Project management system "Easy Search"

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ABSTRACT

This paper is report for publication management project.

1. INTRODUCTION

This project was made by 1st year bachelor students: Anatoly Maksudov and Ilya Kuznetsov. It's our first experience of projects like this.

2. FIRST PHASE

In the first phase we created:

1. ER diagram of our project

2. Relation schema

2.1 ER diagram

In the beginning we created the ER diagram with lots of attributes in the entity "article". But when we began parsing we realised that the "dblp.xml" file contains very few information. That is the reason why we cut our diagram. An other problem was the "keywords" entity. In the beginning we decided that it must be a weak entity. But we decided that it's more a normal entity that a weak entity.
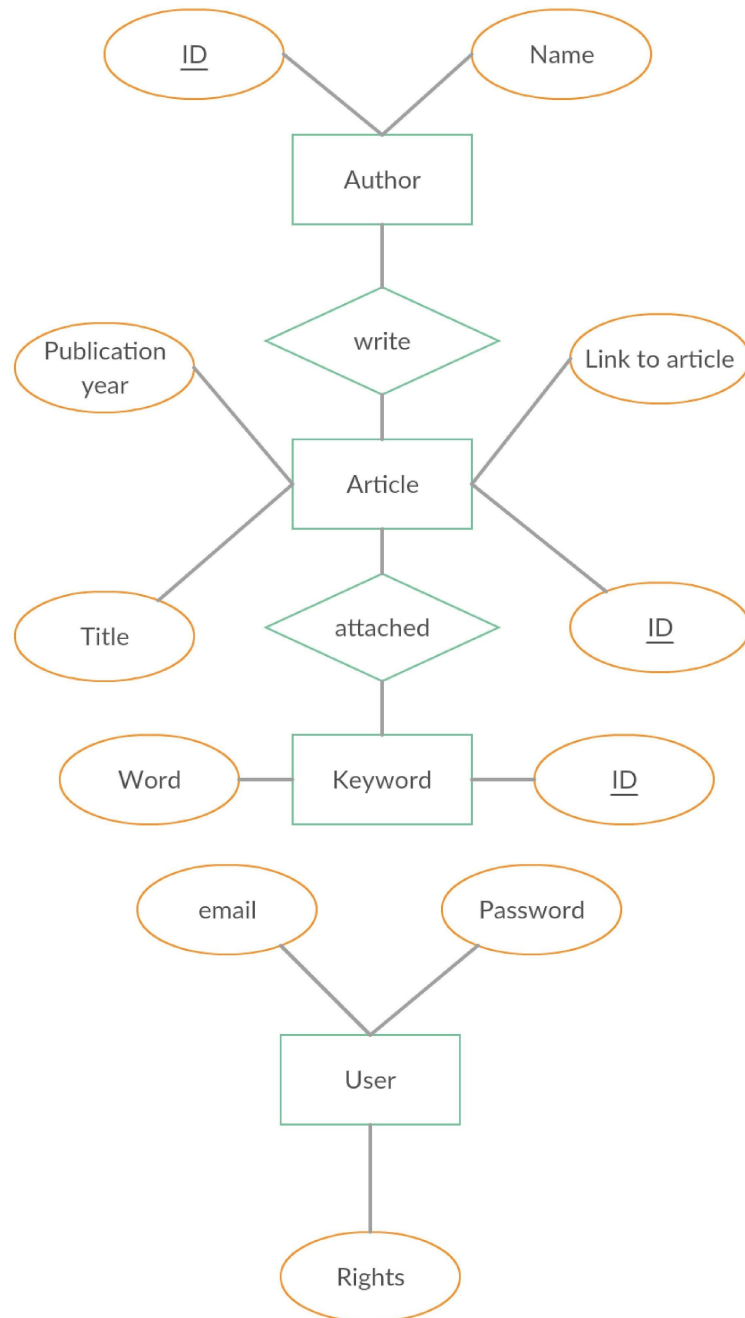
2.2 Relational schema

We decided that full normalisation isn't necessary and we resolved to leave it as it is in the ER diagram.

