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Trends in Technical Skills for Alumni Portal

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Abstract:- This paper recognizes the theory and practice of regression techniques for prediction of technical domain trends by using a transformed data set in ordinal data format. The data formats in technical proficiency and levels provide a process for computation of technical domain trends. The transformed data set contains only a standardized ordinal data type which provides a process to measure rankings of technical domain trends. The outcomes of both processes are examined and appraised. The primary design is based on regression analysis from WEKA machine learning software. The technical domain trends from Alumni Portal, KJSIEIT is used as our research setting. The data sources are alumni technical proficiency which included skill set, recently used skill and level. The variables included in the data set were formed based on technical domain trends from the alumni profiles. Classifiers in WEKA were used as algorithms to produce the outcomes. This study showed that the outcomes of regression techniques can be improved for the prediction of technical skills which would be trending in the future by using a dataset in standardized ordinal data format.

Keywords:- *regression techniques; ordinal data type; machine learning; fundamental analysis; alumni portal; linear regression.*

I. INTRODUCTION

Before we forge into the nitty-gritty of the primary subject of the project-Alumni Portal, let us first get ourselves conditioned to the etymology of the word, Portal. In the context of Computers and Networks, it is a Website that helps you find other sites! Hence, it forms a sort of a gateway to all the other places a user wish to explore!

The need to classify, segment and manage large conglomerate consisting of diverse entities has always been an important and at the same time labyrinthine! Public institutions form a very good example of that including the one we currently are a part of! So the moment we attach Alumni in front of the portal, the range and reach spreads across the 16 years that institution has been running and gets under it a sizeable amount of students, both the pass outs and the current batches. Moreover, Alumni Portal becomes the nodal junction for interactions and discussions amongst them.

Alumni Portal is a website that doubles up as a dynamic intermediary database of the Alumni and the correlated data that comes with them. The portal acts as a one-stop destination for information on the students of the college. The data is added up every year and hence updating and removal of redundant data becomes a priority!

The sheer size of entities and the not to forget the upcoming years of data is reason enough for the creation of a portal for the Alumni. However, if we are going to look closely; it is obvious of the volatility of the existing data. Alumni from the earlier batches are spread across the length and breadth of the world! The companies or organizations they work in, keep on changing as we are talking about careers in Information Technology sector! Moreover, some may altogether alter their career paths ending up in non-technical fields. Therefore, the data once collected isn't the final one and needs alteration at regular interval of time. Therefore, the need arises of Alumni Portal where the data entry, retrieval and deletion is efficient and regular!

II. LITERATURE SURVEY

Technical analysis approach identifies chart patterns based on a company's historical share price. This approach does not gain insight into the business side of a company; it assumes the available public information does not offer a competitive trading advantage. This technique predicts trends in advance through chart patterns [1].

The research on technology trends prediction techniques has eventually moved into the technological realm. Machine learning approach is one of the common techniques. The approach of machine learning is by examining a potentially linear or non-linear relationship exists with the availability of enough indicators [2]. Machine learning is a branch of artificial intelligence. This approach find patterns in training datasets and form their own rules which are then used for making forecasts in testing datasets [3].

Regression techniques are part of the machine learning approach. In 1805, Legendre published the method of least squares, which was the earliest form of regression. In 1821, Gauss published a further development of the theory of least squares which include the Gauss-Markov theorem. In the nineteenth century, Francis Galton used the term "regression" to describe a biological phenomenon. Galton's work was later developed into the statistical context by Udny Yule and Karl Pearson [4].

Common regression analysis involves inputs of numerical data which may consist of infinite or a wide range of values. In this research, we start by gathering numerical data in real-valued format using the fundamental analysis approach. After that we apply a new transformation process to convert the numerical values into ordinal values. The ordinal values contain only a range of categorical enumerated values. The relationships between the dependent and the independent ordinal variables are correlated based on the enumerated values.

III. COMPARISON BETWEEN EXISTING SYSTEM AND PROPOSED SYSTEM

ExistingSystem	Proposed System
In proposed system, timely updating of data along with regular verification is proposed.	The data in the existing system is outdated and redundant.
In the Alumni Portal, the facility to 'Sign Up' brings down the efforts and is an assured way of getting maximum Alumni registrations	Data collection in the earlier system was a tiresome task that required more physical work and fewer entries by the Alumni
Robust communication channel is one of the primary aim of the Alumni Portal aided sufficiently by the message services and discussion forums	The communication channel existed but was rarely used owing to unawareness of the upcoming and ongoing events
LinkedIn, Facebook plug-ins will regularly feed in the required updated data about the whereabouts of the Alumni	The existing system gave little exposure on the journey of the Alumni post-graduation.
Constant interaction will be fruitful in organizing meets at city level and college level thereby increasing the network between the Alumni and students.	Link to connect the Alumni and students was present but was seldom capitalized to its potential
The Alumni Portal is planning to use data mining algorithms to analyze conflicting interests & fields of students and Alumni.	The present data in the existing system is in the raw form, meaning pattern finding and conclusion making is almost impossible using that.
Proposed system has listed Internship opportunities and Resume Making facilities for the students with the help of the Alumni.	Existing system didn't offered much for the students with the assistance of the Alumni

