

Generating the Web Sites Using Templates and Text-patterns

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This is an extended abstract of a full paper:

Abstract: The paper mainly contains a description of the special tool developed for the web-authoring of educational pages and explains reasons which lead to this research. We emphasize that this tool is made mainly for authors who intent to make a large number of educational web pages per session. Automatization of such authoring through using the template-based approach is also emphasized. It is explained how the text-patterns used in this approach help in the authoring.

1. Introduction

Multimedia presentations are now commonplace. Special effects, animation, and many sophisticated audio and video techniques mean that one is constantly offered presentations where the virtual borders the real; and this is not only in the world of entertainment. Multimedia is also making its mark in education. Today, many (higher) education publishers confidently expect that multimedia products will replace, or at least supplement, textbooks. Authors are using multimedia materials (MMMs) in the same way as they previously used illustrations - to add value to the text - and to do things that are impossible in print like showing dynamic temporal multidimensional phenomena. The success or failure of a text might well soon depend upon the quality of the MMMs used; in the same way as the quality of the illustrations was previously a major factor in the success or failure of a textbook.

Until recently, the production of multimedia products was expensive, demanding professional and highly skilled persons; and it still is as far as many sophisticated programs are concerned. However the spread of relatively cheap high-powered computer platforms and the associated "production software" is allowing more and more educators to construct their own multi-media materials and projects. Even so, an opportunity to re-use materials developed by others would be welcome. This would not only keep the costs in this expensive sector to a minimum, but would also help optimize the use of teachers time.

While re-using images is relatively trivial for anyone with basic Web authoring skills, the re-use of some really multimedia formats, requires an extensive know-how.

This paper investigates a particular scenario of re-using multimedia components in web based courseware, and provides a description of a particular re-use engine which was developed especially for reuse of multi-media materials in different formats.

From the users side, an ideal world would allow authors to seek out what Multi-Media materials are available and suitable for their use, and then use them easily.

We have already lot of different applications used for construction of web pages and presentations allowing the author to "compose" different kinds of media into a single presentation such as multi-media objects in movie-format, some image-format, sound-format etc. Some of them are well designed and easy to use. But, the main disadvantage of such applications is the lack of the parameterization possibility while authoring and remaining of one and the same complexity in authoring of a large number of sites per session. In other words, author has to go through one and the same procedure no matter does he/she make a first or a hundredth page. That was the main idea which lead us to the development of a special tool which combines "composing" philosophy and template-based approach in order to break down the complexity in authoring of coursewares.

2. The Reuse-Engine: A Rough Description

The reuse engine integrates multi-media material from different sources into a single coherent work. The tool works with so-called catalogue of MM materials and a number of page templates. Actual authoring is carried out in accordance with the following scenario:

- Choose a particular template defining a page topology;
- Select a number of MM elements from your catalogues, drag and drop them into the template cells;
- Save the resultant file into a directory on your local drive or into desired collection on some information server (in our case, Hyperwave is mostly used);
- Edit the resultant file if necessary; An author is able to create new MM material and hand the material over to the public catalogue. An end-user is able to take material from such public catalogue and copy them into his/her local catalogue where they become available for further reuse in new educational applications. The reuse engine provides a convenient way to browse more then one catalogue (CD-ROM Catalogue, your own local catalogue, or some remote catalogue placed on the remote server), select MM elements from the catalogues, and reuse them to create new HTML documents.

The reuse engine works with so-called page template. Each page template defines topology of a resultant HTML document and consists of a number of template cells.

3. Creating Templates And Their Usage

The tool is developed so that it allows the "visual" approach to creating the template which roughly defines the layout of pages that are to be constructed/authored. While creating a template one can define or reuse some text-pattern that is characteristic for some media type wanted to be used in produced page by the author. Such patterns can contain some variable parts that can be specified (parameterized) during the runtime e.g. while constructing the page. (Fig. 1)

