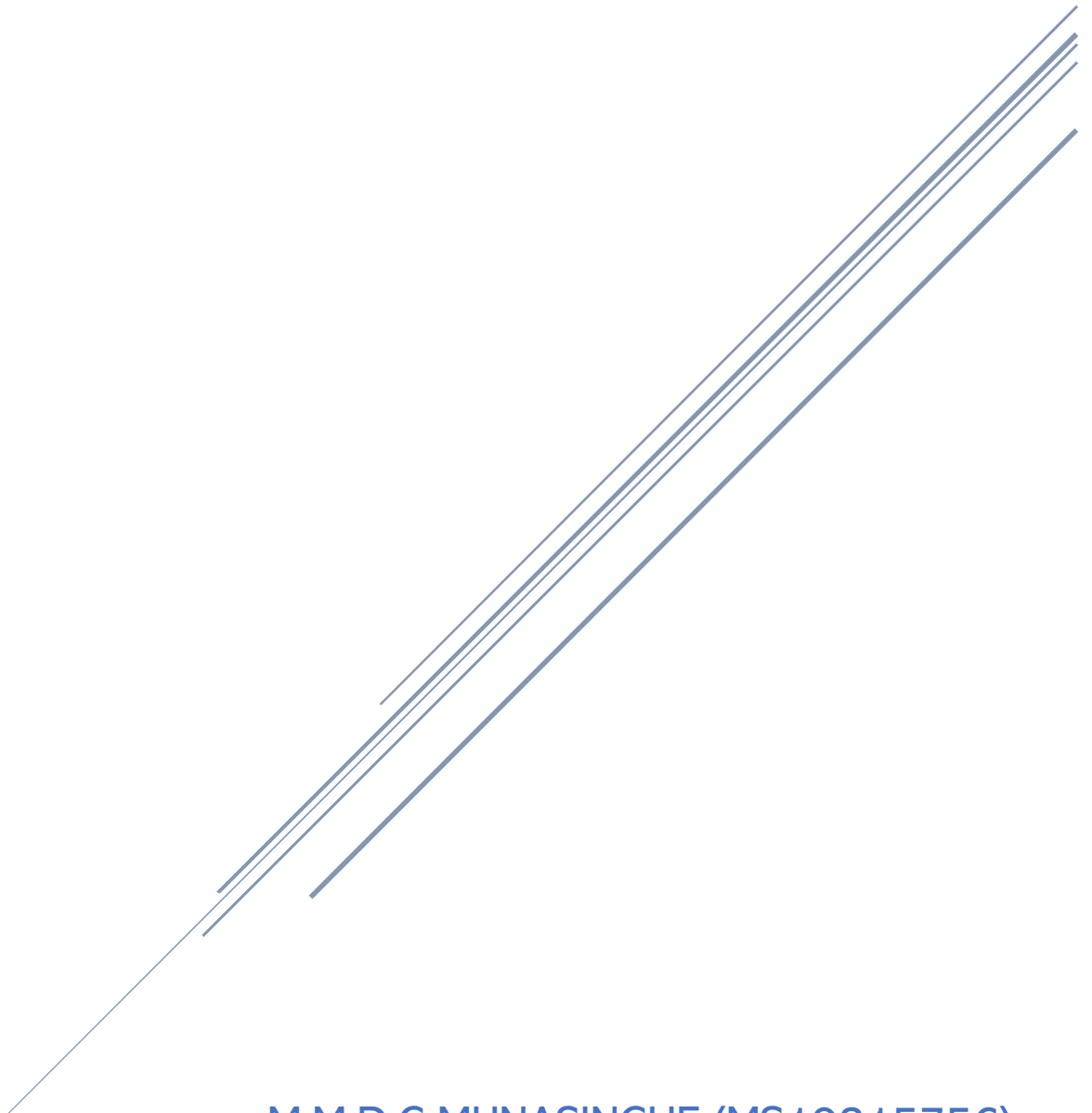# OAUTH AUTHORIZATION APPLICATION TEST

SOFTWARE SECURITY

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INTRODUCTION

"OAuth is an open-standard authorization protocol or framework that describes how unrelated servers and services can safely allow authenticated access to their assets without actually sharing the initial, related, single login credential. In authentication parlance, this is known as secure, third-party, user-agent, delegated authorization." (Source:- https://www.csoonline.com/article/3216404/what-is-oauth-how-the-open-authorization-framework-works.html)

OAuth Protocol Roles

1) Resource Owner: Client-side software

2) Resource Server:

3) Client: Application

4) Authorization Server: The server that authenticates the Resource Owner, and issues Access Tokens after getting proper authorization

