Final Assignment for the course Foundations of Computational Media

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Abstract

This assignment is the final project for the course "Foundations of Computational Media" and its topic was about the integration of social media authentication and authorization tools in combination with the use of web apis. The project is about a webpage in which three types of users can log in with their social media account and interact with the system according to their permissions.

1 Introduction

This project is the final step of a series of assignment in which my main goal was to design and implement an eHealth project that regards the treatment of Parkinson Disease. The app can be used by patients that suffer from Parkinson Disease and medical personnel that works in the treament and research of PD. In the third and last assignment I made use of web apis for better visualization of the patient's data.

The implemented project can be found on `http://pdtreat.x10host.com` and the source code on `https://github.com/geoakr84/fbapp`.

2 Methodology

2.1 General information

Initially, for the implementation of the project I ran the files on my localhost (XAMPP), and afterwards I uploaded the source code to x10hosting.com. The programming language that I used are limited to HTML, CSS, PHP and Javascript. My intention was to create as less as possible files and folder, in order to keep the structure simple.

2.2 Limitations

Perharps the biggest limitation was the lack of programming skills. Before I start the project, my web programming knowledge was limited only to client side programming. For this project, the use of PHP was imperative, thus I consumed precious in the early stages of the implementation to learn and use PHP.

Another serious problem that I encountered was the finding of the appropriate webhost. Initially, I selected the webhost 000webhost.com, but since it supported PHP version 5.2 and not above I was forced to chnage to my current selection. Of course, the webhost that I use at this moment is not the best, since it is rather slow.

3 System Design

3.1 General Information

The are three types of authentication and authorization in this project (Facebook, Google and Twitter) and three type of users (patients, physicians and researchers). The patients use their facebook account to log in, physicians their Google and finally researchers use their Twitter account.

For the implementation of the facebook login I followed the recommended instructions of the company that suggest Javascript code. The login button redirects the user in another page where there are available some youtube videos regarding Parkinson. The instructions are available at facebook developers homepage.

For the implementation of the google login I used again Javascript. The user after succesfully logs in can view a report with the activities of the patient and also the results of the patient's sessions which are visualized in graphs. For the creation of the graphs I used the webpage plot.ly.

Finally, for the implentation of the twitter login I used PHP as most of the tutorials that are available online recommend it. A researcher can view the activity report of the patients and in addition the geographical location of them.

For all the implentations, I had to create a secret key for each of the login mechanisms, which I gave it later as an attribute of a variable. In the web console of each the login mechanisms I defined the web page url but also the url for the redirection.

3.2 XML visualization

For the implementation of the activity therapy table or the user's login table I imported separated XML files which are available online. Unfortunately, for the google map I was not able to find a solution to import the XML file, thus I defined the coordinates for the location of the patients manually. For the visualization, I created a PHP script which makes a table and the automatically the cells of the table are inserted.

3.3 Data annotation

A small PHP script was made in order to import from an XML file the comments that the researchers have made on the test sessions of the patients. The PHP structure was similar to implementation of the previous ones.

3.4 Smart data search

The user of the app can search data inside the system with the smart techniques. Specificallu, my intention is to insert keywords in every sector of the application, so that a user can search for example a youtube video with the use of those keywords, instead of writing the title of the videos. In this way, the application becomes easier for the use and the user saves times and effort.

4 Conclusions

This project contributed in the progress of programming web applications in a great degree. Although, the design of the user interface is poor it consumed great amount of time and effort. I consider this project as the first step for a future extension of the project. The project combines different mechanisms of authentication and a variety of web tools. The code of the project can be easily adjusted and enhanced with new features in order to handle greater amount of data.

```html
<script>
  window.fbAsyncInit = function() {
  FB.init({
    appId : '312108725828618',
    status : true, // check login status
    version : 'v2.8',
    cookie : true, // enable cookies to allow the server to access the session
    xfbml : true // parse XFBML
  });
  };

  (function(d, s, id){
    var js, fjs = d.getElementsByTagName(s)[0];
    if (d.getElementById(id)) {return;}
    js = d.createElement(s); js.id = id;
    js.src = "//connect.facebook.net/en_US/sdk.js";
    fjs.parentNode.insertBefore(js, fjs);
  }(document, 'script', 'facebook-jssdk'));

  function back(){
    window.location.href='http://pdtreat.x10host.com/';
  }
  function fbLogout() {
      FB.logout(function (response) {
          //Do what ever you want here when logged out like reloading the page
          window.location.reload();
          window.location.href="http://pdtreat.x10host.com/";
      });
  }
</script>
```

```php
<?php
    $dataXML = file_get_contents("http://4me302-16.site88.net/index.php?table=User&id=2");
    $obj = new SimpleXMLElement($dataXML);
    $array = json_decode(json_encode($obj), true);
    /*echo '<pre>';
    print_r($array['userID']['username']);
    echo '</pre>';*/
?>
    <table id="t1">
    <theader>
        <td>Researcher's Name</td>
        <td>Email</td>
        <td>Role</td>
        <td>Organization</td>
    </theader>
<?php
    foreach ($array as $user) {
        $username = $user['username'];
        $email = $user['email'];
        $role = $user['Role_IDrole'];
        $org = $user['Organization'];
        echo "<tr>
          <td>$username</td>
          <td>$email</td>
          <td>$role</td>
          <td>$org</td>
        </tr>";
    }
?>
```


The location of my patients

Report of patients activity

Therapy ID	UserIdMedicine	Patient ID	Medicine ID	Therapy list	Test ID	Date	Data Url
1	1	3	1	1	1	2009-12-01 18:00:00	data1
1	1	3	1	1	1	2009-12-01 18:00:00	data2
1	1	3	1	1	2	2009-12-02 18:00:00	data3
1	1	3	1	1	2	2009-12-02 18:00:00	data4
2	1	4	1	1	3	2009-12-02 18:00:00	data5
2	1	4	1	1	3	2009-12-02 18:00:00	data6

Notes on Sessions

Test session ID	Note	Comment by user ID
1	Well this is interesting.	2
1	This seams a bit weird.	1