IBM –LITERATURE SURVEY REVIEW

CORPORATE EMPLOYEE ATTRITION ANALYTICS

1. HR analytics: Employee attrition analysis using logistic regression

Link:
https://www.researchgate.net/publication/341492086_HR_analytics_Employee_attrition_analysis_using_logistic_regression

Problem statement of the paper:

Employee attrition can become a serious issue because of the impacts on the organization's competitive advantage. It can become costly for an organization. The cost of employee attrition would be the cost related to the human resources life cycle, lost knowledge, employee morale, and organizational culture.

Inference from reading the paper:

This paper aims to analyze employee attrition using logistic regression.

The data for the study were around four thousand employees, covering 261 days (one year working days) during 2015 — the data period between January and December. R for data integration, exploratory data analysis, data preparation, logistic regression, model evaluation, and visualization has been used .The study has five steps:

(1) Data collection and business understanding.

(2) Data pre-processing.

(3) Exploratory data analysis.

(4) Model selection and training

(5) Test and evaluation of the model.

The result of the study found eleven variables as key driving factors for employee attrition.

Advantage:

The result thus obtained can be used by the management to understand what modifications they should perform to the workplace to get most of their workers to stay.

Disadvantage:

The drawback of this approach is that it is only 75% accuracy. So that might lead to inappropriate decisions.

2. Employee Attrition Prediction Using Machine Learning Algorithms.

Link: https://link.springer.com/chapter/10.1007/978-981-16-5120-5_44

Problem statement of the paper:

In any corporation, if a significant number of employees leave their job with a short notice period, it may lead to a reduction in overall throughput which in turn will certainly have an impact on the turnover. Companies need to spend additional efforts in terms of time and cost to fill up the vacant position without any substantial loss to the ongoing business.

Inference from reading the paper:

To avoid the above mentioned situations, use machine learning techniques to predict employees who are planning to leave the company with the help of some related data can be used . One more way is to identify the features which inspire employees to leave their job. To predict employee attrition rate using the classification algorithms namely Decision tree, Random forest, K-Nearest Neighbourhood, Neural Networks, extreme gradient boosting and Ada-Boosting have been tried. We also have applied regularization for every algorithm to find the precise parameters to predict the employee's attrition rate considering the HR-data set from the Kaggle website which consists of 35 features including 34 independent and one dependent feature which is our attrition feature with Yes/No values in it. In this paper, we are going through different steps to finally obtain an accuracy of 88% with good precision and recall values.

Advantage:

Refining such features in the company also will result in reducing the employee attrition rate of the company.

Disadvantage:

This approach might have given some more insights to the employer's benefits with more accuracy and report which leads to solve the issue of companies.

%%%

1. The process to identifying the existing talent in an organization is among the top talent management challenges and the important issue. For every organization, human resource plays a vital role in all strategic decisions. Satisfied, highlymotivated and loyal employees represent the basis of a company and which in turn have impacts on the productivity of an organization. The prime objective of the present study is to analyze why some of the best and most experienced employees are leaving prematurely. This analysis also wishes to predict which valuable employees will leave next. The rest of paper is designed as follows; Introduction followed by the materials and methods utilized in the present study. Then the third section summarizes the results and discussions of the HR attrition analysis. The conclusion at the end justifies the suitability of Random Forest model for this talent mining.

LINK:
file:///C:/Users/Dhivya%20thangavel/Downloads/Machine_Learning_Approach_for_Employee_Attrition_A.pdf

Advantages: The reason for why the employee is leaving the company is identified. It will be useful to know the reason.

Disadvantage:So the accuracy rate for why the employee is leaving the company is not determined. There is no accuracy. So that might lead to inappropriate decisions.

2. Employee turnover is a serious concern in knowledge based organisations. The unique aspect of this research has been the use of five predictive data mining techniques on a sample data of 150 employees in a large software organisation. The results of the study clearly show a relationship between withdrawal behaviours and employee turnover. Age and marital status emerged as key demographic variables. The findings of this study have implications for both research and practice. There is a need to expand the scope of this research to include multiple organisations and a large sample, which will allow for more robust predictions.

Link: https://repository.iimb.ac.in/handle/2074/12105

Advantages: The accuracy for the dataset is appropriate. The reason for why the employee is leaving is predicted.

Disadvantages : The reason for the the withdraw is given. But it is used in small datasets which has only 150 employees. It should have been applied to large datasets so the accuracy would be determined and predicted correctly . If it is applied to large datasets the final result would have been varied.