Protocol flow
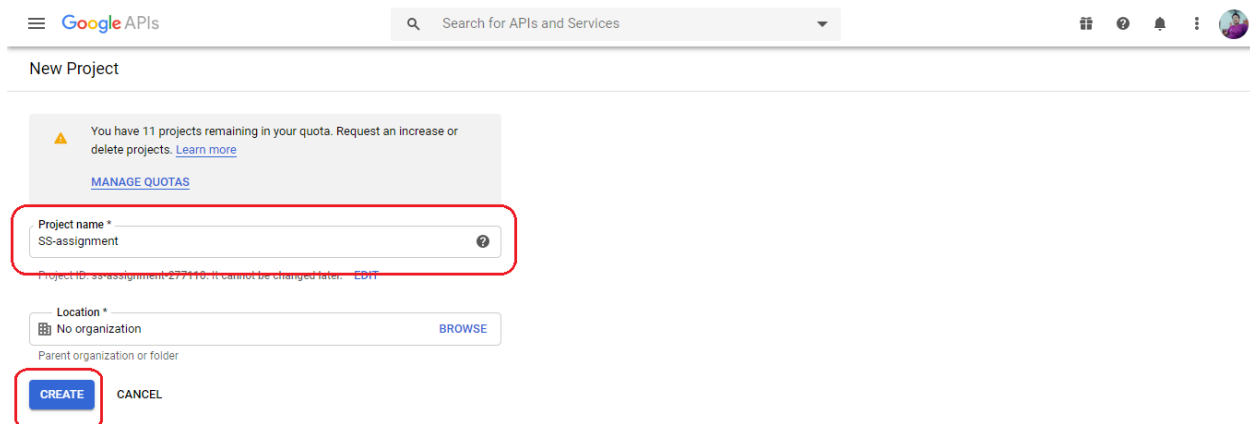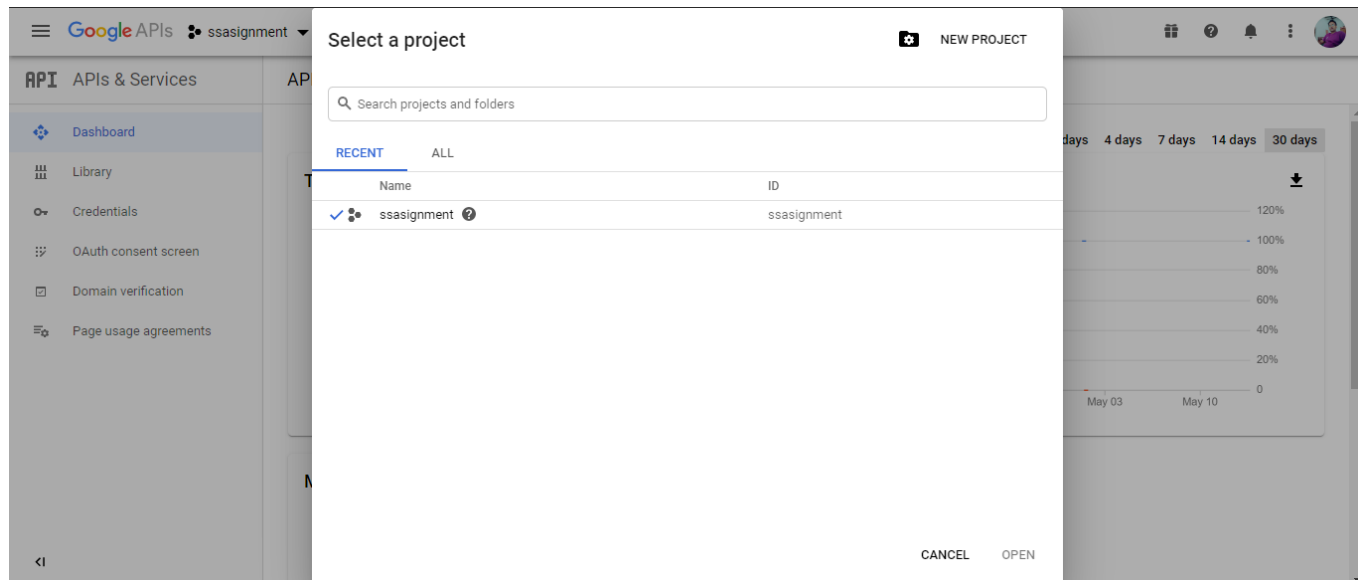
Process of getting Google API Credentials.

