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Prediction of Jobs through Demography - An Application to be used by AICTE

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Abstract: Today as we all know employment is still one of the major problems in our country. Out of all reasons: being unaware about the employment potential of candidates graduating each year is one of them. Thus we have proposed a system through which AICTE will be helped in introducing new courses to college as per the market requirement.
Keywords: Demography, neural network, Boltzmann machine learning, supervised learning, employment potential.

I. INTRODUCTION

According to the HRD ministry, India has 6,214 engineering and technology institutions which are enrolling 2.9 million students. Around 1.5 million engineers are released into the job market every year. But the dismal state of higher education in India ensures that they simply do not have adequate skills to be employed. With the increase in market demands and competitive skills there is an urgent need to be updated with the requirements of the current software industry. Each year thousands of graduates are ready to enter the ocean of corporate companies which hire and fire engineers from time to time. To make sure the courses included in the engineering syllabus is updated we have come up with this system. Currently there allotment of new courses in the curriculum by the AICTE is done on the basis of infrastructure of the college which is inappropriate in true sense and injustice to the future generation. Hence this software would give an estimate about the technologies used in the past and projects . With the help of data for upcoming projects we will be able to predict the most used technology hence AICTE would then judge so as to which subject and course needs to be introduced and updated.

II. RELATED WORK

Demographic information has attracted increasing interests recently and a number of distinct prediction methods have been proposed to enrich personalized services and application. Prediction based on user-generated content. User-generated content (e.g., profiles, blogs, comments, photos, videos) is everywhere on today's Internet. Demographic in-formation is usually included in profiles. Nevertheless, only limited number of users allows public access to it. Beyond profiles, other types of content can also be used to infer users' demographic information. Garera et al. proposed that demographic information can be predicted by analyzing users' writing and speaking styles. [2]Zhnag investigated techniques using blog content to infer user gender, while Burger et al identified the gender of Twitter users by leveraging their tweets. Other researchers leveraged or combined different types of user-generated content to make the demographic prediction. A direct way for prediction is to train a classifier from the aspect of applications, and correlate different demographic groups with certain Smartphone applications. However, as an application can be related to different kinds of interests, training a classifier from the aspect of applications is coarse-grained and would lead to a poor performance. [3] It has been observed that the improvement in network varies according to the network topology. From the survey it has been observed that ART 1 is better than ART and the improvement in

lifetime in ARTI is consistently around 45%. The purpose of demographic analysis is to analyze the way the population of a particular area behaves. It is the study of the behavior of a particular area's population by the analysis of data collected regarding their communicating patterns and their content. A Neural networks, as an intelligent data mining method, have been used in many different challenging pattern recognition problems such as stock market prediction. However, there is no formal method to determine the optimal neural network for prediction purpose in the literature. In this paper, two kinds of neural networks, a feed forward multi layer Perceptron (MLP) and an Elman recurrent network, are used to predict a company's stock value based on its stock share value history. The experimental results show that the application of MLP neural network is more promising in predicting stock value changes rather than Elman recurrent network and linear regression method. [4] However, based on the standard measures that will be presented in the paper we find that the Elman recurrent network and linear regression can predict the direction of the changes of the stock value better than the MLP.

A. Neural Network

We use artificial neural network to train the system for prediction. If the artificial neural network is considered to be the machine which will receive input as the 1) database of graduates with their fields from a particular year in a particular area.2)data for the past software projects of a set of companies in that area only. The network model will be a supervised network. The application of neural networks in prediction problems is very promising due to some of their special characteristics. First, traditional methods such as linear regression and logistic regression are model based while Neural Networks are self-adjusting methods based on training data, so they have the ability to solve the problem with a little knowledge about its model and without constraining the prediction model by adding any extra assumptions. Besides, neural networks can find the relationship between the input and output of the system even if this relationship might be very complicated because they are general function approximates. Consequently, neural networks are well applied to the problems in which extracting the relationships among data is really difficult but on the other hand there exists a large enough training data sets. It should be mentioned that, although sometimes the rules or patterns that we are looking for might not be easily found or the data could be corrupted due to the process or measurement noise of the system, it is still believed that the inductive learning or data driven methods are the best way to deal with real world prediction problems. Second, Neural Networks have generalization ability meaning that after training they can recognize the new patterns even if they haven't been in training set. Since in most of the pattern recognition problems predicting future events (unseen data) is based on previous data (training set), the application of neural networks would be very beneficial. Third, neural networks have been claimed to be general function approximates. It is proved that an MLP neural network can approximate any complex continuous function that enables us to learn any complicated relationship between the input and the output of the system.

