An In-depth Review on eSolution - Solution to People Leaving Job

Guide- Prof. Jayashree P. Mohadikar (Assistant Professer, BSIOTR Wagholi, Pune)

Prachi Borle, Anuja Karnawar, Mrunal Mandhare, Pratiksha Pawar
(Student, BSIOTR Wagholi, Pune)
Department of Computer Engineering
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Abstract:

Every organization has its characteristics like productivity and strength which stands of the legs of the employees. Maintaining regular employee is a great challenge for all organization in the competitive world. Employee Attrition is one of the biggest business problems in HR Analytics. Companies invest a lot in the training of the employees keeping in mind the returns they would provide to the company in the future. If an employee leaves the company, it is the loss of opportunity cost to the company. These study interpreters the employee's attrition rate through the related attributes like Job Role, overtime, job level affect the attrition largely.

Keywords - Attrition Rate, HR, Classifier, Pre-processing, Employment Features.

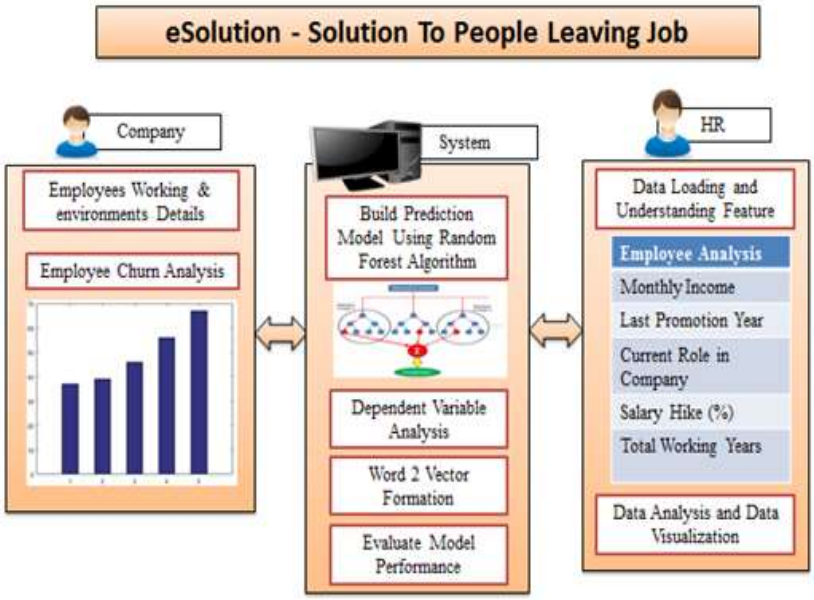
I. Introduction

The outcome of many research shows that the most valuable asset and important resource in organizations are their employees. Now a day due to increased competition and improved requirement in employee's proficiency determines the attrition rate. The employee attrition is considered to be a serious issue for organizations. The cost of searching and training employees is very high. Firm need to search, hire and train fresher employees. Lock of experienced staff especially high performers is difficult to manage and is negatively related to the success and performance of organizations. The study focuses on the variables that may lead to control the attrition rate of the employee. Employees are valuable assets of any organization. But if they quit jobs unexpectedly, it may incur a huge cost to any organization. Employee Attrition is a deduction in manpower in any firm where employees may voluntarily leave the organization or maybe retired. Employee turnover is the number of current working employees replaced by new employees for a specific time period. It causes huge expenditure on human resource, by contributing towards new recruitment, training, and development of the freshly appointed employees, also the performance management. Again, attrition which is of voluntary is unavoidable. Hence, by enhancing employee morale and providing a desirable working environment, we can certainly reduce this problem significantly.

The rate of attrition is defined as the recruitment and termination criteria of the company. An employee can leave the job for various reasons. Here, the Turnover and Attrition are the business terminologies that always conflict with each other. There are various kinds of turnover in an organization. Lowering the number of employees is mainly considered as the attrition. To analyse the manpower data and other measurements that are necessary for manpower planning these terminologies can be interchangeably used.

The problem of employee turnover has turn to eminence in organizations because of its pessimistic impacts on issues on work place self-esteem and efficiency. The organizations deal with this problem is by predicting the risk of attrition of employees using machine learning techniques thus giving organizations to take proactive action for retention.

II. System Architecture



The system that can give prediction on the basis of Machine Learning is given below. In proposed system initially the data is downloaded from Kaggle is pre-processed first so that we can extract important features like Monthly Income, Last Promotion Year, Salary Hike and etc. that are quite natural for employee attrition.

Dependent variables or Predicted variable are the one that helps to get the factors that mostly dependent on employee related variables. For example, the employee ID or employee count has nothing to do with the attrition rate. Exploratory Data Analysis is an initial process of analysis, in which you can summarize characteristics of data to can predict who, and when an employee will terminate the service.

The system builds a prediction model by using random forest technique. It is one of the ensembles learning technique which consists of several decision trees rather than a single decision tree for classification. The techniques perform dependent variable analysis and word formation vector to evaluate the employee churn. Hence, by improving employee assurance and providing a desirable working environment, we can certainly reduce this problem significantly.

III. LITERATURE SURVEY

The modified approaches using various data mining techniques are collected to analyse the employee attrition rate at various levels. The study related to data mining for extracting the employee's attrition rate used in various models and the comprehensive literature review of various researchers works are stated below;

Qasem A, A. Radaideh and Eman A Nagi et al, has applied data mining techniques to build a classification model to predict the performance of employees [5]. They adopted CRISP-DM data mining methodology [6] in their work. The Decision tree was the main data mining tool used to build the classification model, where several classification rules were generated. They validated the generated model; several experiments were conducted using real data collected from several companies. The model is intended to be used for predicting new applicants' performance

Amir Mohammad Esmaieeli Sikaroudi, [7] RouzbehGhousi and Ali EsmaieeliSikaroudi et al, implemented knowledge discovery steps on real data of a manufacturing plant. They chew over many characteristics of employees such as age, technical skills and work experience. They used to find out importance of data features is measured by Pearson Chi-Square test.

John M. Kirimi and Christopher Moturi et al, [8] proposed a prediction model for employee performance forecasting that enables the human resource professionals to refocus on human capability criteria and thereby enhance the performance appraisal process of its human capital.

Rohit Punnoose and Pankaj Ajit et al, explored [9] the application of Extreme Gradient Boosting (XGBoost) technique which is more robust because of its regularization formulation. [10] Data from the HRIS of a global retailer is used to compare XGBoost against six historically used supervised classifiers and demonstrate its significantly higher accuracy for predicting employee turnover.

IV. Conclusion

Human Resource is the main pillar for any organization. The growth level as well as market penetration are duly depending on the strength of the employees. Now a day due to increased population and people with high competency makes great success for any firm. But the prime issues which are normally addressed in any organization are only the attrition. This is a great challenge as well as retention is also the prime task. This system can help to implement employee attrition prediction rate in the respective organization. The analysis is done by considering some features like Monthly Income, Last Promotion Year, Current Role in Company, Salary Hike and etc. It understands the key variables that influence the employee attrition rate using machine learning. Here we are using random forest algorithm to build a prediction model for identifying the various reason for employee turnover.

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