1) First, log on to Google API console. To navigate, used this https://developer.google.com URL.
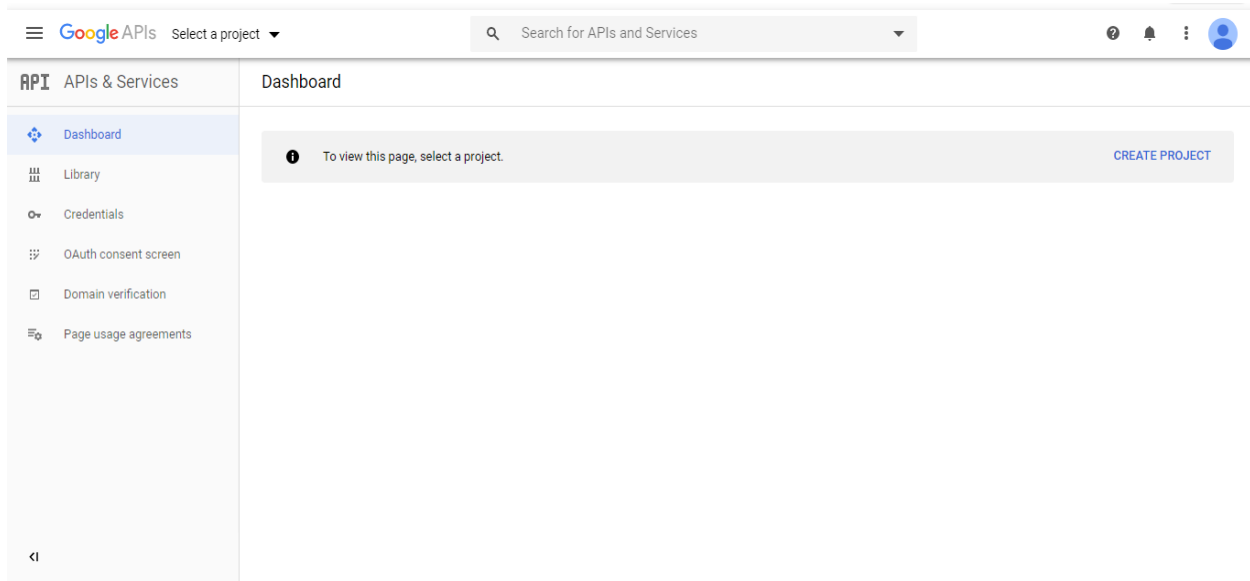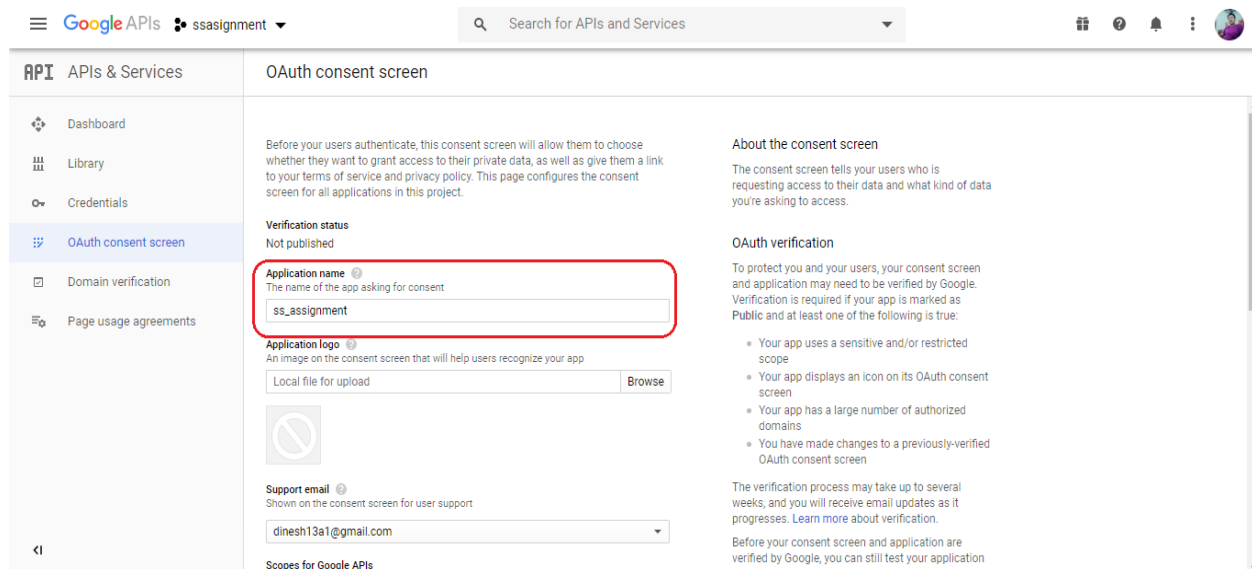

2) Then selected create a new project. Added the project name and click on "CREATE" button.

3) Then go to the home and select the project from project select box and select the project from that popup window.

4) select OAuth consent screen from the left-hand menu and define the application name and other related information and click on "OK"

5) after saving OAuth consent Screen in formation, click on "credentials" from the left-hand menu. In that window select the "Create Credential" button. on that drop-down menu, we have to select "OAuth Client ID"

6) after select on OAuth client ID, it will redirect to another window to select "Application Type"
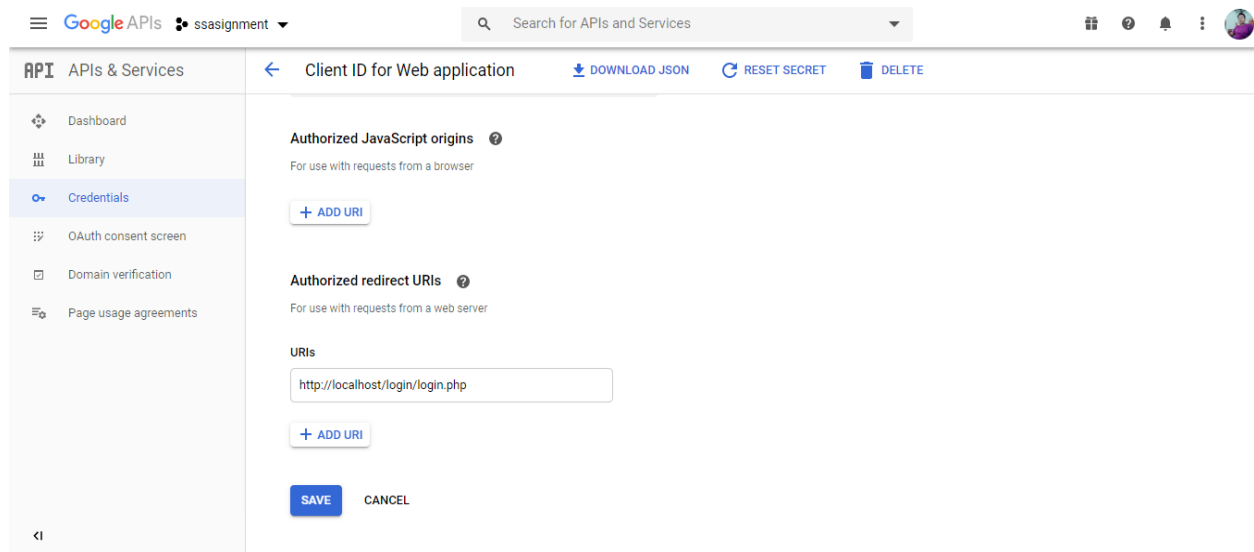
7) Select the application type as a web application and add the URL of the web application. In our case it is http://localhost/login/login.php

Finally, click on the Save button. Once click on the save button it will provide the Client ID and the client secret key. There need to copy both keys for implementation.

