

**A Mini Project Synopsis on
“CAREER RECOMMENDATION SYSTEM”**

Submitted

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This is to certify that the mini project entitled “CAREER RECOMMENDER SYSTEM” is a Bonafede work carried out by **SHIVENDRA SAURAV, SHUBHAM KUMAR GIRI, SHIWANI, SHIVANI SHARMA** bearing R17CS385, **R17CS392, R17CS387, R17CS384** respectively in partial fulfilment of 6th semester of Computer Science and Engineering program of Bachelor of Technology, REVA University during the academic year 2019-20. It is certified that all the corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the school library. The mini-project report has been approved as it satisfies the academic requirements in respect of mini-project prescribed for 6th semester of CSE program.

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ABSTRACT

Several researchers study recommendation systems to assist users in the retrieval of relevant goods and services, mostly used in e-commerce.

However, there is limited information of the impact of recommender systems in other domains like education. Thus, the objective of this study is to summarize the current knowledge that is available as regards recommendation systems that have been employed within the education domain to support educational practices. By performing a systematic mapping study, a total of 44 research papers have been selected, reviewed and analysed from an initial set of 1181 papers.

Our results provide some findings regarding how recommendation systems can be used to support main areas in education, what approaches techniques or algorithms recommender systems use and how they address different issues in the academic world. Moreover, this work has also been useful to detect some research gaps and key areas where further investigation should be performed, like the introduction of data mining and artificial intelligence in recommender system algorithms to improve personalization of academic choice Recommender

systems are tools for interacting with large and complex information spaces. They provide a personalized view of such spaces, prioritizing items likely to be of interest to the user. The field, christened in 1995, has grown enormously in the variety of problems addressed and techniques employed, as well as in its practical applications. Recommender systems research has incorporated a wide variety of artificial intelligence techniques including machine learning, data mining, user modelling, case-based reasoning, and constraint satisfaction, among others. Personalized recommendations are an important part of many online ecommerce applications such as Amazon.com, Netflix, and Pandora. This wealth of practical application experience has provided inspiration to researchers to extend the reach of recommender systems into new and challenging areas. The purpose of the articles in this special issue is to take stock of the current landscape of recommender systems research and identify directions the field is now taking. This article provides an overview of the current state of the field and introduces the various articles in the special issue. Copyright © 2011, Association for the Advancement of Artificial Intelligence. All rights reserved.

INTRODUCTION

The prototypical use case for a recommender system occurs regularly in e-commerce settings. A user, Jane, visits her favourite online bookstore. The homepage lists current bestsellers and a list containing recommended items. This list might include, for example, a new book by a new author and a supernatural thriller. Whether Jane will find these suggestions useful or distracting is a function of how well they match her tastes. Is the cookbook for a style of cuisine that she likes (and is it different enough from ones she already owns)? Is the thriller too violent? A key feature of a recommender system therefore is that it provides a personalized view of the data, in this case, the list of best-sellers – a list that is independent of the user. The aim of the recommender is to provide items of highest utility, those that Jane might be most likely to purchase. This, of course, is beneficial to Jane as well as the e-commerce store owner.

Recommender systems research encompasses scenarios like this and many other information access environments in which a user and store owner can benefit from the presentation of personalized options. The field

has seen a tremendous expansion of interest in the past decade, catalysed in part by the Netflix Prize (Bennett & Lanning, 2007) and evidenced by the rapid growth of the annual ACM Recommender Systems conference. At this point, it is worthwhile to take stock, to consider what distinguishes recommender systems research from other related areas of research in artificial intelligence, and to examine the field's successes and new challenges. Systems that retrieve and filter the data through content and similar profiles are known as recommendation systems (RS). These systems are usually used within the e-commerce domain. For example, some websites, such as Amazon, through the application of RS allow offering the user recommendations for products that users do not know and could be of their interest. Suggested recommendations help to overcome the distressing search problem for the user. But this technology is not only used to sell products, but it is also used to suggest videos (YouTube), movies (Netflix), friends (Facebook), among others.

This demand spans across several domains, among which is the educational domain. RS, which are applied in education, have the role of supporting teaching and learning activities through enhanced information retrieval. Nevertheless, there is limited information of the application of recommender systems in educational environments.

Consequently, this study aims to summarize the current knowledge that is available concerning RS that have been employed to support educational practices.

