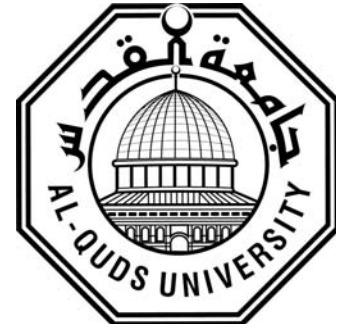


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**Consolidated Ranking and Recommendation
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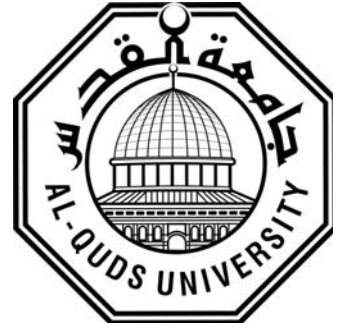
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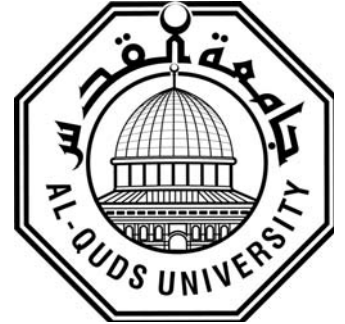
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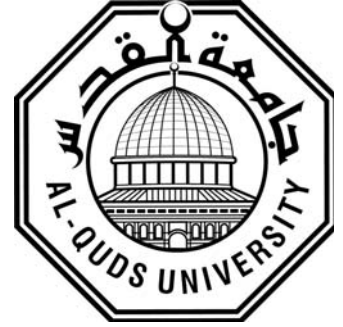
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

“اللَّهُ لَا إِلَهَ إِلَّا هُوَ الْحَيُّ الْقَيُّومُ لَا تَأْخُذُهُ سِنَّةٌ وَلَا نَوْمٌ لَهُ مَا فِي السَّمَاوَاتِ وَمَا فِي الْأَرْضِ مَنْ ذَا الَّذِي يَشْفَعُ عِنْدَهُ إِلَّا بِإِذْنِهِ يَعْلَمُ مَا بَيْنَ أَيْدِيهِمْ وَمَا خَلْفَهُمْ وَلَا يُحِيطُونَ بِشَيْءٍ مِنْ عِلْمِهِ إِلَّا بِمَا شَاءَ وَسِعَ كُرْسِيُّهُ السَّمَاوَاتِ وَالْأَرْضَ وَلَا يَئُودُهُ حِفْظُهُمَا وَهُوَ الْعَلِيُّ الْعَظِيمُ”

سورة البقرة، آية 255

In the name of Allah, the Beneficent, the Merciful

“Allah - there is no god but He, the Ever-living, the Self-subsisting by Whom all subsist. Slumber overtakes Him not, nor sleep. To Him belongs whatever is in the heavens and whatever is in the earth. Who is he that can intercede with Him but by His permission? He knows what is before them and what is behind them. And they encompass nothing of His knowledge except what He pleases. His knowledge extends over the heavens and the earth, and the preservation of them both tires Him not. And He is the Most High, the Great”

The Holy Quran, Al-Baqarah, 2:255

Dedication

To my Mother

To my Mother

To my Mother

To my Father

To my Wife

To my Son Abdullah

To my Brothers

To my Sisters

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

Baha' Hamzah Harasheh

Date: 28 July 2013

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Abstract

Share and reuse of learning materials (objects) is one of the main goals of educational repositories. Finding appropriate reusable learning materials is still one of the highest challenges facing users of educational repositories. Users still are not able to find enough high quality learning materials relevant to them. Several tools were developed to improve searching learning objects (resources), but most of these tools are content based oriented, and depend on descriptive information (metadata) of learning resources created during indexation of resources into the repositories. This thesis proposes a Consolidated Ranking and Recommendation Framework (CRRF) that uses usage data to improve finding of relevant learning objects. The proposed work includes analysis of usage data to create dynamic user profiles automatically to improve Ranking and Recommendation of learning materials. User profiles will have information about user's contexts, learning interests, search objectives, and information about peer users. Appropriate data mining techniques are used to analyse usage data, and create user profiles. These techniques have been selected based on their effectiveness and efficiency. The consolidated framework provides flexible criteria and formulas to allow extension of the services, functionalities, and capabilities of CRRF by adding new sources of data based on work of others. Ranking is the process of sorting learning resources to the user according to his/her contexts and search objectives. Ranking works when a user performs search query on learning materials. Recommendation is the process of suggesting learning materials to the user according to user interest based on frequently used materials or according to learning material that was of interest to his/her peer users.

ملخص الدراسة

مشاركة وإعادة استخدام مواد التعلم هي واحدة من الأهداف الرئيسية للموارد التعليمية. البحث عن مواد التعلم المناسبة القابلة لإعادة الاستخدام لا يزال واحداً من أكثر التحديات التي تواجه مستخدمي الموارد التعليمية. هؤلاء المستخدمين عادة غير قادرين على العثور على العديد من مواد التعلم ذات الجودة العالية أو المناسبة لهم. لقد تم تطوير العديد من الأدوات لتحسين البحث عن مواد التعلم، ولكن معظم هذه الأدوات تعتمد على محتوى مواد التعلم والبيانات الوصفية لتلك المواد فقط. في هذه الأطروحة، تم اقتراح النظام الموحد لترتيب وتوصية مواد التعلم الذي يعتمد على بيانات الاستخدام لتحسين البحث عن مواد التعلم ذات الصلة والمناسبة للمستخدم. العمل المقترح يشمل تحليل بيانات الاستخدام لإنشاء ملفات تعريف المستخدمين بشكل تلقائي لتحسين عملية الترتيب والتوصية. هذه الملفات تشمل معلومات حول سياقات المستخدم، واهتمامات التعلم، وأهداف البحث، ومعلومات حول المستخدمين الذين تربطهم علاقات مع المستخدم. تم استخدام تقنيات التنقيب عن البيانات لتحليل بيانات الاستخدام وإنشاء ملفات تعريف المستخدم. وقد تم اختيار التقنيات المناسبة لضمان دقة عالية خلال فترة زمنية مناسبة. يوفر النظام الموحد معايير وصيغ مرنة تسمح للباحثين بإضافة عملهم في هذا الإطار لتعزيز كفاءة ترتيب وتوصية مواد التعلم. الترتيب هو عملية فرز مواد التعلم للمستخدم وفقاً لسياقاته واهتماماته التعليمية وأهداف البحث. الترتيب يعمل عند قيام المستخدم بعملية استعلام عن مواد التعلم. التوصية هي عملية اقتراح مواد التعلم للمستخدم وفقاً لمواد التعلم المستخدمة بشكل متكرر، ولمواد التعلم الموصى بها من قبل المستخدمين الآخرين.

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