Download Google Client Library for PHP

After receiving google API credentials, We need to download the **Google Client library for PHP**. To do that we have to go command prompt type below composer command.

```
composer require google/apiclient:"^2.0"
```

the above command will download the **Google Client Library for PHP** to our defined directory.

WEB APPLICATION DEVELOPMENT

We developed the web application using PHP to test the OAuth authentication and apply the knowledge of how to use Google API Client Library for login using Google account with PHP.
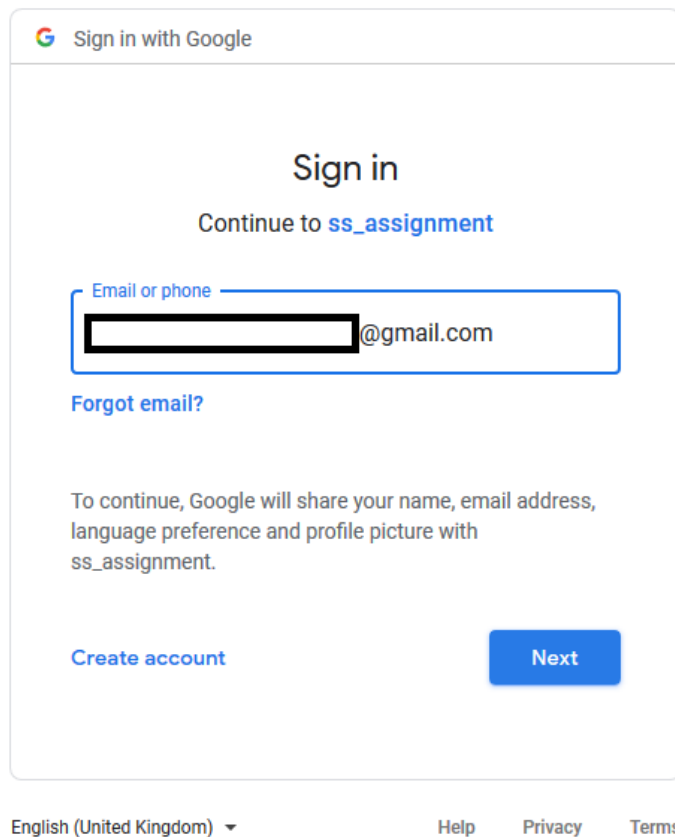
Below is the screenshot of the login page of the client-side application. We
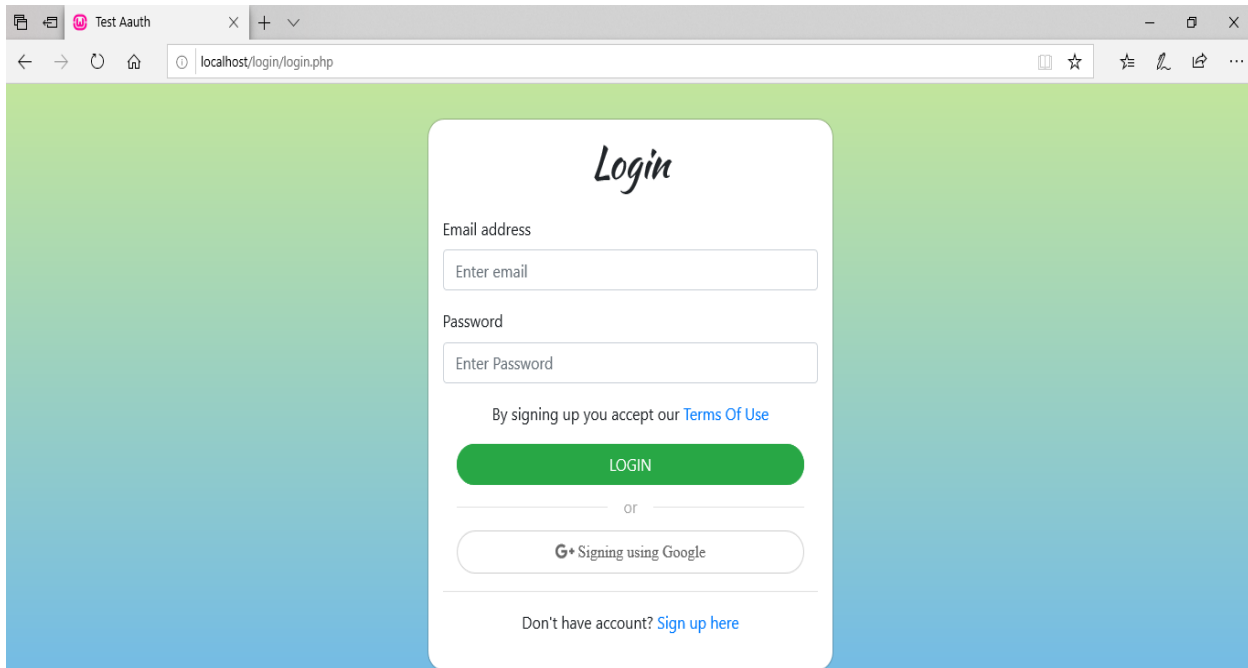
There is an option to "Signing using Google". That is the OAuth Authentication which we have implemented using google API.
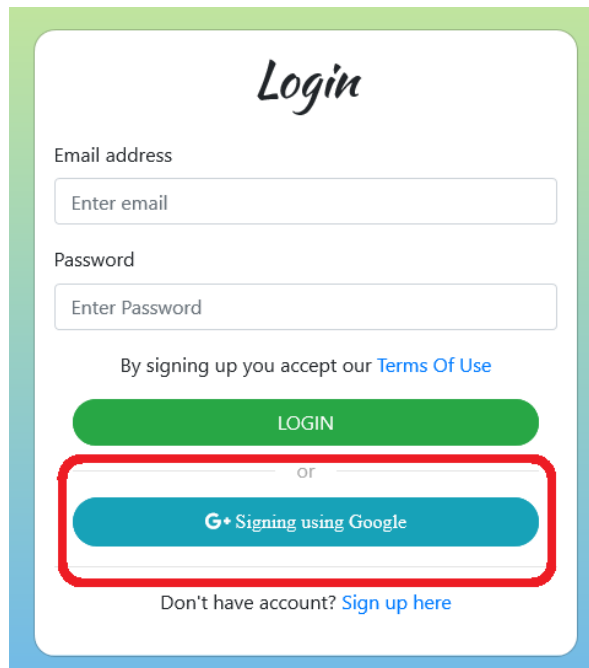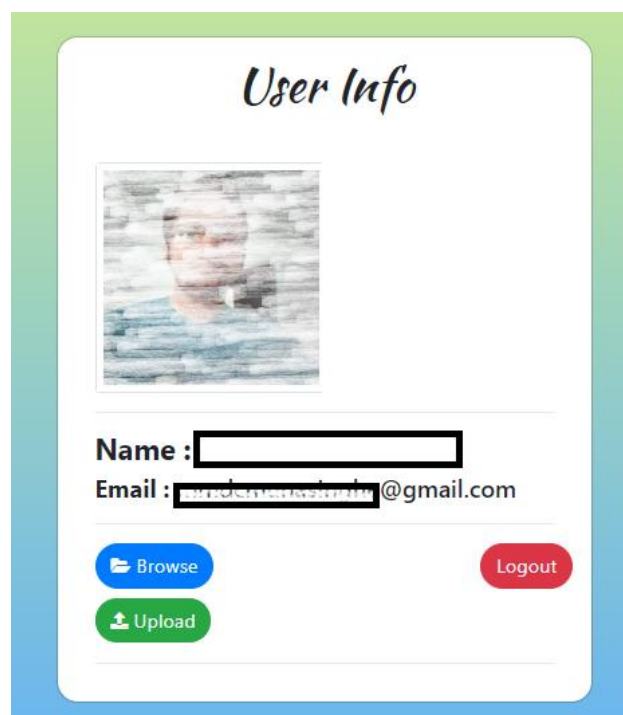
When providing google credentials it will automatically redirect to google and obtain the authentication from google.