- $Articles(\underline{ID}, Title, PublicationYear, LinkToArticle)$

- Authors($\underline{ID}$, Name)

- write($\underline{authorID}$, $\underline{articleID}$)

- Keywords($\underline{ID}$, Word)

- attached($\underline{articleID}$, $\underline{keywordID}$)

- Users($\underline{email}$, Password, Rights)

3. PHASE 2

3.1 Backend

Backend was created with php language. In the backend there is 3 main scripts:

1. /dblp-tools/dbConnection.php

2. /dblp-tools/newSearch.php

3. /dblp-tools/operate.php

3.1.1 dblp-tools/dbConnection.php

This file contains variables for connection to database (Postgresql 9.4). Also it set connection to database. This file is included in every script.

3.1.2 dblp-tools/newSearch.php

This file searches through database by a query. Function get parameters by GET:

- 'query' is a search query

- 'searchby' shows how we search, i.e. by authors ('author') or by titles ('title') or by id ('id')

- 'offset' shows offset (how many articles already on a page)

- 'order' shows if we must order query ('year' - order by year, title' - order by title)

- 'sequence' shows if we have ascending or descending order

newSearch.php returns answer in html format as described in values.

3.1.3 dblp-tools/operate.php

This file operates with database articles. Only users with "admin" rights have access to this file. This file get parameters by GET.

- 'do' - can be 'delete' or 'insert' or 'update'

Other values are get depending on 'do' value.
If 'do' is 'delete' we must send to this file only article's 'id'.
If 'do' is 'insert' we must send to this file next variables:

- 'title' - title of article

- 'pyear' - publication year

- 'link' - link to article

- 'authors'- authors divided by "," (one comma)

- 'keywords' - keywords divided by "," (one comma)

If 'do' is 'update' we must send to this file next variables:

- 'id' - apply changes to article with this ID

- 'title' - new title

- 'pyear' - new year

- 'plink' - new link

- 'authors' - new authors divided by "," (one comma)

3.1.4 Security

We are novices in web development. That is reason why we didn't add security checks. Security test of sites is a entire study, so we don't have competence for good security checks. Only one security point is that we use hash function for user's password.

3.2 Frontend

Frontend was created with HTML, CSS, javaScript, JQury. We use parts of Bootstrap framework and some elements from Google Material Design framework.

When we were creating a frontend we decided to make it minimalistic. We created one page for all functions. If user is administrator script add control functions.
Files in frontend are:

- index.php

- login.php

- logout.php

- registration.php

- changePassword.php

Also there is lots of addition files in 'js/' and 'css/' catalogues.

3.2.1 index.php

It is the main file. It provides almost all functions of our project. When user appeal to this file it checks if user is logged. If not - 'index.php' redirects user to 'login.php'. We use ajax to load articles. Script send to 'dblp-tools/newSearch.php' query and put answer into answer table.

3.2.2 login.php

It is sing in page. Also it checks if user is logged in. Users can register on this page. But if you want grant to user administrator rights you must use direct sql query to DB. It was made for better safety, because administrator have full access to entire DB.

3.2.3 logout.php

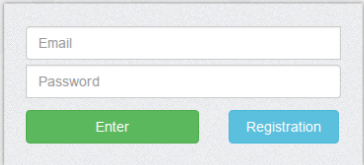This file end user's session.

