Web-based administrative Graphical tool for an Information Center

<table>
<thead>
<tr>
<th>Namn</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pär Birgersson</td>
<td><a href="mailto:c01pbn@cs.umu.se">c01pbn@cs.umu.se</a></td>
</tr>
<tr>
<td>Jimmy Eriksson</td>
<td><a href="mailto:c01jen@cs.umu.se">c01jen@cs.umu.se</a></td>
</tr>
<tr>
<td>Daniel Rönström</td>
<td><a href="mailto:c01dram@cs.umu.se">c01dram@cs.umu.se</a></td>
</tr>
</tbody>
</table>

Abstract

"Web-based administrative Graphical tool for an Information Center" is a system that is an easy tool for an administrator to add information about events on an arbitrary image. In this prototype the images are mainly maps, and events are placed on the maps as icons containing various information.

The result shows a functional prototype that give an administrator the ability to easy add, modify and delete events on an arbitrary image.

1 Introduction

"Web-based administrative Graphical tool for an Information Center" is a system that allows an administrator to upload images and then place icon upon these images that will represent an event with various information.

The main functionality is that the administrator will have the ability to add, modify and delete events/images into the database that will then be shown on the web. Each uploaded image contains a description and a name of the image. Each event contains of a title, description of the event, an icon, a start date, end date (optional), a link and an email.

One area where this system could be used to is a Tourist Information Center where the images could be a map over a place or city, and the icon placed on the map representing different tourist attraction. Each containing information about the attraction. A normal user can then browse through all attraction and retrieve more detail information from the attraction that seems interesting.

This system is mainly constructed to aid an administrator in tasks related to what this system provides, but functions as searching through the events and adding comments have also been added for normal users.
2 Approach

The project started with a project specification. What this basically did was that it gave a description of the system at a high level. Therefore it was necessary to first sit down and start to work out the details of the project. At this time some of the functionality were stated but more were added later. When the initial details were specified the work was turned toward the creation of a database. It was early decided that PostgreSQL 7.4 should be used as the database. With the initial specification as a foundation the work to construct the Extended Entity-Relationship (EER) diagram begun. From this a SQL schema was constructed. When the database design was finished the coding part started. Simultaneus work at three different part were made and the parts were then put together to a first version of the system. Very little functionality was present at this time. From this version more and more functionality were added. Also errors in the system were corrected.

When the coding started it was decided that PHP was going to be used. The reason for this choice was mainly that PHP had good support for connecting to PostgreSQL databases and that the the system should be web based. Accordingly the code is mostly written in HTML and PHP but there is also some JavaScript in use. The JavaScript code is used to check attributes and to add confirmations to some actions that can be taken by an user.

The system has been constructed from the idea that there is an administrator that can add information to the system. This information can then easily be presented to a regular user since there isn’t any demand to register to access the information on the page. From a user standpoint the system shows information about either all events belonging to a certain map or all the events presented on one map each. It is also possible to search for events by typing in a search string. Further the user can add a comment to any of the events available.

Apart from the functionality described above an administrator can add new information to the system. New maps and and icons can easily be uploaded into the system from the local computer. The maps and icons can of course also be removed from the system and the maps can be given a name and a description. Further it is possible to add an event to a map located in the system and representing this event as an icon. The administrator can if needed remove a user comment from the system.

To separate a user from an administrator the sessions functionality by PHP is used. To get the rights to manage the information in the system and to activate and administrator session it is necessary to give an user name and an user password to the system. This session is then active until the administrator log out or until the web browser is closed.

When the system is asked to show a map with one or more events the image is built up from the information in the database each time. By doing this there is no need to insert a new map when inserting or removing an event.
The maps and icons in the system are stored as binary large objects (BLOB's). A limitation based on the type of the maps and the icons has been implemented in the system. This says that those must be of the format JPEG or GIF. Also there is restriction of the maps that limits them to a width of 800 pixels.

When a map, an icon or an event should be deleted some checks are performed. An icon can’t be removed if it is used by some event on some map. To remove such an icon the event must first be removed or the icon be replaced. Likewise if a map is about to be removed all the events belonging to the map must be removed first. By enforcing this there is no risk that something is removed by mistake.

3 Results

The result of the project is a web page using combinations of HTML, PHP and some JavaScript. The web page uses the supported functionality of PHP to communicate with a PostgreSQL database.

The final system fulfills the intended functionality. The interface can be understood in a fairly amount of time. This is most likely because the user functionality is restricted to viewing events, searching for events and writing comments. This is an important fact when evaluating the system potential.

In the aspect of performance the result could be improved in many ways. When fetching the icon and maps, a database connection is established each time. This slows down the loading of these items. This could be reworked to just create one database connection. This would increase the performance when loading maps and/or icon. Although as long as the number of maps and/or icons is relatively small this shouldn’t be a very big problem.

The EER Diagram showing the structure of the PostgreSQL database that is used in this project can be shown in figure 1 below.

![EER Diagram](image)

Figure 1: EER Diagram over the Database

A screen-shot showing an “Halloween pumpkin” icon on a “treasure map” image is shown in figure 2. The information related to that event is presented below the “treasure map” image.
4 Discussion

This project have been very educationally since programming using PHP was a new experience. PHP is a good tool to add more functionality to a web page that standard HTML does, even if it sometime doesn’t work in the way you want it to. A good thing is it that PHP support API to many databases including PostgreSQL which is used for this project.

The main workload of this project has been to make the system a good and easy tool for a novice administrator. Additional features have been added such that an normal user can add comment and search among the events in the database.

The system is constructed in such way that addditionally features could easy be added. Such features could be:
• An image could be represented by several “map’s”.
• More specified search options.
• Ability to add and remove users.

Although the system is functioning good there is still things that can be improved. Despite this, the system meets the demands that can be required by someone that want a way to present information to a group of people. Therefore there exists areas where a system like this could have a future.

5 Conclusions

The final prototype is a functional system that by an easy web-based graphical interface make it easy for an administrator to add, remove and modify events and images, These items can then be displayed on a web page. A user also have the ability to search through and make comments to the events that are displayed.

From an administrator point of view the system can be said to be quite easy to use. The functionality should fulfill the demands of an administrator that wants to make geographical dependent information available in an easy way.

6 Reference

The only references that can be made from this project is the references to the home pages of the tools that have been used.

PHP Developer Site
http://www.php.net

PostgreSQL Developer Site
http://www.postgresql.org