Introduction

Knowledge Discovery in Databases (KDD) is a decision supporting system based on a data and data mining processing required for making critical decision in education institution. While KDD can use data mining tools to discover hidden knowledge, unexpected patterns and new rules from large databases. Data mining is extraction of knowledge from data is a step in KDD process that consist data preparation, data analysis and classification, knowledge acquisition and prognosis that make a data model. Motivation of the thesis comes from using KDD technologies that particularly faced by academic administrators and educational departments who have various problems related to university examinations and to find the no. of educated people in India and those are educated which are related to which techniques. In other words, this thesis is a constructive attempt to related KDD and data warehouse, OLAP & OLTP techniques of academic information systems.

In this thesis, we have designed a flexible data-mining tool that is powerful enough to do academic analysis related to examination database systems, result systems and many more. Indian Education department and Universities administrators face a spectrum of queries related to a large number of examinations conducted in university, university staff and public.

With the available examination result data from various Universities in India, it is very difficult to answer some critical questions required for planning by the Central Education Department in India. Some of these typical queries are given below:

- Whether question paper of any particular subject was tough? (After declaration of result, some time students make the representation to Vice chancellor (V.C.) of university that paper was tough, some questions were wrongly set, etc. then V.C. requires the reports
like what is the passing % of that subject for last 3 years? What are the subjects having low passing % for that year? Etc.)

- What is the general pattern of examination result? (Passing % of various examinations for that session can be compared.)

- How the students have performed for the particular examination at this time compare to past? For example, what is the passing percentage of B.E. computer engineering semester VIII examination for the first half of years from 1997 to 2005?

- Which are the subjects opted by less number of students for a particular examination?

- What is the general pattern of paper setting to examination result in various Indian universities?

- To analyse the trend of average passing % for different universities?

- What is the subject wise/college wise passing percentage for T.Y.B.Com Examination for years from 2000 to 2009?

Thus it is essential to do subject wise, college wise and student wise, University wise analysis so that we can have an unbiased, useful examination system. Because KDD will be able to answer following critical questions, for example –

- Whether the teaching in the colleges located in rural area is good?

- How many girl students are getting opportunities for higher education in each part of India?

- For which courses there is a good response from students in each part of India?

- For which courses there is a less response from students in each part of India?

- Which subjects are opted by maximum number of students for say T.Y.B.Sc examination in each part of India?
• How to find out whether there is a significant deviation in the marks of the particular subject of a specific examination? If deviation is significant, why?

• Whether marks given by all examiners are uniforms for a particular subject? Or there is more deviation in marks of particular subject? If yes what are the reasons: whether are particular examiner gave very low marks in that subject?

• How to find out whether there is significant deviation in the marks obtained by the student for all subjects? For example- why a brilliant student getting good marks suddenly got less marks in one subject?

• To determine in which region girls are able to score better % for given subjects?

• To compare average passing % of boys and girls student for subject wise and region wise?

Since necessity is the mother of all inventions, the motivation for the research is derived from the need to design software based on the principles of Data warehousing and Data mining that will help in answering these critical queries raised by Central Education Department of India.