3.2.4 registration.php

This file get ajax query from 'login.php' page and create new user in DB.
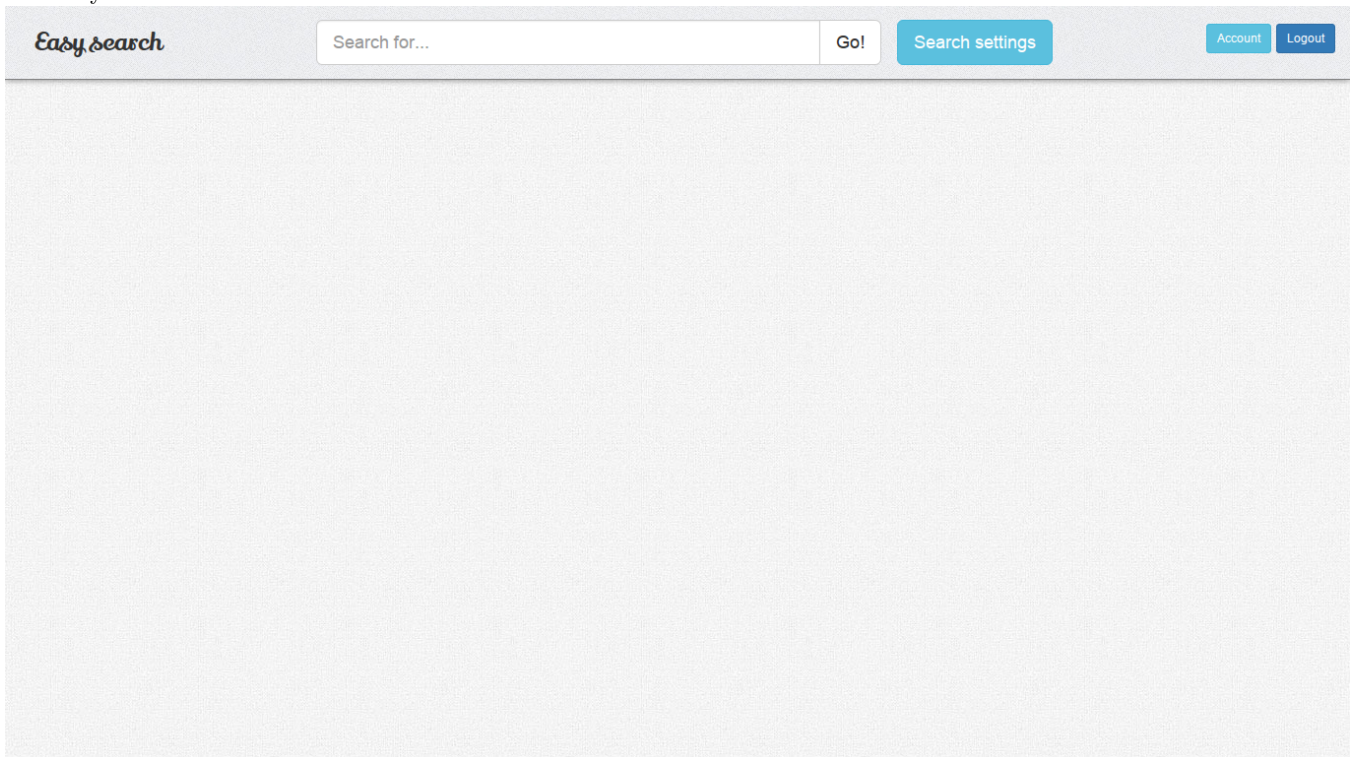
3.2.5 changePassword.php