After the authentication, this web application allows uploading files to the google drive

Browse
Logout
Upload

User Info

Name : Dinesh mihasinthe
Email : @gmail.com

Browse
Logout
Upload
one file selected

User Info

Upload complete
Your files were uploaded successfully.
View files

Name :
Email : @gmail.com

Browse
Logout
Upload
one file selected
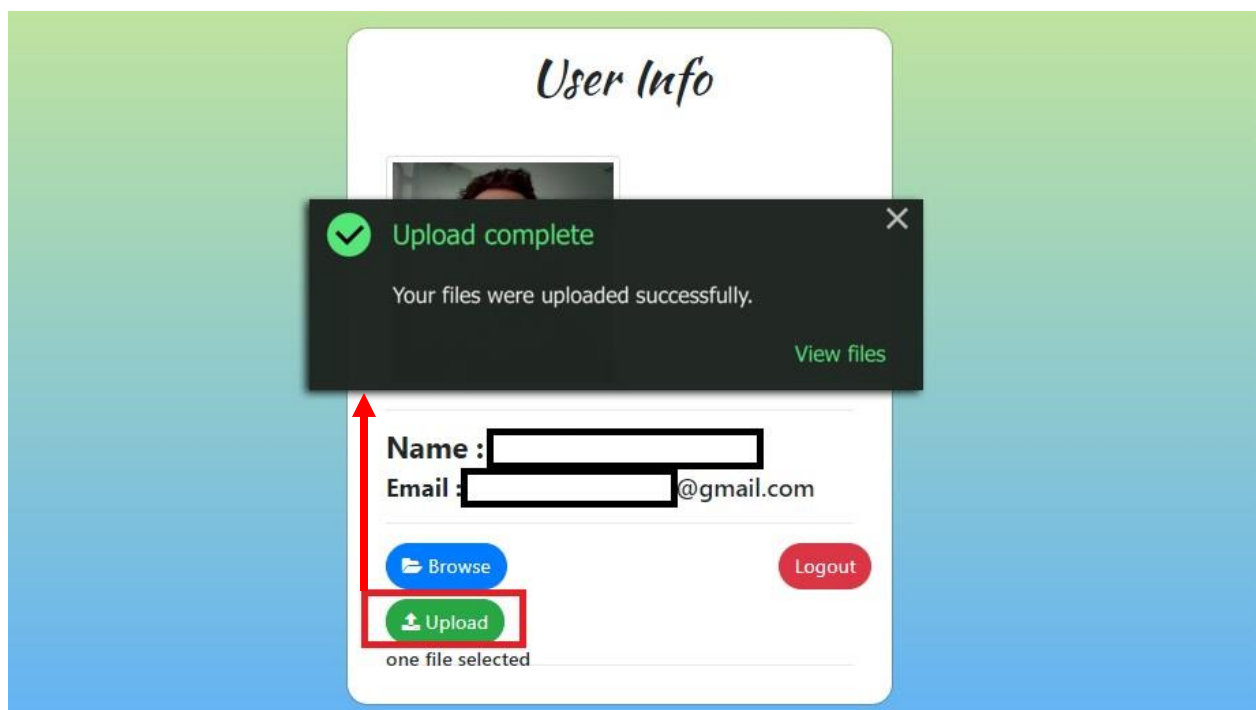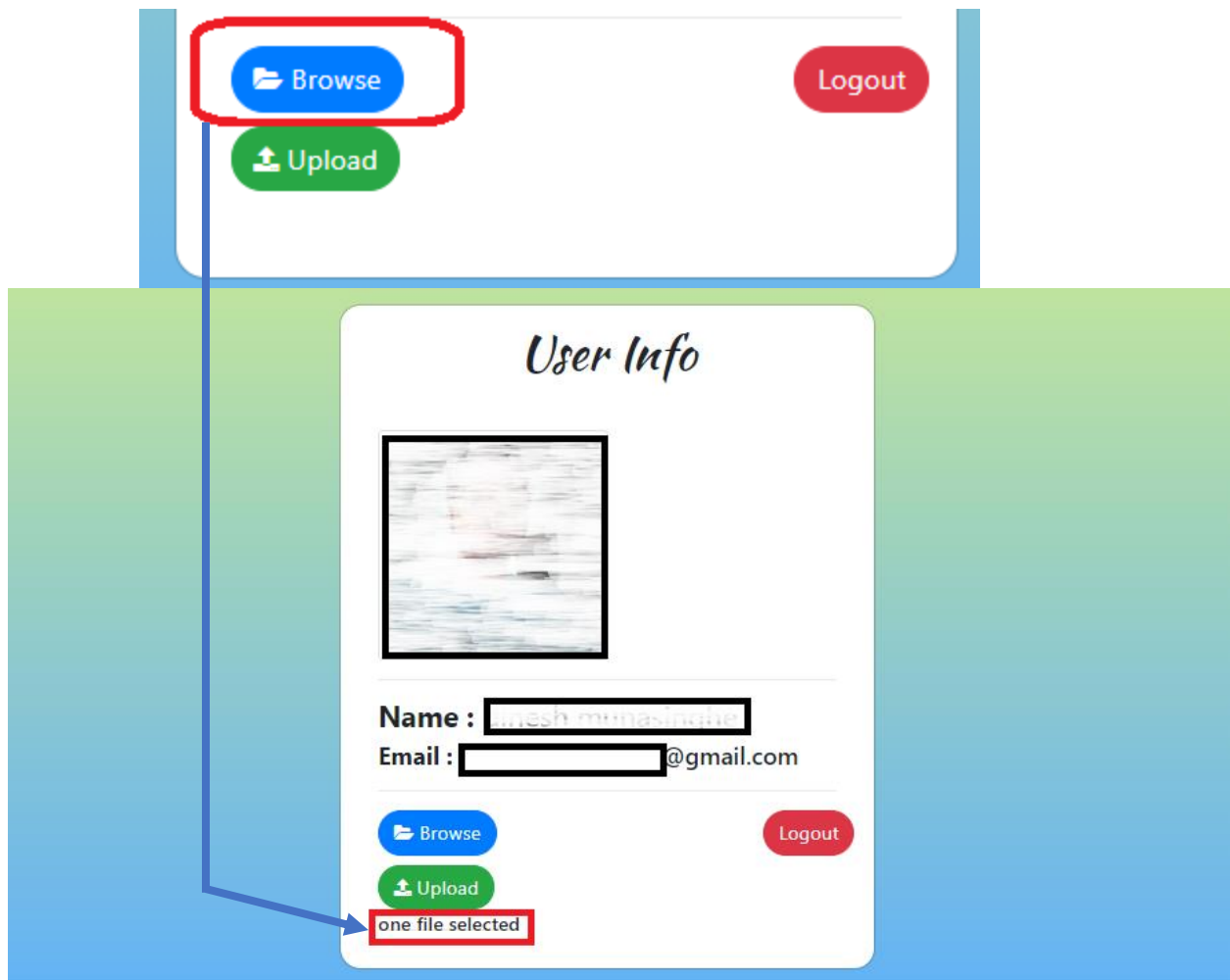
APPENDIX

CONFIG

```php
<?php
//Import vender autoloard.php file

require_once 'vendor/autoload.php';

//define new client class and assign to variable

$google_client = new Google_Client();

//set client ID to client variable using below method

$google_client->setClientId('898854167902-
tfffjoje4p6mtrsrjpa14mmiaro2tsei.apps.googleusercontent.com');

// set client secret key to client variable using below method

$google_client->setClientSecret('nhztlT2hG6hEDpz6e9hu51OM');

//redirect to home page using below method

$google_client->setRedirectUri('http://localhost/login/login.php');

//define scope for access google API

$google_client->addScope('email');

$google_client->addScope('profile');

//start session

session_start();

?>
```

```php
<?php

//index.php

//Include Configuration File
include('config.php');

$login_button = '';

//This $_GET["code"] variable value received after user has login into their Google Account
redirct to PHP script then this variable value has been received
if(isset($_GET["code"]))
{
