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Title of Thesis: **“Development of Knowledge Based Grid in Semantic Web”**

Abstract:

The emergence of semantic web results in an enormous amount of knowledge base resources on the web. The efficient use of knowledge resource totally depends on internet search engines. It is observed that data flowing from internet is often vague and therefore there is need to develop technology which has to get relevant and focused information. Traditional information retrieval, natural language processing, human speech recognition, and formal semantics are not the major concern of the Knowledge Grid. Scientific computing and Security are not its key issues. The Knowledge Grid focused beyond the traditional Web, Grid, cloud, information retrieval, filtering, mining and question answering. The realization of the Knowledge Grid, the Grid computing is not the only platform, but the ideal, method and techniques of the Grid computing could be helpful references. Knowledge base grid in semantic web is an important instrument to enhance the application domain of semantic web. The knowledge based grid is an intelligent interconnection environment to enable the people and machine to collect and coordinate publish share and manage knowledge. It also provide on demand service to support innovation collaborative team and problem solving in the distributed environment. The E-learning and the student information is a recent development happened in educational system due to the growth of information technology. The challenge involved in e-learning platform is to organize the knowledge in a useful way and also, the retrieval and discovery of useful

learning materials from the knowledge space in a more significant way. In order to handle these challenges, the proposed system developed using four different steps. The Knowledge Input: Collection of learning materials (text documents), Knowledge space: Forming a multi-dimensional knowledge representation, Grid database: Indexing of learning materials using multi-dimensional knowledge and XML structure to generate a knowledge grid and the user query: the knowledge retrieval will be performed by matching with knowledge grid. For the first step, the documents or learning materials collected for a specific domain. In the second step, the collected learning documents organized as tree data structure in multi-dimensional view based on clustering algorithm which aims to group the similar documents. Here, the existing k-means clustering algorithm modified and used for the grouping. Using K-Means algorithm groups are not balanced to overcome this problem the modified K-Means algorithm used for balancing groups and for this purpose researcher used the spasis method. The initial process of the spasis are same like K-Means but after getting final result it changed the clustered data and the clustered groups for balancing groups. Again, knowledge grid will be generated based on grouping results and tree representation. Then, xml-based indexing utilized the ontology information and user inputs. Finally, the required learning materials obtained by matching the user query with the indexed database. Knowledge based grid is implemented through JAVA programming and analyzed the performance.

Finally a statistical analysis is performed to establish confidence of the prototype where the responses are favorable towards the developed prototype and no single response was found unfavorable. Most of the respondent suggested that knowledge grid structure and algorithm needed some changes according to their need. Similarly they also suggested that academic works and research collaboration is two important domains of the university where this prototype can be very much helpful.