
Telemarketing Decision:

Data Mining and Modeling will help bank make
decision

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Telemarketing Decision:

Data Mining and Modeling will
help bank make decision

Portuguese bank marketing dataset

- from 2008 to 2013
 - 41187 clients and 20 inputs
-
- preprocessing
 - mining and modeling data

Data mining

acquisition and analysis

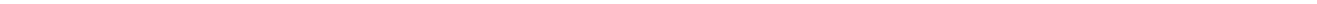
data pre-processing

data modeling

Data preprocessing

checking, deleting or correcting abnormal data

- no missing values and duplicate values



Numerical characterization

Category type feature processing

numerical

- 20 features, 10 of which are numeric

other Feature

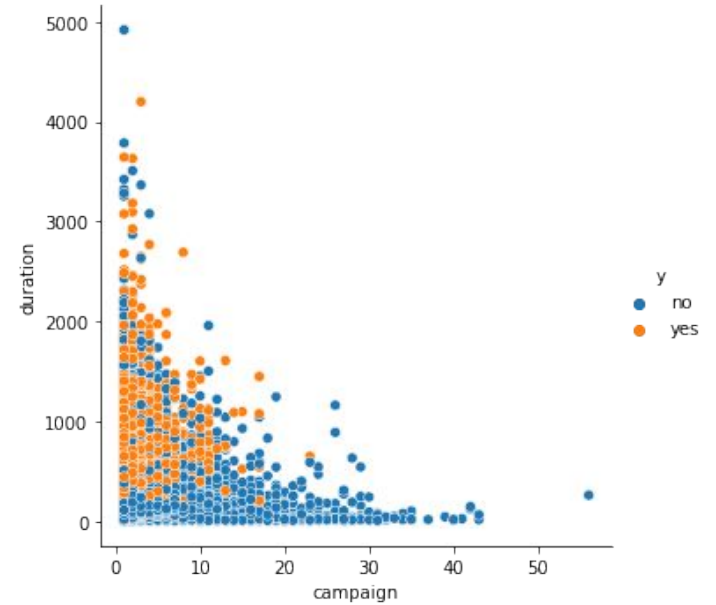
- transform the category-type features into numeric features by performing ordinal encoding or dummy variable operations.
-

YES VS NO

unbalanced

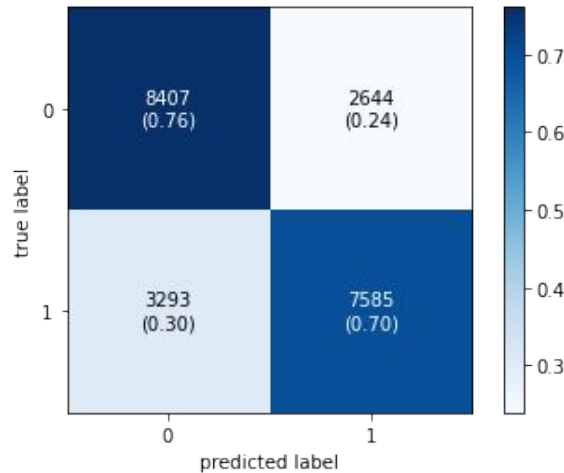
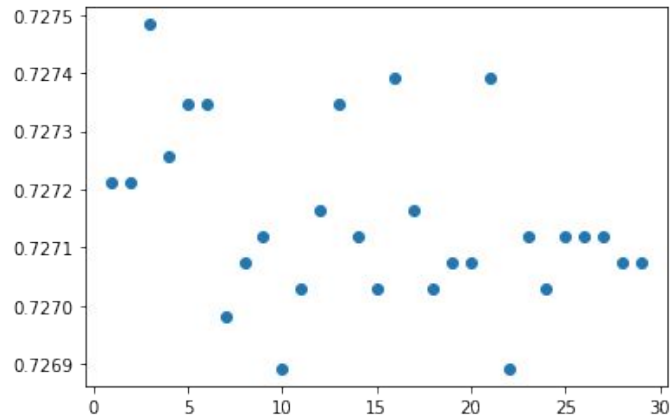
- normalization

Min-max normalization



Telemarketing modeling study

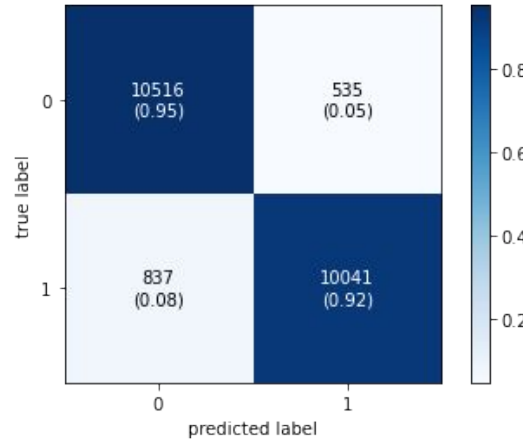
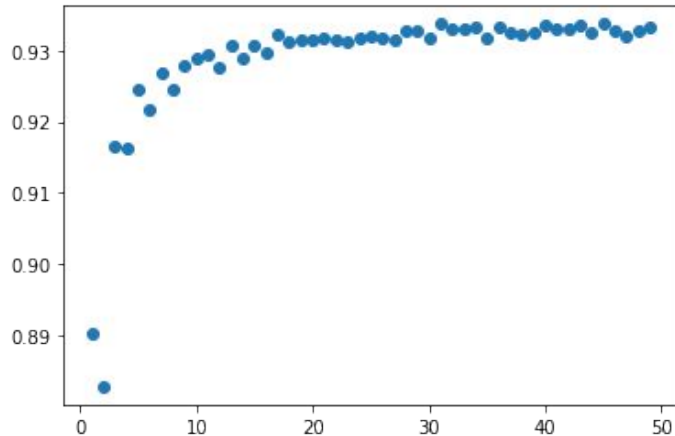
logistic regression modeling



