AGGREGATING EDUCATIONAL DATA FOR PATIENT EMPOWERMENT

Nick Portokallidis, George Drosatos, and Eleni Kaldoudi

School of Medicine, Democritus University of Thrace, 68100 Alexandroupoli, Greece
portokallidis@gmail.com, gdrosato@ee.duth.gr, kaldoudi@med.duth.gr

Introduction

The aim of the proposed educational resource aggregator is to harvest educational resources from 3rd party repositories, present these to the medical expert for annotation and rating, and output the results of the annotation to a public RDF (Resource Description Framework) repository. The purpose is to provide personalized high quality educational material for patients.

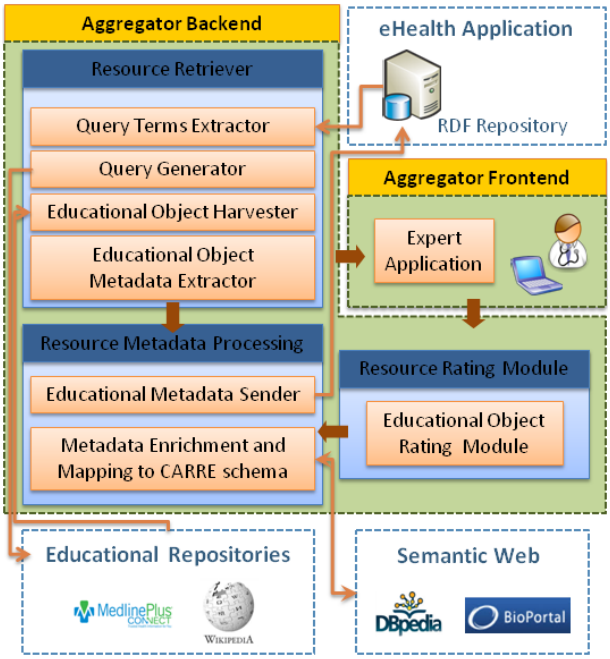

Figure 1. Component Architecture.

Methods and Architecture

The aggregator architecture as seen in Figure 1 consists of 3 main parts: The Resource Retriever, the Resource Rating and the Resource Metadata Processing. In short, the Resource Retriever accepts concept terms with patient-specific data and uses them to formulate queries to external 3rd party educational resource repositories. The results of this search are parsed to extract metadata. Then the retrieved results and metadata are displayed to specialized medical personnel for rating and annotation. The Educational Object Rating Module provides feedback on content accuracy, validity, depth of coverage, as well as educational level requirements and comprehensiveness. Automatic systems rating include Readability Test based on the Flesch-Kincaid [1] algorithm and content-keyword relevance based on a modified Jaro-Winkler [2] distance calculator algorithm.

Finally, Resource Metadata Processing involves metadata enrichment via semantic web sources and mappings of a public RDF schema so that the collected data to be exported as shareable knowledge through the LOD (Linked Open Data) cloud.

Results

The current status of collected data shows interesting variations between authoritative databases versus crowd sourced that confirm fair reliability of Wikipedia articles while more data is required for making strong point. All data is public at the CARRE Endpoint [3].

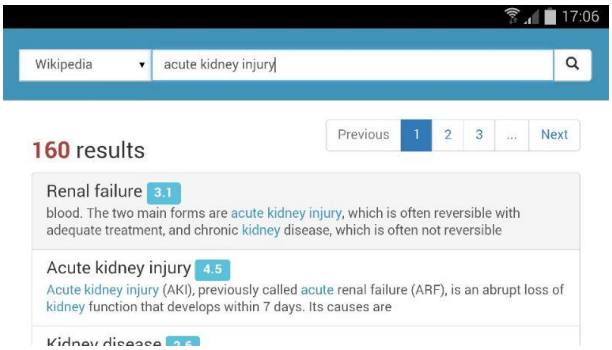

Figure 2. Hybrid Application [4.]

Discussion

Future work will compare the user rated results with that of the search-engine based ones and provide an approximation model for automatic aggregation.

References

1. Kincaid JP, Fishburne RP Jr, Rogers RL, Chissom BS (1975).
2. 4th International Semantic Web Conference, ISWC 2005, “A String Metric for Ontology Alignment.”
3. Educational Resource Aggregator Endpoint: http://carre.kmi.open.ac.uk:8890/sparql
4. Educational Aggregator: http://edu.carre-project.eu

Keywords

Educational resources, semantic annotation, RDF repository

Acknowledgement

This work was supported by the FP7-ICT project CARRE (No. 611140), funded in part by the European Commission.