Table 1: Existing System Vs. Proposed System

IV. METHODOLOGY

Alumni Portal methodology provides the study or description of methods that are used by the users.

A. Working Phases For User

Phase 1: Sign Up

This phase allows the user to sign up for the portal and carry on the further the activities. Sign Up is done to authenticate that the user is a Student/Alumni of the college.

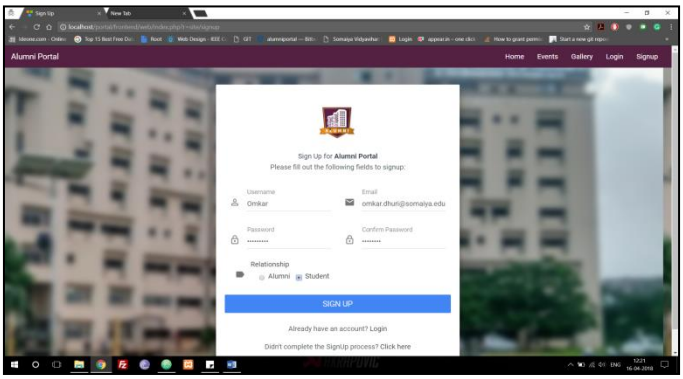

Fig 1:- Sign up page

Phase 2: Basic Information

Basic information like name, DOB, batch, stream, current city are to be filled by the user. Along with two optional which are permanent address and hobbies of the user.

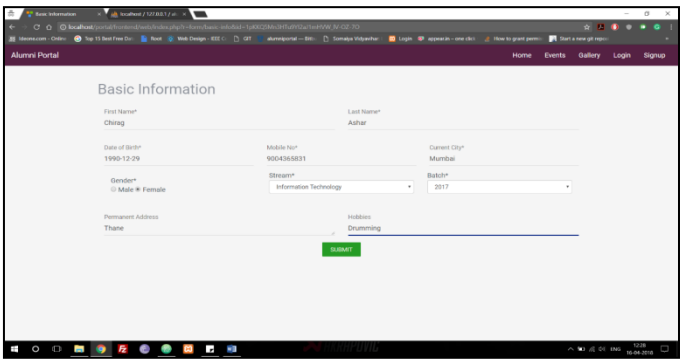

Fig 2:- Basic Information Tab

Phase 3: Login

This phase allows the user to login into the appand carry on the further the activities. Login is done to authenticate and authorize the user's identity.

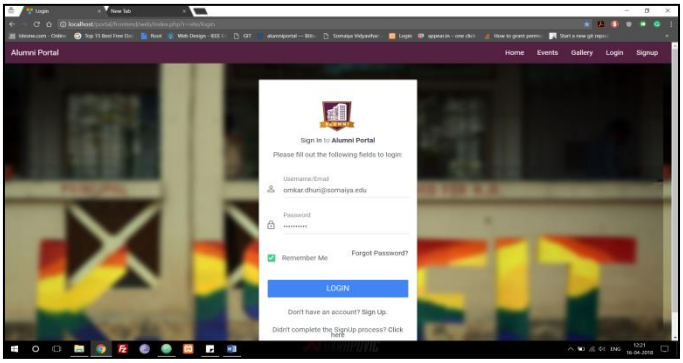

Fig 3:- Login Page

Phase 4: Forms

Forms like educational form, technical proficiency, area of interests, projects, work experience. Theseforms can be skipped.