This file get ajax query from 'index.php' page and change password of user that is online.
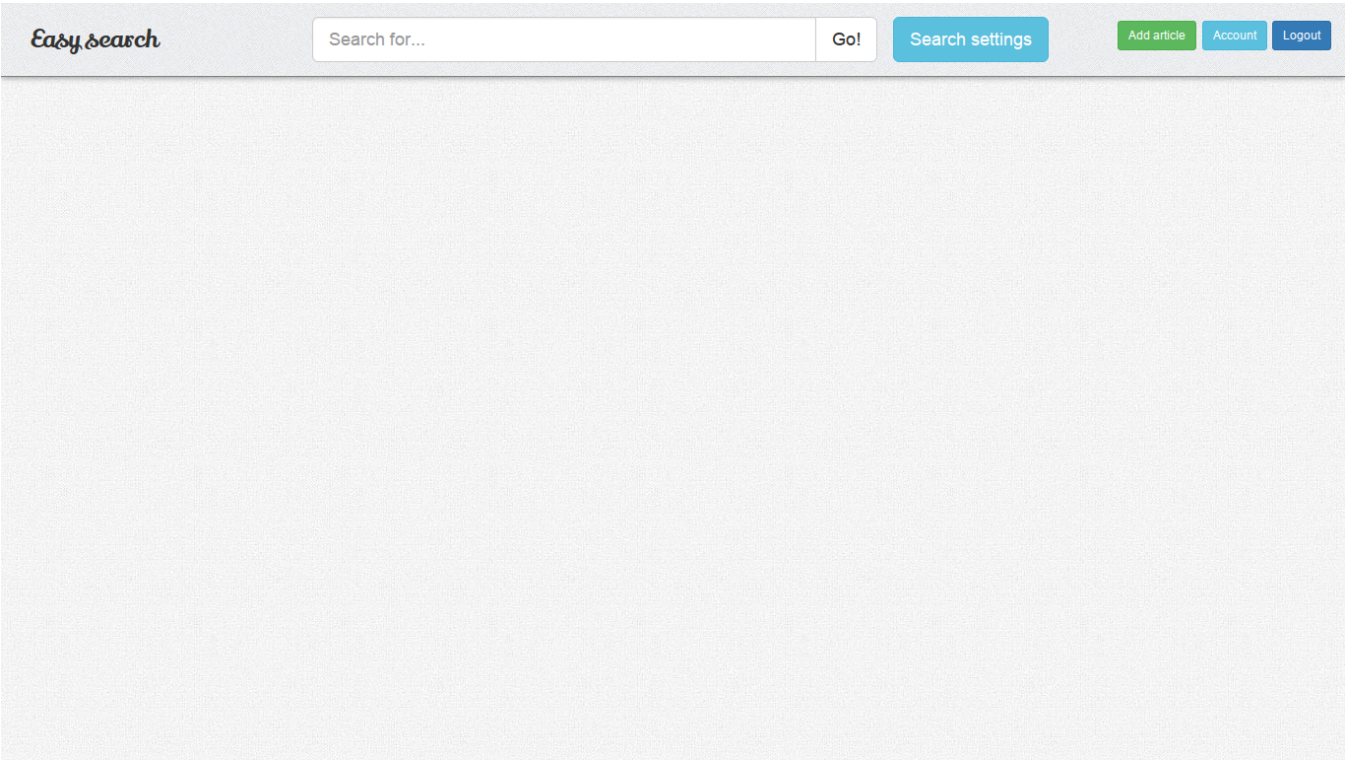
3.2.6 Screenshots

Login form:

Ordinary user view.

Admin view:

Article's edition:

Title	Authors	Year	Link
21st-Century Data Miners Meet 19th-Century Electrical Cables.	Cynthia Rudin, Rebecca J. Passonneau, Axinia Radeva Steve Ierome, Delfina Isaac	2011	Link
2-D Entropy and Short-Time Fourier Transform to Leverage GPR Data Analysis Efficiency.	Yu Zhang, Panglijen Candra, Guoan Wang, Tian Xia	2015	Link
3-D acquisition and quantitative measurements of anatomical parts by optical scanning and image reconstruction from unorganized range data.	Gabriella Tognola, Marta Parazzini, Paolo Ravazzani Ferdinando Grandori, Cesare Svelto	2003	Link
3-D motion system ("data-gloves"): application for Parkinson's disease.	Yu Su, Charles R. Allen, David Geng David J. Burn, Una Brechany, Geoffrey Duncan Bell R. Rowland	2003	Link
Abstract Data Types.	Donald D. Cowan, Paulo S. C. Alencar	2008	Link
Abstraction of GeoDatabases	Monika Sester	2008	Link

