

Improved Model for Prediction of Loan Approval using Deep Learning Approach

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Abstract: *In our banking system, banks have many products to sell but main source of income of any banks is on its credit line. So they can earn from interest of those loans which they credits. A bank's profit or a loss depends to a large extent on loans i.e. whether the customers are paying back the loan or defaulting. By predicting the loan defaulters, the bank can reduce its Non- Performing Assets. This makes the study of this phenomenon very important. Previous research in this era has shown that there are so many methods to study the problem of controlling loan default. But as the right predictions are very important for the maximization of profits, it is essential to study the nature of the different methods and their comparison. A very important approach in predictive analytics is used to study the problem of predicting loan defaulters: The Logistic regression model. The data is collected from the Kaggle for studying and prediction. Logistic Regression models have been performed and the different measures of performances are computed. The models are compared on the basis of the performance measures such as sensitivity and specificity. The final results have shown that the model produce different results. Model is marginally better because it includes variables (personal attributes of customer like age, purpose, credit history, credit amount, credit duration, etc.) other than checking account information (which shows wealth of a customer) that should be taken into account to calculate the probability of default on loan correctly. Therefore, by using a logistic regression approach, the right customers to be targeted for granting loan can be easily detected by evaluating their likelihood of default on loan. The model concludes that a bank should not only target the rich customers for granting loan but it should assess the other attributes of a customer as well which play a very important part in credit granting decisions and predicting the loan defaulters.*

Keywords: Loan, Outlier, Prediction, Component, Overfitting, Transform

REFERENCES

- [1]. Toby Segaran, "Programming Collective Intelligence: Building Smart Web 2.0 Applications." O'Reilly Media.
- [2]. Drew Conway and John Myles White, "Machine Learning for Hackers: Case Studies and Algorithms to Get you Started," O'Reilly Media.
- [3]. Trevor Hastie, Robert Tibshirani, and Jerome Friedman, "The Elements of Statistical Learning: Data Mining, Inference, and Prediction," Springer, Kindle
- [4]. PhilHyo Jin Do, Ho-Jin Choi, "Sentiment analysis of real-life situations using location, people and time as contextual features," International Conference on Big Data and Smart Computing (BIGCOMP), pp. 39-42. IEEE, 2015.
- [5]. Bing Liu, "Sentiment Analysis and Opinion Mining," Morgan & Claypool Publishers, May 2012.
- [6]. Bing Liu, "Sentiment Analysis: Mining Opinions, Sentiments, and Emotions," Cambridge University Press, ISBN:978-1-107-01789-4.
- [7]. Shiyang Liao, Junbo Wang, Ruiyun Yu, Koichi Sato, and Zixue Cheng, "CNN for situations understanding based on sentiment analysis of twitter data," Procedia computer science, 111:376-381, 2017. CrossRef.
- [8]. K I Rahmani, M.A. Ansari, Amit Kumar Goel, "An Efficient Indexing Algorithm for CBIR," IEEE- International Conference on Computational Intelligence & Communication Technology, 13-14 Feb 2015.

- [9]. Gurlove Singh, Amit Kumar Goel ,”Face Detection and Recognition System using Digital Image Processing” , 2nd International conference on Innovative Mechanism for Industry Application ICMA 2020, 5-7 March 2020, IEEE Publisher.
- [10]. Amit Kumar Goel, Kalpana Batra, Poonam Phogat,” Manage big data using optical networks”, Journal of Statistics and Management Systems “Volume 23, 2020, Issue 2, Taylors & Francis.
- [11]. Raj, J. S., & Ananthi, J. V., “Recurrent neural networks and nonlinear prediction in support vector machine” Journal of Soft Computing Paradigm (JSCP), 1(01), 33-40, 2019.
- [12]. Aakanksha Saha, Tamara Denning, VivekSrikumar, Sneha Kumar Kasera. "Secrets inSource Code: Reducing False Positives usingMachine Learning", 2020 InternationalConference on Communication Systems &Networks (COMSNETS), 2020.
- [13]. X.Frencis Jency, V.P.Sumathi,Janani Shiva Shri, “An exploratory Data Analysis for Loan Prediction based on nature of clients”, International Journal of Recent Technology and Engineering (IJRTE),Volume-7 Issue-4S, November 2018.
- [14]. Pidikiti Supriya, Myneedi Pavani, Nagarapu Saisushma,Namburi Vimala Kumari, k Vikash,“Loan Prediction by using Machine Learning Models”, International Journal of Engineering and Techniques.Volume 5 Issue 2, Mar-Apr 2019
- [15]. Nikhil Madane, Siddharth Nanda,”Loan Prediction using Decision tree”, Journal of the Gujrat Research History,Volume 21 Issue 14s, December 2019.