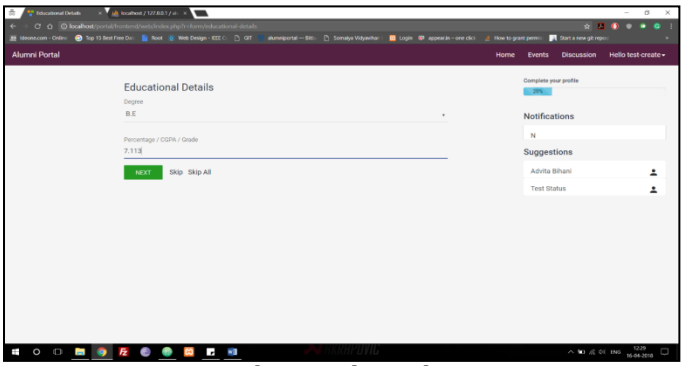

Fig 4:- Educational Details Page

Phase 5: Discussion forum

This phase provides the feature of discussing with fellow members on the portal. This functionality has been included so as to bridge the gap between Alumni and Students, and to facilitate interaction between them.

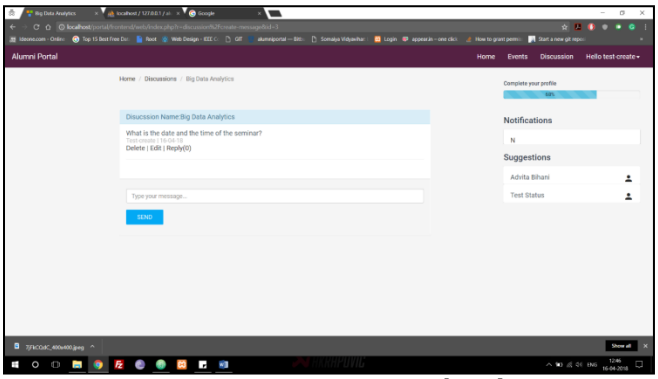

Fig 5:- Discussion Forum Thread

Phase 6: Linear Regression Output

In statistics, linear regression is a linear approach for modelling the relationship between a scalar dependent variable y and one or more explanatory variables (or independent variables) denoted X. The case of one explanatory variable is called simple linear regression. For more than one explanatory variable, the process is called multiple linear regression.[5]

The output of linear regression on skills will give a list of skill with their confidence levels. Higher the confidence, more used is the skill.

Statistics on corporations and dataset features are generated through fundamental analysis. Data was screened and pre-processed to remove out-of-bound values. This process can prevent problems of producing misleading results[6].

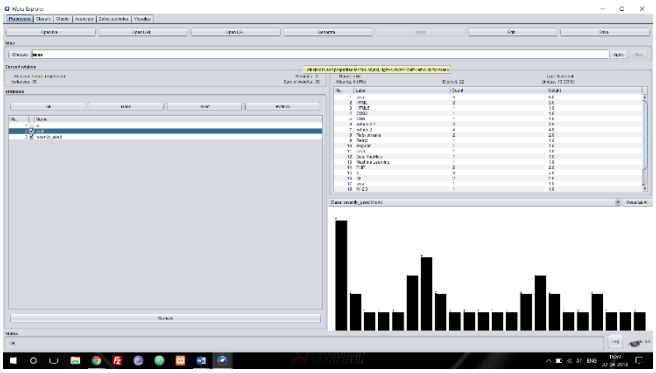

Fig 6:- Graph with skills count

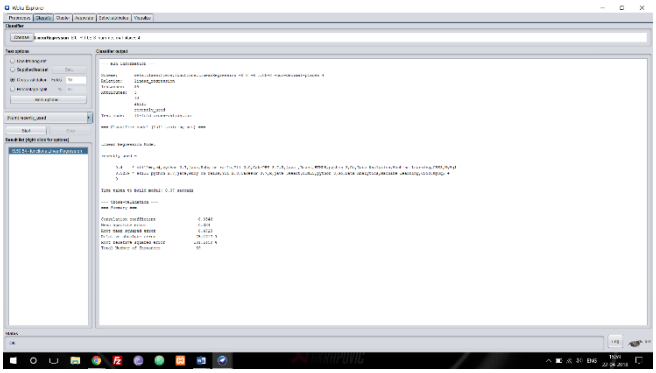

Fig 7:- Linear regression output

V. CONCLUSION

Hence after going through the research in the aforementioned techniques, the outcomes of the present data that is being fed up in the portal will be improved when the mechanisms of linear regression can be applied and the finer details from a haystack of data present obtained which is suited to our needs and requirements.

In the above studies, we have used WEKA linear regression techniques to categorize data and bring in front of us the recent trends domain wise given alumni's technical skills. Hence, we get tailored data that can be utilized effectively in channeling the resources for the interested subjects and also towards improving the exposure to the concerned entities. Overall the portal will be used in addition of the above uses to gather data of the past students at one place enabling effective and efficient management and retrieval of useful information as required. In addition, since the data is going to expand further, various techniques can be compared and used selectively for further research.

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