A Recommender System for Dynamic Selection of Undergraduates' Elective Courses

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Abstract : The task of selecting a few elective courses from a variety of available elective courses has been a difficult one for many students over the years. In many higher institutions, guidance and counselors or level advisers are usually employed to assist the students in picking the right choice of courses. In reality, these counselors and advisers are most times overloaded with too many students to attend to, and sometimes they do not have enough time for the students. Most times, the academic strength of the student based on past results are not considered in the new choice of electives. Recommender systems implement advanced data analysis techniques to help users find the items of their interest by producing a predicted likeliness score or a list of top recommended items for a given active user. Therefore, in this work, a collaborative filtering-based recommender system that will dynamically recommend elective courses to undergraduate students based on their past grades in related courses was developed. This approach employed the use of the k-nearest neighbor algorithm to discover hidden relationships between the related courses passed by students in the past and the currently available elective courses. Real students' results dataset was used to build and test the recommendation model. The developed system will not only improve the academic performance of students, but it will also help reduce the workload on the level advisers and school counselors.

Keywords : collaborative filtering, elective courses, k-nearest neighbor algorithm, recommender systems