IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Employee Performance Analysis

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Abstract--The main objective of Employee Performance Analysis is to create an analysis model that makes performance management at individual employee level simpler. We aim to use the Data Mining classification technique for the extraction of knowledge significant for predicting and monitoring employee performance using previous appraisal records and other employee related data such as experience, age, academic qualification, professional training, gender and marital status. Decision tree is the main data Mining tool used to build the classification model, where several classification rules are generated. The resultant data will be used by our model to analyse and predict the performance levels of new individuals thus making the recruitment process simpler

I.INTRODUCTION

With the dominance of knowledge power in the success of an organization, competent human resource has become crucial for realization of organizational objectives. Human Resource Management, HRM is a set of tasks to maintain and develop a proficient human resource. A performance appraisal process helps the HRM in identifying the strengths and weaknesses of an employee. This evaluation of employee is based on several different parameters according to the work domain and organizational objectives. This activity of employee evaluation has a high significance in making strategic decisions of manpower planning than just salary reviews. The objective of the prediction model constructed in the study is to assist HR personnel in decision making by predicting the performance of a candidate and also to monitor the performance of existing employees. The explosive growth of available data as a result of computerization of almost every aspect of the operations of organizations has instinctive contributions to the development of intelligent decision making technologies. A young yet promising of these kind technologies is Data Mining which is the process of analysing data from different perspectives and summarizing it into useful information. Data mining techniques are aimed at discovering knowledge from the available data and could be used for improving the processes. The abundance of data has attracted Data Mining research towards the domain of Human Resource Management. However, there is need for specific

domain requirements, such as performance evaluation, or compliance with legal standards. The use of data mining in HRM improves the quality of decisions and provides better results.

II.LITERACY SURVEY

Many researches have used DM classification techniques for generating rules and predicting certain attitudes in various fields of science [1]. therefore, evaluation and prediction of employee's performance efficiency are considered as a critical issue for detecting the whole number of variables and criteria related to the predictive model efficiency of the employees' performance that have been reviewed. In this section, a comprehensive study is presented on employee's performance prediction model and criteria that this model measure based on the following literature study

Kirimi JM, Motur CA (2016) concentrates on collecting employees' data of a public management development institute in Kenya using the user interface, generating a decision tree based on the historical data of employees, identifying the relationship between the DT accuracy and employees' attributes. Moreover, they concentrated on the possibility of constructing two or more prediction techniques for predicting the employees' performance and choosing the best suitable one for this organization [2].

Desouki M. S., Al-Daher J (2015) presented a study employee achievement.

Lipsa Sadath (2013) discussed the possibility of making decisions with automated and intelligent manner using DM techniques and depending on rich employee database. It was concluded that C4.5 technique had the higher accuracy. The objective of this study was predicting the employees' performance, applying the finest Knowledge Management (KM) strategies, thus implementing stable HR system and powerful business [6].

III. EXISTING SYSTEM

Existing Employee performance analysis systems come to a conclusion post observing the performance of the employee. The recruitments of new employees are manually done by assessing the candidate on his /her various skills. Here the

for applying DM techniques such as DT, Key Nearest Neighbors (KNN), and SVM to the HRM field through analyzing the Performance Appraisal (PA) results, which supported by a multi-discipline academic research organization in order to enhance the appraisal method and assess the compatibility of practical implementation with the objectives of PA process. To achieve that, various DM tasks have been utilized such as clustering, classification, and prediction. This study concluded that DM tasks can be hopeful and important in dealing with the activities of human resource like enhancing the methods of performance's evaluation [3].

V.Kalaivani, M.Elamparithi (2014) applied DT techniques in order to predict the employees' performance; this is the objective of their research. DT is one of the most popular classification technique that creates both a tree and rules set; building the model of based a given data set. There are various DT algorithms as ID3, C4.5, CART, Bagging, Random Forest, Rotation forest, and CHAID. In this study, C4.5, Bagging and Rotation Forest algorithms are utilized, which are implemented in WEKA toolkit. Experiments were performed based on the collected data from an institution [4].

H. Jantan, Norazmah Mat Y. and Mohamad Rozuan N. (2014) applied SVM technique in the Classification process of Employee Achievement. This study aimed to investigate the effectiveness of SVM technique in detecting the required data pattern for classifying the

existing system is nothing but a manual system in which the employees has to fill their rating details in an excel sheet and send it to their supervisor then the supervisor has to merge all the employee rating details and arrange them in to a single sheet. Calculating the average rating of the employees by considering the no of tasks they have done and their weightage into consideration and finally generating a rank is a tedious process in this system. One way to overcome all these difficulties is so store all the information in the computer. The computerization helps the users a lot.