     //It will Attempt to exchange a code for an valid authentication token.
    $token = $google_auth_client->fetchAccessTokenWithAuthCode($_GET["code"]);

    //This condition will check there is any error occur during geting authentication token.
If there is no any error occur then it will execute if block of code/
    if(!isset($token['error']))
    {
       //Set the access token used for requests
       $google_auth_client->setAccessToken($token['access_token']);

       //Store "access_token" value in $_SESSION variable for future use.
       $_SESSION['access_token'] = $token['access_token'];

       //Create Object of Google Service OAuth 2 class
       $google_service = new Google_Service_Oauth2($google_auth_client);

       //Get user profile data from google
       $data = $google_service->userinfo->get();

       //Below you can find Get profile data and store into $_SESSION variable
       if(!empty($data['given_name']))
       {
        $_SESSION['user_first_name'] = $data['given_name'];
       }

       if(!empty($data['family_name']))
       {
        $_SESSION['user_last_name'] = $data['family_name'];
```

```php
        }

        if(!empty($data['email']))
        {
         $_SESSION['user_email_address'] = $data['email'];
        }

        if(!empty($data['gender']))
        {
         $_SESSION['user_gender'] = $data['gender'];
        }

        if(!empty($data['picture']))
        {
         $_SESSION['user_image'] = $data['picture'];
        }
     }
}
```

