Corportate Employee Attrition Analytics

LITERATURE SURVEY

1. TITLE: From Big Data to Deep Data to Support People Analytics for Employee Attrition Prediction.

YEAR: 2021

AUTHORS: Nesrine Ben Yahia; Jihen Hlel; Ricardo Colomo-Palacios

DESCRIPTION:

In the era of data science and big data analytics, people analytics help organizations and their human resources (HR) managers to reduce attrition by changing the way of attracting and retaining talent. In this context, employee attrition presents a critical problem and a big risk for organizations as it affects not only their productivity but also their planning continuity. In this context, the salient contributions of this research are as follows. Firstly, we propose a people analytics approach to predict employee attrition that shifts from a big data to a deep data context by focusing on data quality instead of its quantity. In fact, this deep data-driven approach is based on a mixed method to construct a relevant employee attrition model in order to identify key employee features influencing his/her attrition. In this method, we started thinking 'big' by collecting most of the common features from the literature (an exploratory research) then we tried thinking 'deep' by filtering and selecting the most important features using survey and feature selection algorithms (a quantitative method). Secondly, this attrition prediction approach is based on machine, deep and ensemble learning models and is experimented on a large-sized and a medium-sized simulated human resources datasets and then a real small-sized dataset from a total of 450 responses. Our approach achieves higher accuracy (0.96, 0.98 and 0.99 respectively) for the three datasets when compared previous solutions. Finally, while rewards and payments are generally considered as the most important keys to retention, our findings indicate that 'business travel', which is less common in the literature, is the leading motivator for employees and must be considered within HR policies to retention.

2. TITLE: Towards Understanding Employee Attrition using a Decision Tree Approach

YEAR: 2019

AUTHORS: Saadat M Alhashmi

DESCRIPTION:

Employee attrition is a serious problem, and this has been a focus of research for the last few decades. Various approaches from exit interviews to psychological studies have addressed this issue. The idea is to avoid or minimise people leaving an organisation before an employer finds a replacement. With the abundance of data, lately, researchers from the Artificial Intelligence community have also addressed this issue. This research addressed the employee attrition issue using a decision tree approach to publically available data. The results are promising from this work in progress study, and future work-study will include more parameters and test the model on a local supermarket data

3. **TITLE:** Employee Attrition System Using Tree Based Ensemble Method

YEAR: 2022

AUTHORS: Vimoli Mehta; Shrey Modi

DESCRIPTION:

Employee attrition has become a vital problem across the world. It is one of the crucial issues faced by business leaders within companies where they lose the most talented employees. A good employee is always an asset to the organization and their resignation can lead to various problems like financial losses, overall performance, and loss of acquired knowledge. Furthermore, hiring new employees is far exorbitant, taxing, and time-consuming in comparison to recruiting the existing one. It is very time-consuming to recruit a new employee as it takes him months for training, adjusting to the culture, rules, and environment. Therefore, upcoming trends and technology using Machine Learning Algorithms must be exploited for the benefit of business organizations. Knowing the reason beforehand for the employee attrition, companies can mitigate this loss. This paper provides a conclusive review of

employee attrition using the tree-based Ensemble Machine Learning Model from the dataset ‘IBM HR Analytics Employee Attrition Performance’.A collection of statistically significant factors which connect to an employee's decision to leave are identified. The paper evaluates the tree-based ensemble to get the best results from the existing tree methods.

4. **TITLE:** Early Prediction of Employee Attrition using Data Mining Techniques

YEAR: 2019

AUTHORS: Sandeep Yadav; Aman Jain; Deepti Singh

DESCRIPTION:

Bill Gates was once quoted as saying, "You take away our top 20 employees and we [Microsoft] become a mediocre company". This statement by Bill Gates took our attention to one of the major problems of employee attrition at workplaces. Employee attrition (turnover) causes a significant cost to any organization which may later on effect its overall efficiency. As per CompData Surveys, over the past five years, total turnover has increased from 15.1 percent to 18.5 percent. For any organization, finding a well trained and experienced employee is a complex task, but it's even more complex to replace such employees. This not only increases the significant Human Resource (HR) cost, but also impacts the market value of an organization. Despite these facts and ground reality, there is little attention to the literature, which has been seeded to many misconceptions between HR and Employees. Therefore, the aim of this paper is to provide a framework for predicting the employee churn by analyzing the employee's precise behaviors and attributes using classification techniques.

5. **TITLE**: Prediction of Employee Attrition Using datamining

YEAR: 2018

AUTHORS: R. Shiva Shankar; J. Rajanikanth; V.V. Sivaramaraju; K.V.S.S.R. Murthy

DESCRIPTION:

Now a day's Employee Attrition prediction become a major problem in the organizations. Employee Attrition is a big issue for the organizations specially when trained, technical and key employees leave for a better opportunity from the organization. This results in financial loss to replace a trained employee. Therefore, we use the current and past employee data to analyze the common reasons for employee attrition or attrition. For the prevention of employee attrition, we applied a well known classification methods, that is, Decision tree, Logistic Regression, SVM, KNN, Random Forest, Naive bayes methods on the human resource data. For this we implement feature selection method on the data and analysis the results to prevent employee attrition. This is helpful to companies to predict employee attrition, and also helpful to their economic growth by reducing their human resource cost.