

Presenting information about hospitals to multiple user groups via the world wide web

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Information about hospitals

Potential patients want to chose the right hospital for their specific disease. Healthcare professionals want to give a high-quality advice to their patients in this question, too. Assuming the vision that there is a central database with all hospitals, this leads to the need for a presentation to multiple user

groups. The CERES research project has developed a facile way of presenting hospital-related information. First, information is restructured by a view. Next, information is presented on individually structured web pages (Fig. 1) – if needed, in textual form.

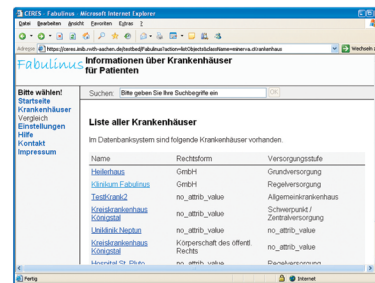


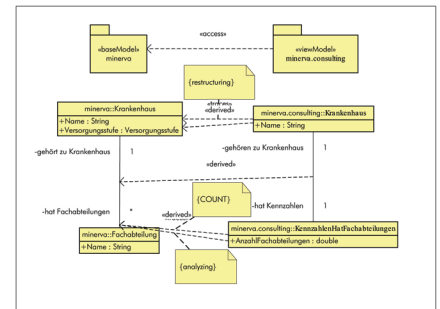
FIG 1. WEB PAGES: The resulting web pages contain the information from a view. They follow the the structure prescribed by the templates.

First step: define view contents

As a first step, a view takes hospital information from the central object-oriented database and filters and restructures it for a specific user group. Our custom view mechanism exactly fits the needs of the hospital domain with only two derivation operations: object

restructuring and on-the-fly calculation of key figures from base data. A content provider who prepares a presentation for a specific user group can simply declare our views using the graphical unified modeling language (UML, Fig. 2).

FIG 2. VIEW DEFINITION: Each user group gets individually structured information through an object-oriented view. The view is defined graphically in the UML.



Second step: output web pages

A hospital's web site can be classified into pages of similar types, for example departments or wards. For each page type, there is a template. Each template consists of atomic parts called nuggets. A nugget can be a text paragraph, a table, an image, or a heading (Fig. 3). To prepare a template, a content provider arranges nuggets not yet filled with information. When displaying a

department or ward, the presentation augments the department or ward template with information from the database and outputs it to the user (Fig. 4). To maximise web page usability, the presentation mechanism can generate natural language text from the database content, including correct inflection of words (Fig. 5).

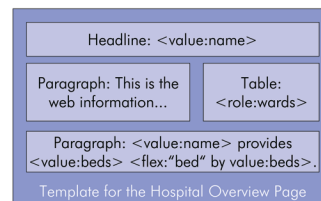


FIG 3. TEMPLATES: For every web page, there is a template. The template contains information nuggets, ie. placeholders for information not yet augmented with data from a database view.

A simpler approach than usual

We created a facile, easy-to-use way to present structural hospital information to many different user groups. For our presentation mechanism, we took the well-known approaches of object-oriented views, template-engines and language generation and taylorred a custom solution for the hospital domain. With

the domain specificity, the solution gained high simplicity. Text generation allows to display database content in natural language instead of tables and figures. Our work will hopefully improve the quality of hospital information accessible via the world wide web.

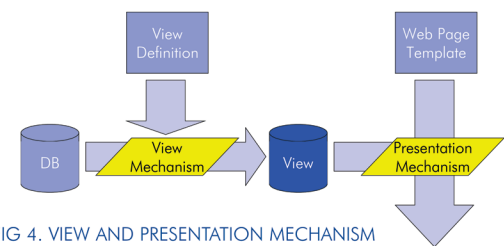


FIG 4. VIEW AND PRESENTATION MECHANISM WORK TOGETHER: The view mechanism transforms data from the database to a view. The presentation mechanism takes a template and augments it with data from a view.

A sentence from a paragraph nugget, augmented with information from the view. Both subject and verb are inflected depending on the number of wards.

Literature

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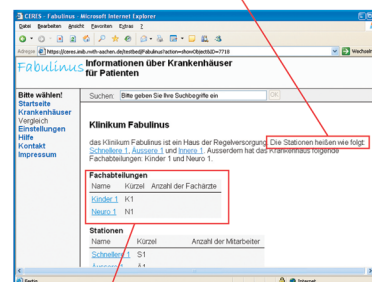


FIG 5. NATURAL LANGUAGE: The presentation mechanism creates web pages that contain natural language. This makes pages more readable.

A table nugget, filled with information

