loan contract: no,yes,unknown
	loan	cat	The client has a personal loan: no,yes,unknown
Campain	contact	cat	Communication type: cellular,telephone
	month	cat	Last month contacted: jan, feb ,…, dec
	day_of_week	cat	Last contact day : mon, tue,…, fri
	duration	num	Last contact duration (in seconds)
	campain	num	Number of contacts performed during this campaign
	pdays	num	Number of days that passed by after last contact
	previous	num	Number of contacts performed before this campaign
	poutcome	cat	Outcome of the prev. marketing campaign: failure,nonexistent,success
Economical	emp.var.rate	num	Employment variation rate in the last quarter
	cons.price.idx	num	Consumer price index in the last month
	cons.conf.idx	num	Monthly consumer confidence index
	euribor3m	num	Dayly Euro Interbank Offered Rate
	nr.employed	num	Number of employed citizens in the last quarter (thousands)
Target	**success**	**target**	**0: no, 1: yes**

[1] A data-driven approach to predict the success of bank telemarketing. S. Moroa, P. Cortez, P. Rita. Decision Support Systems, 62:22-31, 2014.

WORKFLOW

1. Data Exploration/Analysis

Data Exploration
Data Preprocessing
- Missing/Inconsistent data
- Noisy data
- Conversion (categorical)

Previous Data

2. Model Creation

Training Set

Algorithm Selection

Training
Hyper-parameter selection

Test Set

Evaluation

3. Predictions

New Data

Data Preprocessing

Model → Predictions

THANK YOU