//This is for check user has login into system by using Google account, if User not login into system then it will execute if block of code and make code for display Login link for Login using Google account.

```php
if(!isset($_SESSION['access_token']))
{
 //Create a URL to obtain user authorization
 $login_button = '<a href="'.$google_auth_client->createAuthUrl().'"></a>';
}

?>
```

```html
<!DOCTYPE html>
<html>
<head>
   <title> Login Page</title>

<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css" rel="stylesheet" id="bootstrap-css">
<script src="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<!------ Include the above in your HEAD tag ---------->

<script src="https://cdn.jsdelivr.net/jquery.validation/1.15.1/jquery.validate.min.js"></script>
<link href="https://fonts.googleapis.com/css?family=Kaushan+Script" rel="stylesheet">
```

13

```html
<link href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-
awesome.min.css" rel="stylesheet" integrity="sha384-
wvfXpqpZZVQGK6TAh5PVlGOfQNHSoD2xbE+QkPxCAFINEevoEH3SlOsibVcOQVnN"
crossorigin="anonymous">
<link rel="stylesheet" type="text/css" href="css/styles.css">

</head>

<body>
   <div class="container">
      <div class="row">
       <div class="col-md-5 mx-auto">
       <div id="first">
         <div class="myform form " >
           <div class="logo mb-3">
             <div class="col-md-12 text-center">
              <h1>Login</h1>
             </div>
           </div>
             <form action="" method="post">
                 <div class="form-group">
                   <label for="exampleInputEmail1">Email address</label>
                   <input type="email" name="email"  class="form-control" id="email"
aria-describedby="emailHelp" placeholder="Enter email">
                 </div>
                 <div class="form-group">
                   <label for="exampleInputEmail1">Password</label>
                   <input type="password" name="password" id="password"
class="form-control" aria-describedby="emailHelp" placeholder="Enter Password">
                 </div>
                 <div class="form-group">
                   <p class="text-center">By signing up you accept our <a
href="#">Terms Of Use</a></p>
                 </div>
                 <div class="col-md-12 text-center ">
                   <button type="submit" class=" btn btn-block mybtn btn-success  tx-
tfm">Login</button>
                 </div>
                 <div class="col-md-12 ">
                   <div class="login-or">
                     <hr class="hr-or">
                     <span class="span-or">or</span>
                   </div>
                 </div>
```

```php
            <div class="col-md-12 mb-3">
              <p class="text-center">
                <?php

                    echo ' <a href="'.$google_auth_client->createAuthUrl().'" class="
google btn mybtn btn-outline-info "><i class="fa fa-google-plus" > Signing using Google
</i></a> ';
                        //$login_button = '<a href="'.$google_auth_client-
>createAuthUrl().'"></a>';

                    ?>
                    <?php

                    if ($login_button == '')
                    {

                        header('Location: main.php');

                    }
                    else
                      {
                        echo '<div align="center">'.$login_button . '</div>';
                      }

                 ?>
               </p>
             </div>

            <hr>

            <div class="form-group">
                <p class="text-center">Don't have account? <a href="#"
id="signup">Sign up here</a></p>
                </div>
              </form>

        </div>
      </div>
    </div>
  </div>
 </body>


</html>
```

LOGOUT

```php
<?php

//logout.php

include('config.php');

//Reset OAuth access token
$google_client->revokeToken();

//Destroy entire session data.
session_destroy();

//redirect page to index.php
header('location:login.php');

?>
```

