MOOCs Recommender System: A Recommender System for the Massive Open Online Courses

Henda Chorfi Ouertani [1], Monerah Mohammed Alawadh[2]

[1]Information Technology Department, College of Computer and Information Sciences, King Saud University, Riyadh, Saudi Arabia
houertani@ksu.edu.sa
[2]Information Technology Department, College of Computer and Information Sciences, King Saud University, Riyadh, Saudi Arabia
moalawadh@gmail.com

Abstract. Nowadays, technology is affecting every aspect of our society in different manner. However, the technology impact is more tangible in the field of education. Technological advances are transforming the way education is being delivered. Courses are not limited for those who are attending university or school classes. The proliferation of Web Technologies and the exploration of the possibilities of Technology Enhance Learning (TEL) led to the development of many learning solutions and recently to Massive Open Online Courses (MOOCs). MOOCs are capable of providing several ten thousands of learners with access to courses over the web. Recently, there are many MOOCs providers/platforms with different features and characteristics. Online learners are exposed to various challenges with this excess of those MOOCs providers. This paper presents a system that is built in the top of MOOCs providers to act as a single point of access to those providers. This system is twofold: first, it will improve the learning process for any online learner in a way that satisfies the learner needs when searching for suitable courses among different providers; It will help users not to be lost in the overwhelming offers of MOOCs. Second, it will recommend courses related to the previous experiences of its users.

Keywords: MOOCs; MOOCs providers/Platforms; Online Lerner; e-Learning; Recommender System.

1 Introduction

Technology Enhanced Learning (TEL) introduces the use of technology for the learning purposes. In particular, Web Technologies have significantly enhanced learning over the internet. Web Technologies led to the development of many web learning solutions and recently to Massive Open Online Courses (MOOCs). MOOC presents a new opportunity to be part of a learning community, often led by key voices in education.

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MOOCs provide a new way of learning, which is open, participatory, distributed and lifelong [1]. MOOCs have recently gained much attention especially in leading universities and are now often considered a highly promising form of teaching. Also, the number of online MOOCs learners is rapidly growing [2].

On another side, this huge number of available and open resources led us to think on the way to help learners to not be lost. Learners need to find the most suitable course among all proposed on the web, and to prevent them from being overwhelmed by the huge amounts of resources.

Since information retrieval and searching for the appropriate learning resources is an essential activity in TEL, the development of a recommender portal can be seen as a solution.

Recommender systems permit to respond to a traditional problem in TEL which is "finding the best learning resources" for the learner. With MOOCs proliferation this traditional problem is more than ever up to date. Learners will be exposed to various challenges with this excess of learning resources: Which provider they have to choose to search for a specific MOOC? Who is the best provider? How to search a specific MOOC? … etc.

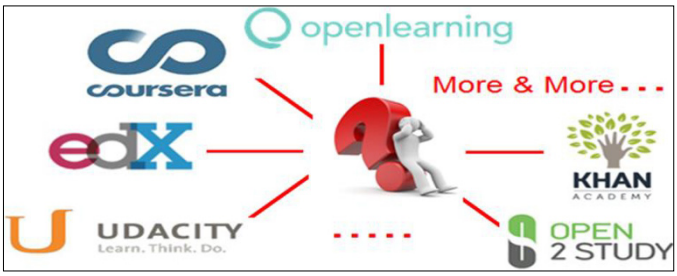

Fig.1. Many MOOCs providers with varity of chocess.

In practice, all MOOCs users would try to find services that help them identify suitable learning resources from this overwhelming variety of choices (figure 2).

In this paper, we introduce our system which is built in the top of MOOCs providers to act as a single point of access to those providers. This will be as a service for any online learner to help them identify suitable learning resources.

2 System description

Our system is a web-based application that provides appropriate courses in response to a learner request from different MOOCs providers. Currently and as a start point, we covers 2 MOOCs providers (Coursera and openLearning), in future, more provider can be added.

The system aims to act as a middle point between learners and MOOCs providers.

Moreover, the system suggests for each course other course(s) that is (are) commonly taking with by other learners.

This system aims to improve and upgrade the efficiency level of the learning and training in the e-learning side. In addition, it aims to facilitate the learning process, improve the learning outcomes, as well as provide a good learning environment.

Since the user interface is one of the most important parts of any application, we aimed to make the interface of MOOCs Recommender system as friendly as possible. Each interface is designed to be easy and intuitive in order to help learners in navigating the whole system and finding courses easily to increase our learners' satisfaction.

MOOCs Recommender system has two views which are the Guests view and the Member view. In both views the learner is guaranteed with the main function which is : find courses and learn across many providers. Furthermore, it allows both users to find the recommended courses based on the experience of other learners.

The difference between the two views is that when the user logged in (Member view) he/she can his/her history about learned and searched courses. Moreover, he/she can perform several functions, including: mark course as read later, identify courses as completed, and view a learning progress report.

Figure 4 shows the main interface of the system.

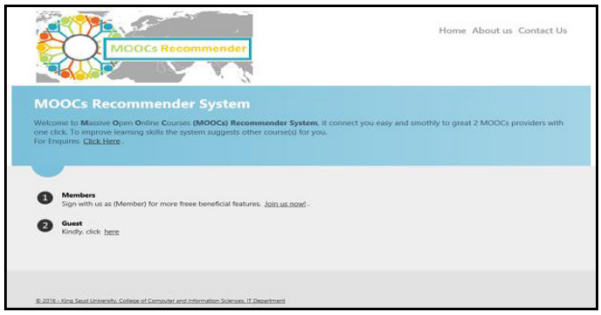

Fig.2. System Main Interface.

Everyone believes that it is very important to engage the learner when they land on an error in order to achieve a highly efficiency. Make them want to try again to obtain learning in our site. We made our own interactive error page. Our learner will be redirected to it when any error happened.

Based on [3], error page shall provide the end user with a hyperlink back to your website or a navigation. We designed our error page based on this point of view (See Figure 5). In this way, our learner will be comfortable even when the error occurs.

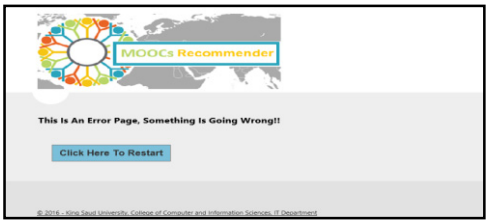

Fig.3. System Error Handler Page.

3 System Integration

The main goal of system integration is to go smoothly without any problems and to insure that the system apply its functionalities in an efficient way. MOOCs Recommender System is implemented using an incremental model, where the implementation process went throw multiple development cycles.

Cycles are divided up into smaller, more easily managed modules. Each module passes through the requirements, design, implementation and testing phases. So when we finish with the implementation we did not need much integration and testing for the system functions.

4 Conclusion and Future Work

In this paper, in one hand, we presented MOOCs platforms study toward building MOOCs Recommender portal. As a result we recommend –as a starting point- to build MOOCs Recommender portal on the top of Coursera and Openlearning then the scope can be expanded to include more and more MOOCs provider using their APIs. Coursera and Openlearning are similar in many ways regarding their web sites for instance the features they are providing and their APIs representations.

In another hand, this study facilitated the development of our recommender portal which is currently in the real life testing phase.

This system is twofold: first, it will improve the learning process for any online learner in a way that satisfies the learner needs when searching for suitable courses among different providers; It will help users not to be lost in the overwhelming offers of MOOCs. Second, it will recommend courses related to the previous experiences of its users.

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