

An Analysis on present generation students taking admission into engineering field

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Abstract— The present generation of students is not willingly taking admission into 4-year engineering course. There are many reasons behind this. Here we present analysis report that shows the how the students are selecting engineering field and other fields. This report has been generated based on data-mining techniques. Our attempt is to provide a means of analysis for engineering institutes to understand the needs and requirements of students and adopt new methodologies in institutes for better student admission into engineering course. This paper provides a means why to select the engineering field.

Key Words: - Engineering course, Data Mining techniques, Methodologies.

I. INTRODUCTION

Admissions into bachelor of engineering have gradually decreasing; it is happening not only now, but it started from the year 2010 onwards in most of the private Engineering Institutes. This trend is even continuing in even in the most reputed institutes of nation like IIT's and NIT's. There are many reasons behind this, as if it is depends on the name of the institute, year of establishment, faculty experience, remote area or city, institute facilities such as residential accommodation, access to Internet, placements in college, etc.

In our case study, we have considered Tier1 Tier 2 and Tier 3 type of institutes, where Tier 1 are considered as NITs and IITs, Tier 2 are considered as University colleges and Tier 3 are considered as Private Institutes.

In our paper, we are trying to summarize and analyse the data to understand certain statistical measurements like Admission percentage, percentage of placement and provide good infrastructure, that give scope to understand how to provide other facilities and improvise existing facilities for future purpose.

Parent's often think or consider few factors like how the institute providing placements to the students, the transport facility, and is the college is situated in Urban area irrespective of facts like how many students are working in Companies after getting appointment letter in Campus Interview. The next factor is parents are concern about only whether their ward is studying in Urban Locality so that they can reach home as soon as possible.

The lack of research in engineering field also may be one factor. The institutes are not aiming for research or new techniques in the academic, there is plan for complete the syllabus and prepare for exams get the good score, not for aiming the concepts. Engineering faculty is also not aiming for the future concepts and present technology, they are familiar with old techniques and they are not updating themselves.

There is another big factor that university is not releasing the results on time, maximum amount of time is taken to process the result and even much of time is taken to release out the results. If the

university is not updating with new technologies, then automatically it is going to affect the institutes, which are affiliated under such universities.

II. RELATED WORK

Data mining is a process of acquiring data (knowledge) from the previous data available with us. The list of steps involved in the knowledge discovery process

- **Data Cleaning** – in this step, the noise and inconsistent data is removed.
- **Data Integration** – in this step, multiple data sources are combined.
- **Data Selection** – in this step, data relevant to the analysis task are retrieved from the database.
- **Data Transformation** – in this step, data is transformed or consolidated into forms appropriate for mining by performing summary or aggregation operations.
- **Data Mining** – in this step, intelligent methods are applied in order to extract data patterns.
- **Pattern Evaluation** – in this step, data patterns are evaluated.
- **Knowledge Presentation** – in this step, knowledge is represented.

Here Data mining concepts are used to analyse the previous admitted students and future admissions.

- WEKA (Waikato Environment for Knowledge Analysis) is a collection of machine learning algorithms for data mining tasks. The algorithms can either be applied directly to a dataset (using GUI) or called from your own Java code (using Weka Java library).
- Tools (or functions) in Weka include:
 - Data pre-processing (e.g., Data Filters),
 - Classification (e.g., Bayes Net, KNN, C4.5 Decision Tree, Neural Networks, SVM)
 - Regression (e.g., Linear Regression, Isotonic Regression, SVM for Regression),
 - Clustering (e.g., Simple K-means, Expectation Maximization (EM))
 - Association rules (e.g., Apriori Algorithm, Predictive Accuracy, Confirmation Guided),
 - Feature Selection (e.g., Cfs Subset Evaluation, Information Gain, Chi-squared Statistic), and Visualization (e.g., View different two-dimensional plots of the data).

The Weka GUI Chooser (class `weka.gui.GUIChooser`) provides a starting point for launching Weka's main GUI applications and supporting tools. If one prefers a MDI (—multiple document interfaced) appearance, then this is provided by an alternative launcher called —Main (class `weka.gui.Main`). The GUI Chooser consists of four buttons one for each of the four major Weka applications and four menus. The buttons can be used to start the following applications:

- **Explorer** An environment for exploring data with WEKA (the rest of this documentation deals with this application in more detail).
- **Experimenter** An environment for performing experiments and conducting statistical tests between learning schemes.
- **Knowledge Flow** This environment supports essentially the same functions as the Explorer but with a drag-and-drop interface. One advantage is that it supports incremental learning.
- **Simple CLI** Provides a simple command-line interface that allows direct execution of WEKA commands for operating systems that do not provide their own command line interface.

WEKA expects the data file to be in Attribute-Relation File Format (ARFF) file. Before you apply the algorithm to your data, you need to convert your data into comma-separated file into ARFF format (into the file with .arff extension)

III. PROPOSED APPROACH

In our analysis, we are considering sample data in-terms of percentage of total admissions into 4-year Engineering course with 3-year Degree course for a period of past 10 academic years for different types of institutes as IIT's and NIT's as Tier 1 Institutes, University Colleges/Institutes as Tier 2 Institutes and Private Colleges/Institutes as Tier 3 Institutes.

