

Searching the World Wide Web – Finding the Right Information the First Time

As the World Wide Web (web) continues to expand, the information available via the Web is an ever-growing forest of useful and non-useful details. The casual user may be surviving their attempts to query the web by typing a few keywords into their favorite browser while performing an initial search. Typically the initial search is followed by one or more searches each with a refinement of the search keywords based on the search results. The resulting task of separating the relevant search result from those that are distracting and non-helpful often presents the user with a daunting and time consuming task. Today, teams of students are working with each other across multiple departments such as Computer Science, Urban Planning, Electronic Communication, etc. to develop mobile applications providing a variety of end-users with a wealth of environmental and community information as described in a 2013 ASEE Conference Paper. Our paper will describe the effort underway to assist the students development teams find the information they need on the web by leveraging the Semantic Web. Starting with an introduction of the Semantic Web, we will explain how information and knowledge can be more efficiently extracted from the deepest and widest recesses of the web. We will detail the various methods being employed to collect information from the student teams such as surveys and presentations along with questions and answer session. Students are providing strategic key words used and websites found while researching aspects affecting the applications they are developing such as educational information, funding/spending, community impact and subject matter fundamentals. Next the concepts and descriptions of an ontology and taxonomy will lay the foundation of our premise. The student provided keywords and the most applicable website they lead to are being categorized and organized to provide a structural framework upon which the ontology for our search tool is based. A presentation follows of the taxonomy defining the relationships between keywords and the location of most relevant information associated with the specific keywords on the web. Finally, we will leverage existing work utilizing the semantic web and storage of keyword collections, or profiles, in a Semantic Search Engine tool. Through the modifications described to the existing tool, we will demonstrate how to optimize and drive maximum efficiency while searching the web and various on-line databases ultimately aiding the student teams to be more efficient in their research efforts.