Add article menu:
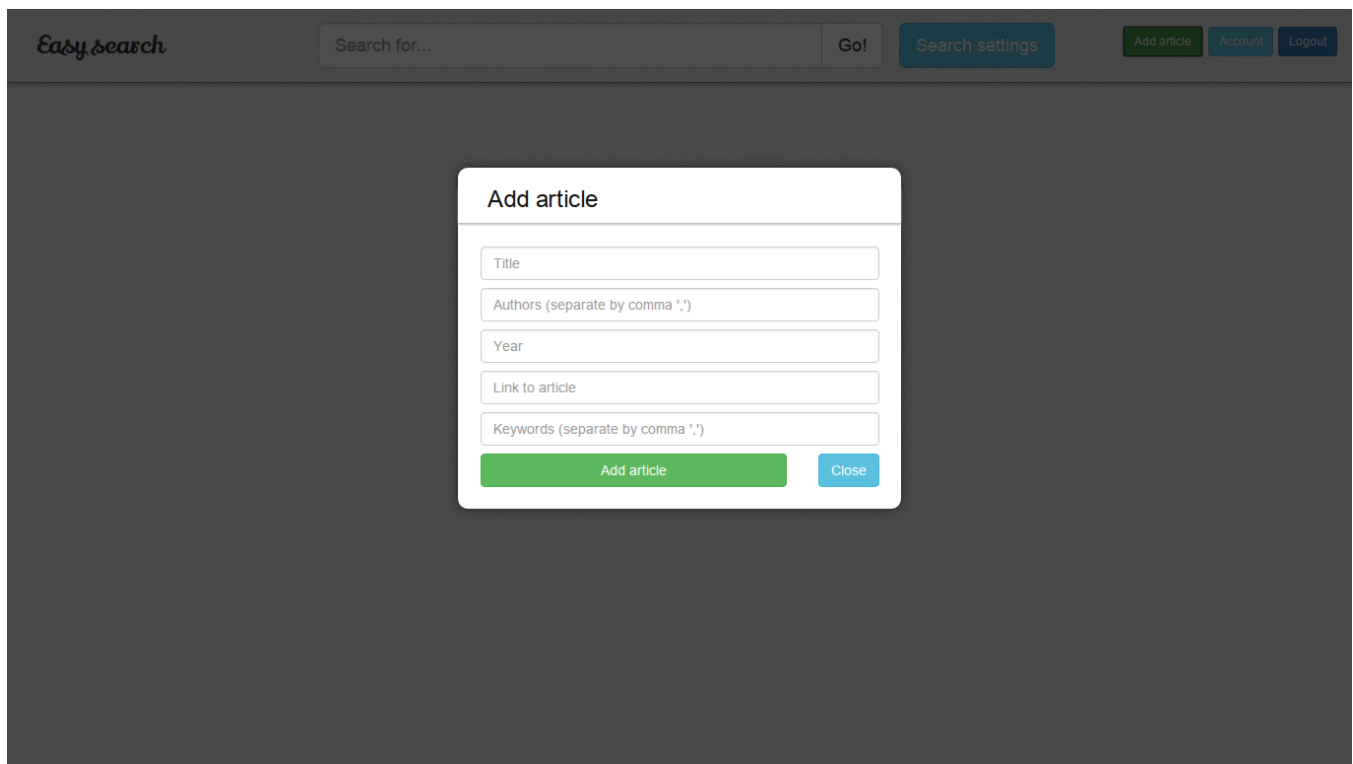
4. SEGREGATION OF DUTIES

After a first discussion Anatoly created a ER-diagram, which later had to be changed due to the lack of certain attributes in DBLP.

Ilya set a server, established a connection between PHP and Postgres and chosen the style library.

After that, we created the first page. When we realized that we need a place to store information about users, we added a new table in Postgres, made changes to the ER-diagram and added a new page for authorization and password change.

During the next two months, the main functions were written and added new buttons on the home page.

Thus, there was no segregation of duties.

5. WHAT WE HAVE LEARNED?

During the work on the project, we learned the basics of PHP, practiced writing on JavaScript, HTML and jQuery.