The proposed approach for visualizing the graph among all the entities of with respect to academic year are shown in Fig.1

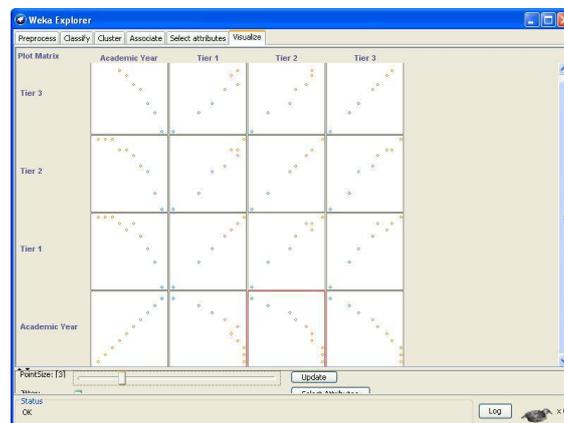


Fig. 1 Visualization of attributes vs attributes for 4-year Engineering course.

In figure 1 we can visualize the entire data for 4-year engineering course with each and every attribute that were considered as input parameters for sampling data.

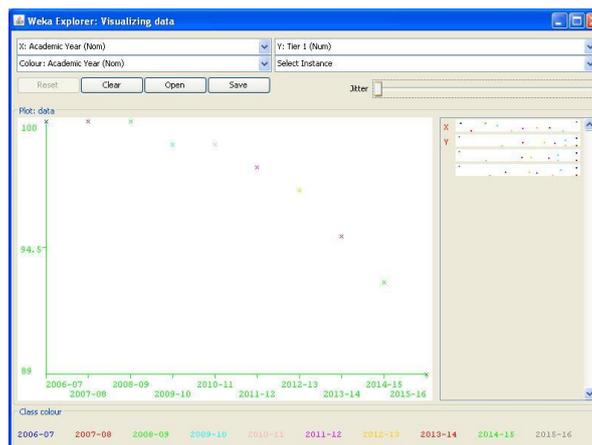


Fig. 2 Plotting of Tier 1 vs Academic year for 4-year Engineering course.

In figure 2 we can visualize plotting of data for 4-year engineering course with respect to academic year considered on X-axis and Tier 1 on Y-axis by observing the figure it is clearly understood that there is decrease in the percentage of students taking admission into engineering field.

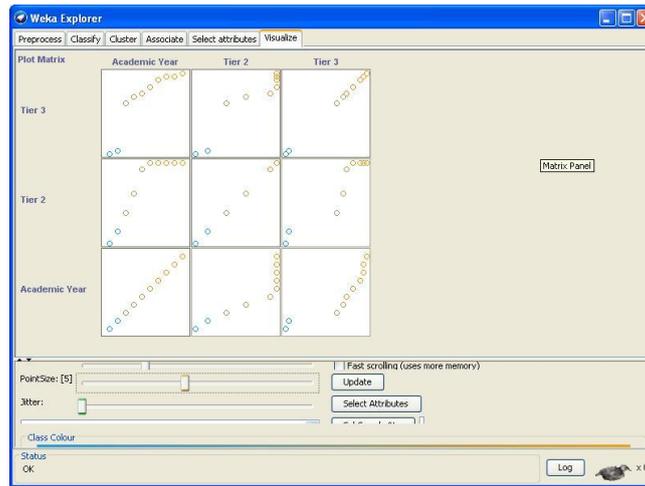


Fig. 3 Visualization of attributes vs attributes for 3-year Degree course.

In Figure 3 we can visualize the entire data for 3-year degree course with each and every attribute that were considered as input parameters for sampling data.

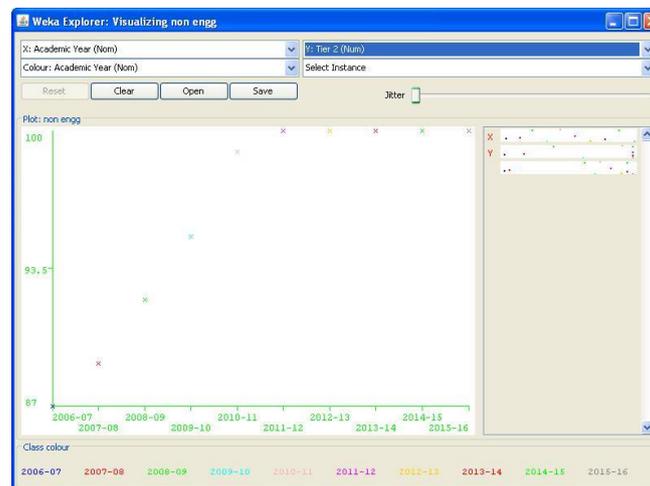


Fig. 4 Plotting of Tier 2 vs Academic year for 3-year Degree course.

In figure 4 we can visualize plotting of data for 3-year degree course with respect to academic year considered on X-axis and Tier 2 on Y-axis by observing the figure it is clearly understood that there is increase in the percentage of students taking admission into engineering field.

IV. CONCLUSIONS

In our analysis, we have understood that there are many factors that have influenced the admission of students into engineering field and the reasons what we have gathered are One of them is tried to find the reasons behind the selection of engineering field. The reason is students don't have zeal in any engineering discipline, and this is decreasing year by year depend on the specialization of the field. There are number of institutions, which have increased the number of intake into their college to double its original sanctioned intake that has increased dramatically year to year by many institutes. Another impact factor is the recession in software industries and multi discipline students recruited into software industries. Instead of going for four years degree they are thinking to three years degree and six months training in any course then going to industries.

As most of the universities are not upgraded with new technologies to process results and release them as soon as possible, if the university is not updating with new technologies, then automatically it is going to affect the institutes, which are affiliated under such universities. Apart from that if at all any new courses are proposed in such situation university has to take an initiative to facilitate the faculty by conduct workshops or Short term training programs with practical exposure to benefit the student community.

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