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empolis orenge — an Open Platform for Knowledge Management Applications

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Abstract. empolis orenge 4.0, a component-based environment for knowledge management applications by empolis Knowledge Management, is a flexible and scalable Case-Based Reasoning shell for industrial applications, that also contains many components that provide functionality beyond the basic CBR paradigm. Further it can be extended easily by application-specific components, which makes it an ideal starting point for experimental CBR-oriented research projects, too.

As Case-Based Reasoning has evolved into a well-established problem solving paradigm, industrial CBR applications are getting more complex and larger. Moreover, the typical CBR tasks like Retrieval are usually only a small part of the required functionality. Often the bigger challenge is to integrate the CBR tool neatly into an existing information system environment and to combine CBR with other techniques for a better solution to the problem. Also, as CBR is used for enterprise-wide knowledge management systems or for product search in huge electronic malls, the CBR tool must be able to cope with huge industrial case bases containing a million or more cases.

From this, three major requirements emerge that a CBR tool for the 21st century must meet:

Open Architecture It must be easy to combine components implementing different techniques or to enhance the tool by components implementing new techniques or application specific tasks.

Connectivity It must be easy to use existing data in the application environment and to integrate the tool in existing information systems.

Scalability It must be possible to handle huge amounts of data efficiently.

empolis orenge has been developed by empolis Knowledge Management (formerly tec:inno), and has a lot of experience with developing and deploying CBR projects, also using the predecessor products of orenge, CBR-Works (see [3]), CBR-Sells, and CBR-Answers (for both see [1]). Based on this experience, empolis orenge has been designed to meet the requirements stated above:

– orenge is component-based: Instead of being a big monolithic program, orenge consists of a set of *components* or *services*, that perform only one special task.

Using orenge:ProcessManager, these components are arranged to *pipelines* that describe control flows. It is very easy to integrate application-specific or experimental components into these pipelines.

- orenge provides powerful standard components: These include different retrieval engines including a CRN retrieval [1] and a database retrieval [4], a textmining component for information extraction [2] and a rule processing system for completion and adaptation tasks [5].
- orenge is easy to integrate: orenge:Connect provides means to import data contained in databases and documents. orenge:ProcessManager operates as a TCP/IP server, to which queries are sent using a special XML language. Any desired text format can be used to represent the result, most often this will be HTML or XML.
- orenge is scalable: We have successfully deployed knowledge management applications with case bases containing several hundred thousands of documents or e-commerce applications for searching through one million product descriptions.

empolis orenge is implemented in Java and has been used in industrial projects already on Windows NT/2000, Linux, Solaris and HP-UX systems. The editing of models and configuration files is supported by orenge:Creator which provides graphical user interfaces to edit the models and contains *wizards* to assist the user in this task.

For more information please visit `http://www.km.empolis.com` or contact `orenge@empolis.com` to order an evaluation CD. The evaluation CD contains a lot of detailed documentation about the components of empolis orenge as well as demo applications and tutorials.

References

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