This paper is structured as follows: Section 2 explains the research method and stages applied for the systematic mapping. Section 3 provides the results of the mapping study. And finally, Sect. 4 present our main conclusions

MOTIVATION (IF ANY)

Each student gets suitable learning materials, exercises tailored to a student, adequate for his knowledge (mood, preferences, ...) mastery learning – fixed outcome, varied time (compared to classical education: fixed time, varied outcome)

LITERATURE SURVEY

Career Recommendation work resides in the domain of online recommender systems, which are widely adopted across many web applications, e.g., movie recommendations [12], e-commerce item recommendations [13], job recommendations [14] and so forth, where authors mainly concentrate on the relevance retrieval and ranking aspects of the recommendation system. There is insightful research and modelling of the hiring processes within job marketplaces. Such research includes work related to

estimation of employee reputation for optimal hiring decisions [15], as well as work related to ranking and relevance aspects of job matching in labour marketplaces [16]. There has been work related to the theory of optimal hiring process, e.g., on the problem of finding the right hire for a job (the hiring problem), as well as on the classical secretary problem, where a growing company continuously interviews and decides whether to hire applicants [17,18]. Authors of [19] investigated job marketplace as a two-sided matching market using locally stable matching algorithms for solving the problem of finding a new job using social contacts. RS can be treated as one of the most efficient tools for business, aimed directly at increasing revenue and profitability as well as optimizing current product portfolio.

OBJECTIVES

As we mentioned in the previous section, the main goal of recommender systems in education is to help users find suitable resources for a better achievement of the learning goal in less time. However, the benefits of introducing educative recommender systems go beyond learning goals. Based on literature, we propose to classify the benefit from three points of views:

1. Student's Performance:

Educational recommender systems can also help to identify students with problems and weakness. To detect student misconceptions, to help students to navigate in knowledge hyperspace, and to get a good quality information feedback.

2. **Social Learning Enhancement:**
One of the main features of collaborative recommender systems is the inclusion of social interaction and social navigation, where navigation history and bookmarks are visible to the others. In an educational context, this social attribute promotes student collaboration, helps to find like-minded people, and enhances virtual community experiences.
3. **Increased Motivation:**
There is also evidence that educational recommender systems have a positive feedback.

Additionally, these systems have been shown to improve the atmosphere of the learning environment and enhance the interaction within the learning environment.

SYSTEM REQUIREMENTS

Processor: At least Dual Core Processor

Memory: 2048MB

Architecture: x86/x64

VRAM: 512MB (Required for Rendering Web Interface)

Storage: 5.6MB (Not Required If Ran Web Interface)

Operating System: Any

IMPLEMENTATIONAL METHODS

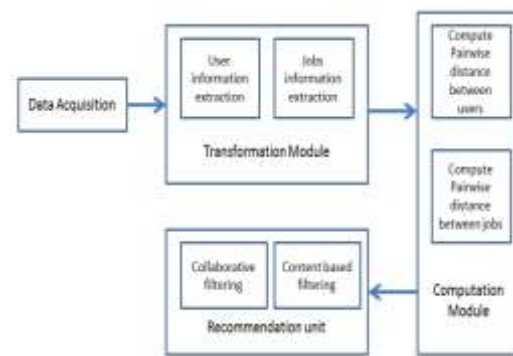


Fig 1: Data Acquisition Mode

Data acquisition module: In data acquisition module, data from different users are collected and stored in dataset. These data consist of use profile, skills, past activities, browsing history. For this purpose, we are storing data in tab separated values (tsv) format files.

Transformation Module: Transformation stage deals with the different processes such as general information extraction and detail information extraction as per the requirement. If collaborative approach needs to be used in that case, we are going to transform data present in dataset into the user-user and user-item matrices to be analysed for recommendation.

Computation module: Computation module deals with

the calculation part of the system It mainly consists of two parts - Data filtering and Result set generation. In the data filtering we need to analyse the similarity between item-item and user-item.

Recommendation Module: The last stage is the Recommendation unit where recommendations to the users are made depending upon the filtered results set from computation module.

CONCLUSION

In conclusion, the outcomes of this study will benefit the students in their career selection in which the process will become easier, flexible and faster. This is because self-testing can be done without the need of comprehensive mentoring by the counsellor. Furthermore, this study also measures student's skill strengths, abilities and personality facets and recommend them with possible career choices by using fuzzy logic approach. Moreover, this system also keeps the summary of career test where student can do the test repeatedly and can compare with the previous career test result.

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