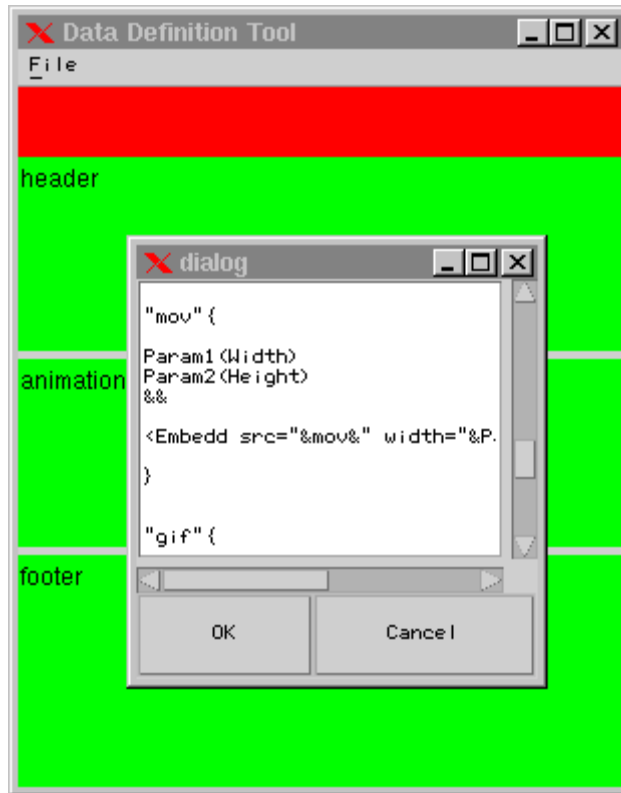


fig 1. A screen-shot of text-viewer window with an example of text pattern with parameters in it

In the second phase, the author uses earlier defined template, gets a rough layout of the page, drags/drops objects (actual files) from the special tree-view which gives hierarchical view of a local file-system and also allows mounting of remote system such as some HyperWave server. Author will here be asked for filling out the parameters (if some defined in text pattern used of specified data-type). (Fig. 2)

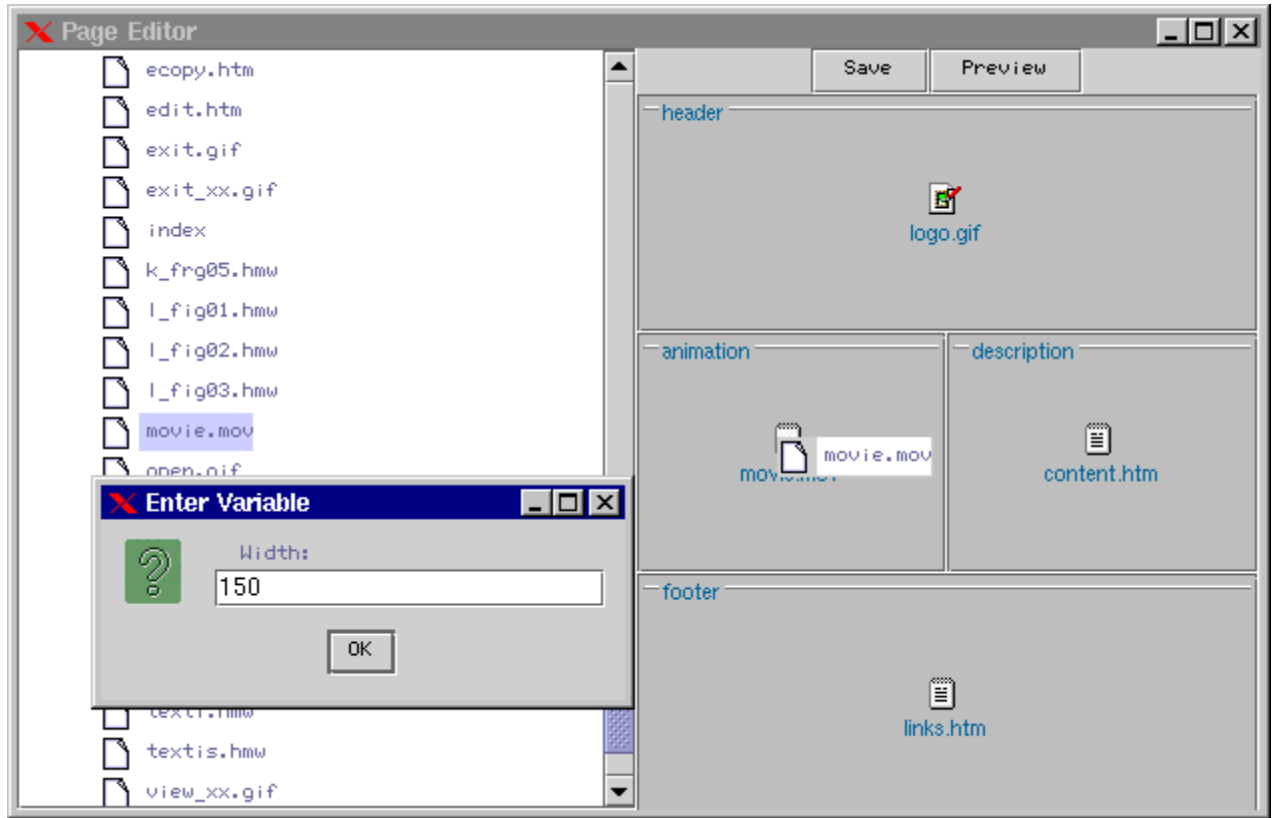


fig 2. A screen-shot of running application with parameters dialog-box or drag/drop

