Performance Evaluation System for Employee Appraisal

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Abstract

In the existing system the information about employees is not handled in the most efficient manner which can fuel the achievement of maximum throughput of human resource. Appraisals are not only a way of rewarding employees for their good performance but also it can act as a mirror indicating areas of improvement. It is possible that lack of a good appraisal system limits the output of the organization hence we are developing an automated system for the ease of use of the organization which saves time and increases the output of the system. The system also makes sure that the evaluation process is free of bias or partiality, which in turn improves the overall quality of the organization. We aim at creating such a system that can be modified and hanged according to the needs of the customer.

INTRODUCTION

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 analyzing 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. A historical overview Data Mining and its future directions in terms of standard for a Knowledge Discovery and Data Mining process model is given. There are many classification techniques in Data Mining such as Decision Tree, Neural Network, Rough Set Theory, Bayesian theory and Fuzzy logic. Decision tree is among the popular classification techniques, which can produce the interpretable rules or logic statement. The generated rules from the selected technique can be used for future prediction. Data Mining stands out due to its wide-array of techniques from the different domains such as statistics, artificial intelligence, machine learning, algorithms, database systems and visualization. These influences serve as groundwork for its applications to business for which the human resource management is unexceptionally classified. Data Mining has gained popularity due to its tools with potential to identify trends within data and turn them into knowledge mostly with predictive attributes that could significantly lead to better and strong bases for decision-making. The Kenya School of Government (the School) is a Public Management Development Institute established under an Act of Parliament. The mandate of the School is to provide learning, consultancy and research services designed to inform public policy, promote national development and standards of competence and integrity in a result-oriented public service. Consequently, performance management at the individual employee level is essential and the business case for implementing a system to measure and improve employee performance at the School is strong.

LITERATURE OVERVIEW

A literature review is a text of scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. It usually precedes the methodology and results section although this is not always the case. Its main goals are to situate the current study within the body of literature and to provide context for the particular reader. In writing the literature review, the purpose is to convey to the reader what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are.

2.1 LITERATURE SURVEY

Data mining has been widely applied in the medical field as this provide huge amount of data. Various researchers had applied the different data mining techniques on healthcare data. Choi et al.[9], applied 5 classification algorithms i.e. decision tree, artificial neural network, logistic regression, Bayesian networks and naive Bayes and stacking-bagging method for building classification models and compared the accuracy of the plain and ensemble model to predict whether a patient will revisit a healthcare centre or not. From results, the best classification model depends on data set i.e. ANN in 3M data set, decision tree in 6M and logistic regression in 12M data set. Soni et al. compared the data mining with traditional statistics and states some advantages of automated data system. This paper gives an overview of how data mining is used in health care and medicine.[2] Patil et al., determines whether a person is fit or unfit based on historical and real time data using clustering algorithms viz. K-means and D-stream are applied. The performance and accuracy of D-stream algorithm is more than K-means Al-Radaideh et al. , used decision tree to build a classification model for predicting employee's performance. To build a classification model CRISP-DM was adopted. Based on performance, job title is strongest attribute then university followed by other attributes. Jabbar et al., proposed a decision support system to identify a risk score for predicting the heart disease. An associative classification algorithm using genetic approach is proposed for prediction. Experimental results show that the most of the classifier rules help in best prediction of heart disease. Garchchopogh et al. explained the utilization of medical data mining in determining when we should perform surgery. The decision tree algorithm designed for this study generates correct prediction for more than 86.25% tests cases. D.K et al. , applied decision tree J48 to find the hidden patterns for Classification of women health disease (Fibroid). Decision tree J48 algorithm is implemented using WEKA 3.75 10 data miner. It classified the data into correctly and incorrectly instance. Hearty et al. evaluated the usability of supervised data mining to predict dietary quality.

