**A framework to alleviate common problems from recommender system: A case study for technical course recommendation**

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Abstract

Recommender systems face multiple challenges like cold-start, sparsity, first-rater and scalability. This study proposes an ontology based framework which can resolve these challenges simultaneously. The Ontology is prepared using protégé and visualized online using Graphical Ontology Editor OWLGrEd .Ontology is trust based where degree of trust is the ratings given by users. The framework is used for technical course recommendation. To eliminate cold start, user will be provided a form with top ‘k’ factors. These top “k” factors are the significant factors obtained as a result of partial correlation analysis. The selection criterion was level of significance <0.05.The recommendation will be done on the basis of the ratings user provides to these “k” factors. Sparsity and First-rater is handled by using the Knowledge of trust from the knowledge base made from trust base ontology and provides the recommendation. The proposed framework is scalable and is implemented using offline forms. The precision rate of the proposed system is more than 95% for 3 algorithms out of total 6 implemented algorithms. The only limitation of the proposed framework is that it is domain specific because it is based on ontology.