IV.PROPOSED SYSTEM

The main objective of out project is to create an analysis model that makes performance management at individual employee level simpler. We aim to use the Data Mining classification technique for the extraction of knowledge significant for predicting and monitoring employee performance using previous appraisal records and other employee related data such as experience, age, academic qualification, professional training, gender and marital status. Decision tree is the main data Mining tool used to build the classification model, where several classification rules are generated. The resultant data will be used by our model to analyse and predict the performance levels of new individuals thus making the recruitment process simpler. The Employee Performance is to replace the existing manual system with a software on these average ratings this system will generate consolidated ranks for the employee automatically with any errors.

V.MODULE DESCRIPTION

Here the user can perform the actions, like selecting the csv file to perform analysis. The admin module performs the following actions like, Readig the Csv file ,Importing required libraries and text file into python code, Analyses and predicts the performance of each employee based on the previous performance input the resulting data from step 4 into display function to represent the results graphically.

VI. BASIC CONCEPTS

This section presents the basic concepts of knowledge gain from data, implementation of decision tree algorithm, prediction and analysis.

Knowledge gain from data: Huge amounts of employee related data is analysed according to the choice of the manager and an analysis report is provided to him, which makes it easier for the manager to understand the status of the work force of his company.

Decision Tree Implementation: Decision tree algorithm is implemented and a tree structure is generated by calculating entropy which is the degree of randomness in an an attribute. The solution. It allows all the employees in different sections of the company to post rating details individually which will be forwarded to their appraiser. It allows the appraiser to re-rate the employee individual task ratings which takes into consideration and calculates average rating of the all employees based on no of tasks they have done, their ratings and weightage. Based on these average ratings this system will generate consolidated ranks for the employee automatically with any errors employees in different sections of the company to post rating details individually which will be forwarded to their appraiser. It allows the appraiser to re-rate the employee individual task ratings which takes into consideration and calculates average rating of the all employees based on no of tasks they have done, their ratings and weightage. Based

attribute with the least entropy is said to have the higest value of information gain. Therefore the attribute with the highest value of information gain

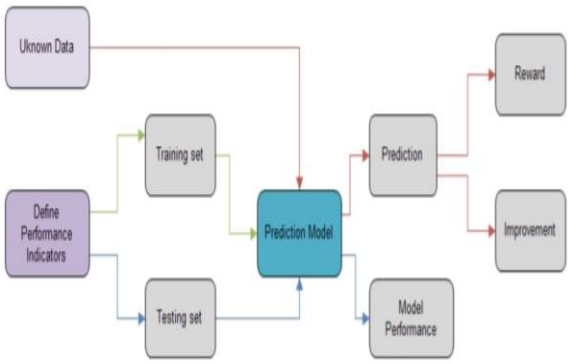
becomes the root node and this process continues at every level forming a decision tree structure with conditions at every node. The accuracy check of the prediction is done using the testing and training datasets. Once the accuracy check is done the model is ready to predict the unknown class labels of a dataset.

Prediction: Prediction of the unknown class label of a dataset is done using the previously implemented and trained decision tree. This prediction functionality helps the manager to foresee whether a person can perform well and reach upto the demands of the company. This prediction functionality will be very useful for the managers at the time of recruitments as they can estimate the performance level of a candidate based on the data available and decide whether he can be employed or not.

Analysis: The analysis of the dataset of the existing employees is done to classify the employees into different categories based on the attribute values. Various analysis are done to give the manager a clear picture of the workforce in

his company. This analysis helps the manager to give the feedbacks as well as appraisals to his employees. Classification is done based on the education attribute, dependable scores, team working skills etc. The analysis report is represented in graphical formats in the form of bar graphs and pie charts to make it easily interpretable.

VII. METHODOLOGY USED



of the employees and finally generating the consolidated ranks effectively with role based access. We aim to use the Data Mining classification technique for the extraction of knowledge significant for predicting and monitoring employee performance using previous appraisal records and other employee related data such as experience, age, academic qualification, professional training, gender and marital status. Decision tree is the main data Mining tool used to build the classification model, where several classification rules are generated. The resultant data will be used by our model to analyse and predict the performance levels of new individuals thus making the recruitment process simpler.

VIII. CONCLUSION

Employee Performance has been implemented to cater the needs of company employees and administrative people of the company in submitting appraisals, evaluating the appraisals, calculating the average ratings