Personalized Information Systems

Abstract

Optimizing the access to digital information according to the needs and requirements of each end user is the goal of Personalized Information Systems. By bringing the user's needs into the center of interaction processes, Personalized Information Systems overcome the „one-size-fits-all" paradigm and provide individually optimized access to Web data and information.

Mission

The Semantic Web vision of a next generation Web, in which machines are enabled to understand the meaning of information in order to better inter-operate and better support humans in carrying out their tasks, is very appealing and fosters the imagination of smarter applications that can retrieve, process and present information in enhanced ways. In this framework, a particular attention should be devoted to „Personalized Information Systems", i.e. information producing systems that can autonomously inter-operate - either with humans or with other systems -, tailoring their processing and its outcome to specific requests.

Use Scenarios

Scenario 1:

Imagine you are looking for a particular book / publication. Would you appreciate to find also information about the author? Pointers to publications on a similar topic? The context in which this publication or research was conducted? Other publications on this specific research work? Insider recommendations from your personal librarian?

The Web provides this information! A human can - as long as s/he knows the proper keywords - find tons of information on the Web. A personal librarian would guess the needs that you have when reading the book and would recommend you other books. Our personal publication reader aims at being your personal librarian: Guessing your needs, and - autonomously - crawling the Web for the (electronic) information that fits to your needs - thus freeing you from using different tools, and from typing the proper keyword over and over again!

Scenario 1:

You are interested in e-Learning? You want to plan your studies for updating your knowledge in Java programming? You want to study Java Programming on your own? You know your learning style and want access to learning materials appropriate for your needs? In the Personal Reader for e-Learning, you can choose Personalization Services for providing you your required interface: For creating your personal study plan, take advantage of the **W-Log Curriculum Sequencing-Service**, for accessing learning objects, select the **Personal Annotation Service** which recommends you next learning steps to take, points you to examples, summary pages, etc., and always recommends the most appropriate of these information according to your learning progress, your learning style, your particular learning goal and background, etc.

Other scenarios

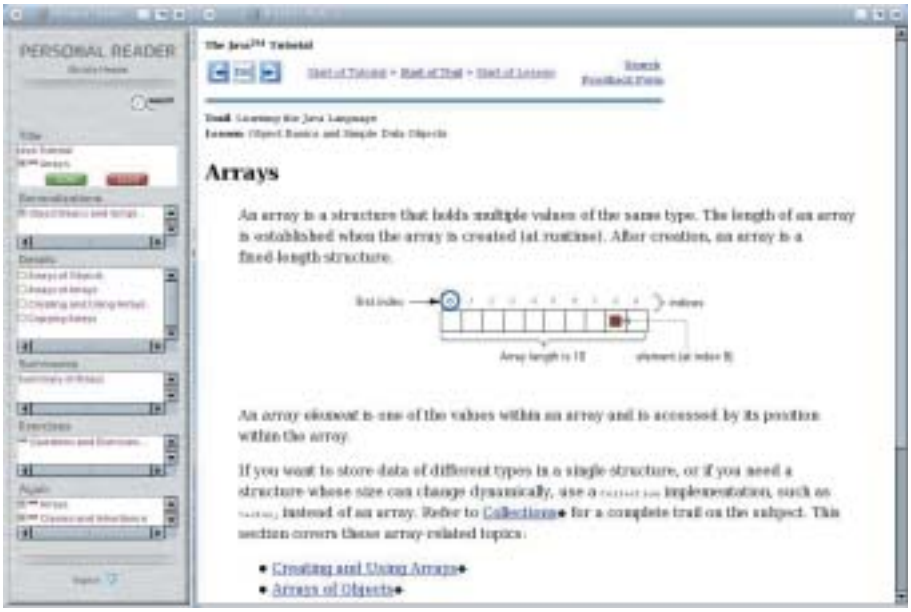
We look at: tourist information systems, domotic systems, health care, and more!

More information available at

http://rewerse.net/a3

Description of Research

The workpackage „Personalized Information Systems" focuses on advancing the state of the art in personalized information systems, paving the way for personalization in the Semantic Web (which is sometimes called „The Adaptive Web"), and for realising powerful Personalized Information Systems on the Web by taking full advantage of reasoning mechanisms developed in REWERSE.



Tools & Technologies

Personalization Services are implemented by using the Framework given by the Personal Reader Project, www.personal-reader.de.

The Personalized Information Systems group takes advantage from using the Lixto Suite (www.lixto.com) for automatically detecting and extracting information from web pages.

The webXcerpt Information Manager (www.webXcerpt.com) for collaborative browsing is used for connecting highly annotated data in personalized portals with information found on the Web during browsing sessions.

Glossary

Techniques for personalization can be found in the area of **adaptive hypermedia** - these are hypermedia systems whose navigational possibilities (the hypertext links) or the presentation of content (the nodes of the hyperspace) can be changed according to the user's age, culture, skills, and past choices. The information about the user is stored in a **user model** which normally is dynamically changed along time.

Recommendation systems are used to support users in solving tasks. By classifying a user into groups with similar needs and characteristics, a user profits from previous browsing experiences or ratings from users near to her/him with respect to her/his interests, current goal or task, etc. Machine learning techniques like data mining or knowledge discovery build the backbone for this kind of personalization.

Further examples for the need of adaptation and personalization can be found in the area of **Web Services**, related e.g. to the use of a service. For instance, in some applications it is important to personalize the execution of a service to a user's specific requests or to properly choose a set of services that are to be combined so to accomplish a more complex task.

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