4. Refinement of Web-authoring

In so called third phase, the author is encouraged to use preview possibility of the tool and to see is the page constructed in a proper (or better to say, desired) way. Some final changes can be now made, and then the author can start the saving procedure. At the beginning of the procedure the author will be asked for the final destination point where to save the created page. Here can be chosen between a local file-system or remote Hyperwave information server. (Fig. 3)

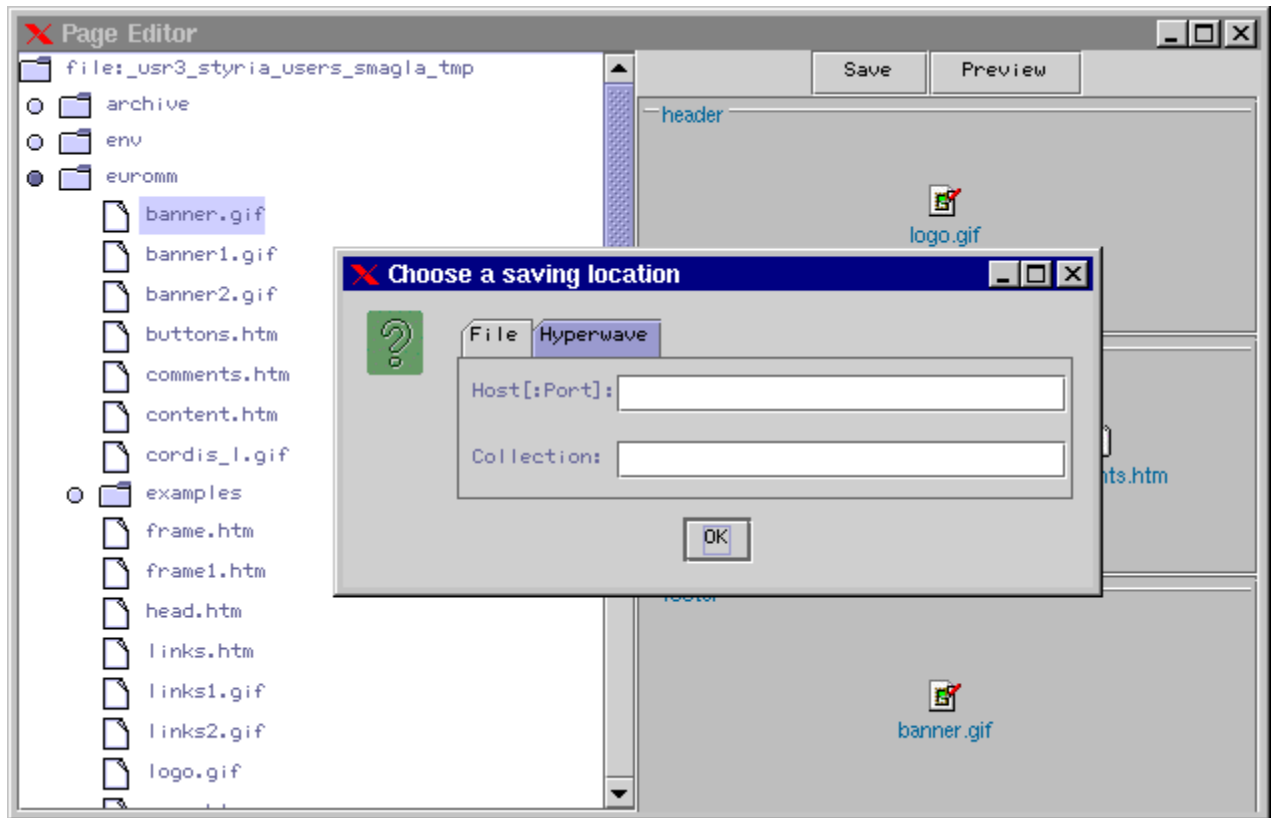


fig 3. A screen-shot of the save-dialog-box

After this is finished, the author can start to create another page, using the same template, or, better to say, reusing the previous page. With simple drag/drop, the tool can change the content of the template fields of the previous page and the previewing/saving procedure can be started again. If some other fields of the layout template need some small changes it can be done through changing the parameters included by the proper text pattern used in the field (formally called "a cell").

5. Conclusion

Now, it is easy to conclude that this approach applied to the authoring of a large number of educational pages brings a remarkable speed-up and simplification.