B. Demography

Demography is the study of statistics such as birth income or incidence of disease etc .The purpose of demographic analysis is to analyze the way the population of a particular area behaves. [5] It is the study of the behavior of a particular area's population by the analysis of data collected regarding their communicating patterns and their content. In this system the database collected from colleges and companies will be stored in files as the demographic data used for analysis and prediction.
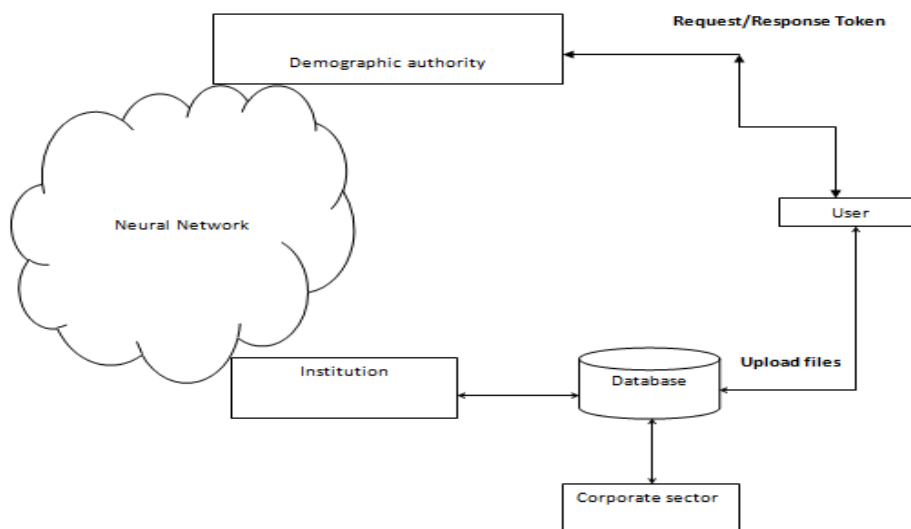
III.PROPOSED SYSTEM

Fig1.Proposed system.

A. Components of the proposed system

1) *Demographic authority:* It's the authority which does the survey of people who are left unemployed. For that, authority must have database from the institutions as well as from the corporate sector so that they can keep a count on people who are left unemployed. Demographic analysis estimates are often considered a reliable standard for judging the accuracy of the census information gathered at any time.

2) *Neural Network*: It is an information processing paradigm that is inspired by the way biological nervous systems, such as the brain, process information. The key element of this paradigm is the novel structure of the information processing system. It is

composed of a large number of highly interconnected processing elements working in unison to solve specific problems. A neural network is configured for a specific application, such as pattern recognition or data classification, through a learning process.

3) *User:* Here, the user may be the authority person who controls the database of the institutions and the corporate sector not only the current information but also the previous data which helps in predicting the future i.e. percentage of employment and unemployment. On the next side, the user may be the person seeking job through demographic portal such that he/she knows the job opportunities as they come along.

4) *Institution:* Here, institution plays a vital role as it is seen that now a days mostly skilled people are left unemployed so it's the duty of the institutions to provide data of the students to the demographic authority.

IV. WORKFLOW AND TECHNOLOGY

A. Collection of data: standard forms will be circulated among companies containing the following fields : year, technology, project domain, completion time with the name of company in header information. Data from colleges will be collected through forms containing the following fields : year, student count, branch ,primary skill.

B. After the collection of these data files will be maintained and given to demographic authorities. The authorities will also gather data from Google which will help them to analyze

C. Now the prediction of employment potential can be done in two ways: course-wise or skill wise. Course wise prediction will involve the use of data collected from engineering colleges. The guest in the scenario will be which type of technology in that course is prevalent in past 2 years. Skill wise prediction will involve the use of information gathered from companies and colleges too

D. The trigger event of the system will be the request from the user who wants to know the scope of any particular course or technology. For the development of this system application will be made as of now through java and using SQL database. Existing system's limitations would be overcome by this system.

IV. CONCLUSION

An application that tells AICTE authority about the current employment potential which will be the data from all the institutes of an area. Data collected from corporate sector containing domains and projects in past year will help in predicting the growth (with the help of data of the skills of the graduates). The application will not only help the AICTE authority but also the demographers to use this employment data into other analysis and report thus opening ways to more advanced systems. Looking forward to more advanced system of courses synchronized with the industrial demands. Currently, with the changing innovation and the challenging business situations associations are searching for an approach to center their attention in expanding their business revenues while cutting the operational expenses. Companies need to enhance their operational structure by picking up experiences to the future. Companies have large measures of data in every single area of research, showcasing, deals, creation customer service and so on. Ignoring these arrangements of data helps them to identify the potential dangers facing their company, understand the areas which should be strategized to expand the revenues of the company. India is extremely famous among the universal market which gives seaward administrations to a few companies in business analytic making them one of the countries that has a great data analytics future scope. Since large measures of data are pooling in the company, it is constantly critical to take the correct choice and beat the drawbacks in companies. The extent of business analytic in a few large enterprises have been ceaseless and expanding which procures productive salaries while dealing with the assets, investigating the accessible data, identify designs in the concealed data to understand the money related condition of the company.

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