Precision:
0.498
Recall
score:
0.514

Telemarketing modeling study

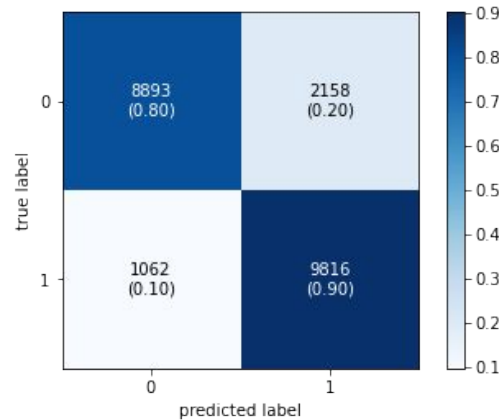
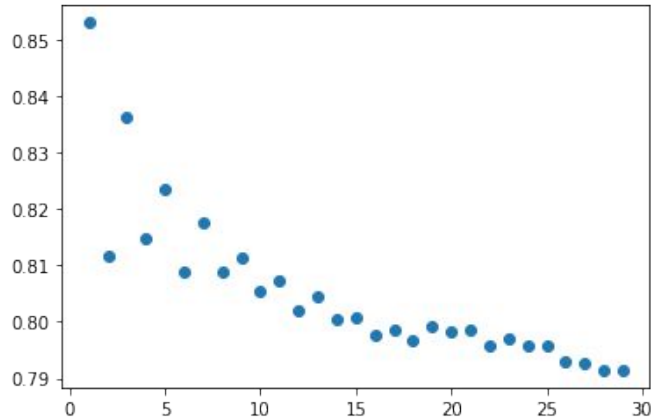
random forest modeling



Precision:
0.498
Recall
score:
0.514

Telemarketing modeling study

K- Nearest Neighbor



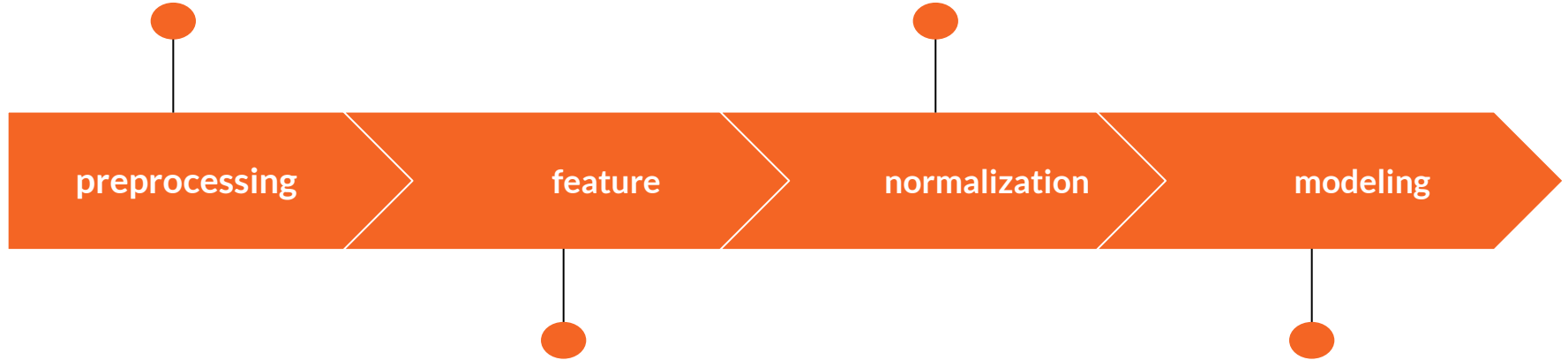
Precision:
0.893
Recall
score:
0.805

Precision: 0.893
Recall score: 0.805

Conclusion

Missing/Unknow

Min-Max



numerical VS Other Feature

Logistic Regression

Random Forest

KNN

After research

- Lack of data set.
- Improvement of data processing method
Handling
- unstructured data
with new techniques.

S. Moro, P. Cortez and P. Rita(2014). A Data-Driven Approach to Predict the Success of Bank Telemarketing. Decision Support Systems, Elsevier, 62:22-31

S. Moro and R. M.S. Laureano(2011). Using Data Mining for Bank Direct Marketing: An Application of The Crisp-DM Methodology.

Becker, D. & Becker, P.B (1994). Customer Service and the Telephone. Business Skills Express.

Galbraith, J. R. & Kazanjian, R. K. (2006). Strategy Implementation, Structure Systems and process, St 12 Paul, MN: West Publishing.

Klosek, J. (2003). The legal guide to e-business. Westport, CT: Praeger

Marshall, J.J. & Vredenburg, H. (1991). The roles of outside and inside sales representatives: Conflict or cooperation? Journal of Direct Marketing. Volume 5, Issue 4.

Miller, J.B. (2004). Mainstream Marketing Services. Federal Trade Commission: Resources and Legal Analysis. Retrieved from: ReclaimDemocracy.org.

Zajas, J.R. & Church, O.D. (1997). Applying Telecommunications and Technology from a Global Business Perspective.

REFERENCE

Thank you

Q&A