1.2 OVERVIEW OF THE PROPOSED SYSTEM

In the proposed system, the data related to all employees is being stored in a database. The performance of any employee or group of employees is being displayed in graphical form, so that the management can easily take decisions on any of the parameters related to employees. The parameters like his salary, incentives, promotions, etc.
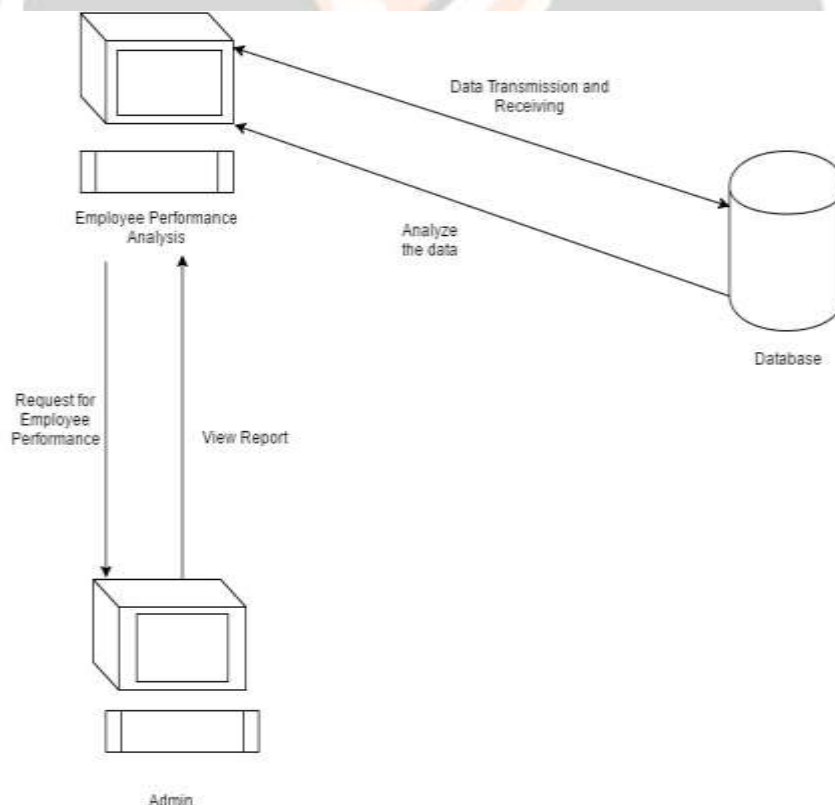

Fig No: 3.1 Block Diagram of Login and Data Retrieval

Fig No: 3.2 Organization Chart for Development Process

This chart shows us the duration of time allotted to each of the areas of the project. The chart clearly shows the amount of time spent on each process. It also shows the status of the project. The green tick at the side of the process defines that it has been completed. The red exclamation tells us that the process still needs work and is incomplete. This chart shows us the duration of time allotted to each of the areas of the project. The chart clearly shows the amount of time spent on each process. It also shows the status of the project. The green tick at the side of the process defines that it has been completed. The red exclamation tells us that the process still needs work and is incomplete.

DATA DESIGN OF SYSTEM

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel.

Level 0 DFD: This system has an admin and a database. The admin logs into the system and submits employee details. The admin can also check these details and make decisions according to the details present in the system. The details are put into the employee performance analysis engine and stored into the database.
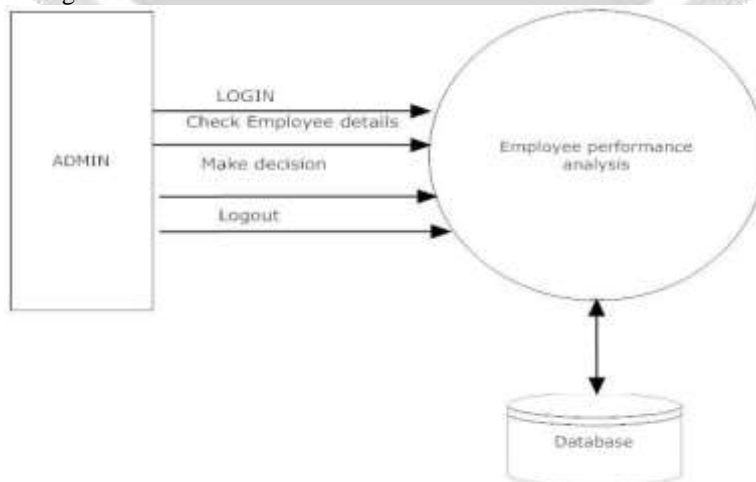

FIG NO: 3.3.1 DFD LEVEL 0

Level 1 DFD: This system has an admin and a database. The admin logs into the system and submits employee details. The admin can also check these details and make decisions according to the details present in the system. The details are put into the employee performance analysis engine and stored into the database.

