FORECAST OF EMPLOYEE ATTRITION IN BIG DATA TO SUPPORT PEOPLE ANALYTICS

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ABSTRACT

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 forecast 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 forecast 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 when compared to 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.

SCOPE:

The scope of this project is to forecast the attrition rate for each employee, to find out who's more likely to leave the organization. This paper reports several employee attrition and voluntary turnover forecast models. In this study, we particularly consider recent works that are based on machine and deep learning models applied to the simulated HR datasets of IBM and Kaggle. This choice is motivated by the existence of experiments results of forecast models' accuracy for these open datasets so we can compare them with our proposed models.

OBJECTIVE:

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 forecast 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 when compared previous solutions.

EXISTING SYSTEM:

As employee attrition or voluntary turnover is a nonavoidable phenomenon, modelling it is a key issue for the process of attrition forecast. In addition, as we aim to adopt a deep data-driven approach, a research methodology that allows us to match theoretical models and experiments must be adopted. That's why we propose to conduct a mixed research method based on the combination of an exploratory research and a quantitative method where the aim is to understand and explain employee attrition phenomena. These two combined methods are used sequentially (e.g., findings from one method inform the other).

DISADVANTAGES:

- When employees leave the organization it is a loss to the company, the team and the individuals.
- Employees are the backbone of any organization and their departing may lead to lot of various losses to company on different aspects.

PROPOSED SYSTEM:

We propose a people analytics approach to forecast employee attrition that shifts from a big data to a deep data context by focusing on data quality instead of its quantity. In this paper, we aim to propose a deep data driven forecast approach that can early detect and forecast employee intention to leave. Forecast analytics have been proposed and used to forecast what will happen in the future.The study deals with proposing a solution for employee attrition forecast. To do so, we will start this section by an overview of the related works with regards to attrition forecast solutions based on forecast models. Then, we will focus on our proposed forecast approach and its steps details.The collected and selected data will be considered as an input to our forecast approach that is based on three steps, our proposed approach. The first step is data pre-processing. The second one deals with attrition forecast based on machine, ensemble and deep learning models. And, the third one deals with interpretation to explain to HR managers the why of this employee attrition.

ADVANTAGES:

- It brings to fore the cause of employee disengagement.
- Enables HR managers develop long-term strategies to reduce attrition.
- Develops and shapes drills that benefit both the management and the employees.

SYSTEM CONFIGURATION:

H/W SYSTEM CONFIGURATION:

- Processor - Intel i3,i5,i7, AMD Processor
- RAM - above 6 GB
- Hard Disk - above 500 GB

S/W SYSTEM CONFIGURATION:

- Operating System - Windows 7/8/10
- Front End - Html, CSS
- Scripts - R language
- Tool - Python

CONCLUSION:

The main goal of this research is to help HR managers to detect as soon as possible an employee's intention to leave using forecast analytics methods and so to fight this attrition. The contributions can be summarized into three points. The proposal of a new employee attrition model that contains only 11 features necessary and sufficient to detect intention to leave and to forecast positive attrition using a mixed research methodology. The proposal of machine, deep and ensemble learning forecast models and their experimentation in a variety of different settings to best assess their performance. The interpretation and the explication that enables HR managers to understand what makes an employee want to leave and to help them in adopting key policies to retention.

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