MOBIES: Mobile-Interface Enhancement Service for Web Databases

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A large number of hidden web databases provide proprietary form-based interfaces (consisting of textboxes, drop-down boxes, etc) for users to input their desired values in a search query. Form-based interfaces are often difficult-to-use and error-prone on mobile devices (PDA/smart phones), mainly because of limitations such as smaller screen, trickier text input, etc.

Despite that many efforts (e.g., interface rendering) have been made to enhance mobile-user experience through mobile OS or browsers, we find that existing solutions without considering analytical (e.g., statistical) information specific to the underlying database do not make it any easier to use the web databases from mobile devices. To see the reason, consider a drop-down menu for "US States and Territories" in many search forms usually includes as many as 74 options. No matter how the drop-down menu is rendered (e.g., as a spinning wheel on Apple iPhone), such a large number of options are difficult to navigate in a small-screen mobile device. Nonetheless, a closer look at the underlying database often reveals the fact that some options can be removed while others should be (somehow) highlighted because of popularity.

Researchers at the George Washington University have developed a novel method called MOBIES (MOBILE Interface Enhancement System) to automatically create a suite of mobile-frequency web search interfaces (optimized for different mobile devices) for a given web database. For each supported hidden database, MOBIES issues a small number of search queries through the original form-based interfaces to retrieve the analytical information required for mobile interface construction. Then, MOBIES builds mobile-access interface based on the retrieved analytics and makes it available to mobile users.

A unique feature of our novel method is that the only interaction requires with the back-end database is to issue web requests like any normal user of the database. In other words, it does not require any back-end access to the database, thus eliminating the need of a negotiation with the database provider to take place a priori. Also because of this feature, MOBIES is a generic solution in the sense that support for a new web database can be easily built with minimal human effort.
Advantages

- MOBIES significantly improves mobile device user experience with web based database
- Implementation of MOBIES is independent of the database

Applications

- MOBIES makes it simpler to use web based databases on mobile devices and improve user experience with complex databases on mobile devices

Inventors

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