FIG NO: 3.3.2 DFD LEVEL 1

ARCHITECTURE OF SYSTEM

This architecture of the system shows how the system is implemented and how it achieves its functionality. The various components involved in the system. This system has an admin and a database. The admin logs into the system and submits employee details. The admin can also check these details and make decisions according to the details present in the system. The details are put into the employee performance analysis engine and stored into the database.
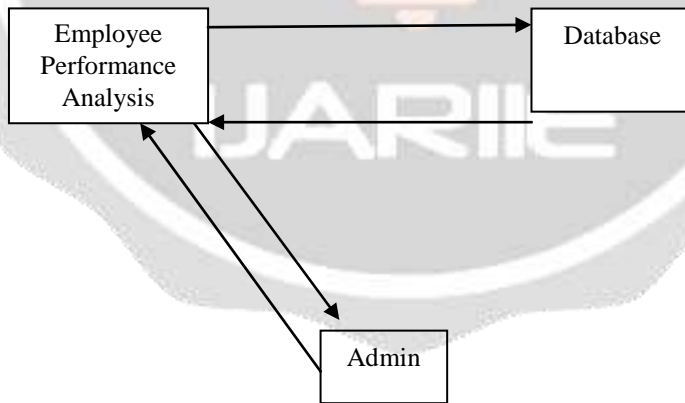

Fig No: 3.4 System Architecture

4. CONCLUSION

In overall, organization as a whole can perform better by improving its employee. By applying data mining algorithm of K means clustering, the administration will be able to make groups of Employee with different parameters for future use. Thus helps in comparison also, in turn in decision making. By applying data mining algorithm of Apriori Association rule, the administration will be able to decide on who all employee with different parameters are supporting with minimum value for a particular activity. Thus helps in decision making on salary increments, promotions, etc.

5. REFERENCES

[1]. BRIJESH KUMAR BARADWAJ AND SAURABH PAL, "MINING EDUCATIONAL DATA TO ANALYZE STUDENTS PERFORMANCE" (IJACSA) INTERNATIONAL JOURNAL OF ADVANCED COMPUTER SCIENCE AND APPLICATIONS, VOL. 2, NO. 6, 2011.

[2]. CHANDRANI SINGH & ARPITA GOPAL, "PERFORMANCE ANALYSIS OF FACULTY USING DATA MINING TECHNIQUES", INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND APPLICATION ISSUE 2010, ISSN 0974-0767, 2010.

[3]. EMMANUEL N. OGOR "STUDENT ACADEMIC PERFORMANCE MONITORING AND EVALUATION USING DATA MINING TECHNIQUES", FOURTH CONGRESS OF ELECTRONICS, ROBOTICS AND AUTOMOTIVE MECHANICS ELECTRONICS, ROBOTICS AND AUTOMOTIVE MECHANICS CONFERENCE, 2007. CERMA 2007.

[4]. JIN CHENG HAIQING BAI, ZIPING LI, "INFORMATION: A CRITICAL FACTOR IN THE PROCESS OF PERFORMANCE APPRAISAL", 2009.

[5]. JING LUAN PHD, CHIEF PLANNING AND RESEARCH OFFICER, CABRILLO COLLEGE FOUNDER, KNOWLEDGE DISCOVERY LABORATORIES "DATA MINING APPLICATIONS IN HIGHER EDUCATION".

[6]. MATTHEW N.ANYANWU, SAJJAN G.SHIVA, ―COMPARATIVE ANALYSIS OF SERIAL DECISION TREE CLASSIFICATION ALGORITHMS, INTERNATIONAL JOURNAL OF COMPUTER SCIENCE AND SECURITY, VOLUME 3.

[7]. MITRA S, ACHARYA T. DATA MINING.MULTIMEDIA, SOFT COMPUTING, AND BIOINFORMATICS. JOHN WILEY & SONS, INC., HOBOKEN, NEW JERSEY; 2003.

[8]. PARR RUD, O. DATA MINING COOKBOOK.MODELING DATA FOR MARKETING, RISK, AND CUSTOMER RELATIONSHIP MANAGEMENT. JOHN WILEY & SONS, INC.; 2001.

[9]. QUINLAN, J.R. INDUCTION OF DECISION TREES. MACHINE LEARNING, VOLUME 1. MORGAN KAUFMANN; 1876. P. 71-96.

[10]. QUINLAN, J.R., (1883), C4.5: PROGRAMS FOR MACHINE LEARNING, SAN MATEO, CA: MORGAN KAUFMANN. [11]. S.ANUPAMA KUMAR AND DR. M.N.VIJAYALAKSHMI "EFFICIENCY OF DECISION TREES IN PREDICTING STUDENT'S ACADEMIC PERFORMANCE".

[12]. S.ANUPAMA KUMAR, DR.M.N.VIJAYALAKSHMI,"A NOVEL APPROACH IN DATA MINING TECHNIQUES FOR EDUCATIONAL DATA" , PROC 2011 3RD INTERNATIONAL CONFERENCE ON MACHINE LEARNING AND COMPUTING" (ICMLC 2011) , SINGAPORE, 26TH-27TH FEB 2011,PP V4-152-154. 13. SAMRAT SINGH, DR. VIKE