MAIN

```php
<?php

//index.php

//Include Configuration File
include('config.php');

$login_button = '';

//This $_GET["code"] variable value received after user has login into their Google Account
redirct to PHP script then this variable value has been received
if(isset($_GET["code"]))
{
 //It will Attempt to exchange a code for an valid authentication token.
 $token = $google_auth_client->fetchAccessTokenWithAuthCode($_GET["code"]);

 //This condition will check there is any error occur during geting authentication token. If
there is no any error occur then it will execute if block of code/
 if(!isset($token['error']))
 {
  //Set the access token used for requests
  $google_auth_client->setAccessToken($token['access_token']);

  //Store "access_token" value in $_SESSION variable for future use.
  $_SESSION['access_token'] = $token['access_token'];

  //Create Object of Google Service OAuth 2 class
  $google_service = new Google_Service_Oauth2($google_auth_client);

  //Get user profile data from google
  $data = $google_service->userinfo->get();

  //Below you can find Get profile data and store into $_SESSION variable
  if(!empty($data['given_name']))
  {
   $_SESSION['user_first_name'] = $data['given_name'];
  }

  if(!empty($data['family_name']))
  {
   $_SESSION['user_last_name'] = $data['family_name'];
```

```php
	}

   if(!empty($data['email']))
   {
    $_SESSION['user_email_address'] = $data['email'];
   }

   if(!empty($data['gender']))
   {
    $_SESSION['user_gender'] = $data['gender'];
   }

   if(!empty($data['picture']))
   {
    $_SESSION['user_image'] = $data['picture'];
   }
  }
}

//This is for check user has login into system by using Google account, if User not login
into system then it will execute if block of code and make code for display Login link for
Login using Google account.
if(!isset($_SESSION['access_token']))
{
 //Create a URL to obtain user authorization
 $login_button = '<a href="'.$google_auth_client->createAuthUrl().'"></a>';
}

?>
```

```html
<!DOCTYPE html>
<html>
<head>
   <title> User Information</title>

<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">
<script src="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<!------ Include the above in your HEAD tag ---------->

<script
src="https://cdn.jsdelivr.net/jquery.validation/1.15.1/jquery.validate.min.js"></script>
<link href="https://fonts.googleapis.com/css?family=Kaushan+Script" rel="stylesheet">
```

18

```html
<link href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-
awesome.min.css" rel="stylesheet" integrity="sha384-
wvfXpqpZZVQGK6TAh5PVIGOfQNHSoD2xbE+QkPxCAFINEevoEH3Sl0sibVcOQVnN"
crossorigin="anonymous">
<link rel="stylesheet" type="text/css" href="css/styles.css">

</head>

<body>
    <div class="container">
        <div class="row">
         <div class="col-md-5 mx-auto">
         <div id="first">
            <div class="myform form " id="login_form">
                <div class="logo mb-3">
                    <div class="col-md-12 text-center">
                      <h1>User Info</h1>
                    </div>
                </div>
                    <form action="" method="post" name="login">

                            <div class="col-md-12 mb-3">
                              <p class="text-center">

                                  <?php
                                   if ($login_button == '')
                                   {
                                     echo '<div class= " tooltip">User Informations</div><div
class="panel-body">';
                                     echo '<img src="'.$_SESSION["user_image"].'" class="img-circle
img-thumbnail" id="user_img"/>';
                                     echo '<hr>';
                                     echo '<h4><b>Name :</b> '.$_SESSION['user_first_name'].'
'.$_SESSION['user_last_name'].'</h4>';
                                     echo '<h5><b>Email :</b>
'.$_SESSION['user_email_address'].'</h5>';
                                     echo '<hr>';
                                     echo' <div>
                                  <form  method="post" enctype="multipart/form-data">
                                  <div class="row" >
                                    <div class="col-md-6">
                                       <div class="form-group" style="height:0px;padding:
0;margin: 0">

                                          <div class="image-upload pull-left">
```

```
                                    <label for="image_file">
                                      <span class="btn btn-primary mybtn" ><i class="fa
fa-folder-open"></i>&nbsp Browse</span>

                                    </label>
                                    <input type="file" name="file" id="image_file"
style="display: none;" />
                                    <button type="submit" name="upload_button"
id="upload_button" class="btn btn-success mybtn"><i class="fa fa-upload"></i>&nbsp
Upload</button>
                                 </div>
                               </div>
                             </form>
                           </div>' ;


                     echo '<h5><button  class="btn btn-danger mybtn"><a
href="logout.php" class="text-light">Logout </a></h5></div>';


                       }
                       else
                         {
                           echo '<div align="center" >'.$login_button . '</div>';
                         }
                     ?>
                     <hr>
                     <!--  <button  class="btn btn-danger mybtn"><a
href="upload.php" class="text-light">next </a> -->
                       </p>
                     </div>
                   </form>
             </div>
          </div>
         </div>
       </div>
      </body>
</html>
```

UPLOAD

```html
<!DOCTYPE html>
<html>
<head>
  <title>Upload Files</title>

<link href="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet" id="bootstrap-css">
<script src="//maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<script src="//cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<!------ Include the above in your HEAD tag ---------->

<script
src="https://cdn.jsdelivr.net/jquery.validation/1.15.1/jquery.validate.min.js"></script>
<link href="https://fonts.googleapis.com/css?family=Kaushan+Script" rel="stylesheet">
<link href="https://stackpath.bootstrapcdn.com/font-awesome/4.7.0/css/font-
awesome.min.css" rel="stylesheet" integrity="sha384-
wvfXpqpZZVQGK6TAh5PVlGOfQNHSoD2xbE+QkPxCAFINEevoEH3SlOsibVcOQVnN"
crossorigin="anonymous">
<link rel="stylesheet" type="text/css" href="css/styles.css">

</head>

<body>
    <div class="container">
      <div class="row">
       <div class="col-md-5 mx-auto">
       <div id="first">
         <div class="myform form " id="login_form">
           <div class="logo mb-3">
             <div class="col-md-12 text-center">
               <h1>File Upload</h1>
             </div>
           </div>
           <div>
            <form  method="post" enctype="multipart/form-data">
               <div class="row" >
                 <div class="col-md-6">
                   <div class="form-group" style="height:0px;padding: 0;margin: 0">
                       <div class="image-upload pull-left">
                         <label for="image_file">
                           <span class="btn btn-primary mybtn" ><i class="fa fa-folder-
open"></i>&nbsp Browse</span>
```

```
                    </label>
                    <input type="file" name="file" id="image_file" style="display:
none;" />
                        <button type="submit" name="upload_button"
id="upload_button" class="btn btn-success mybtn"><i class="fa fa-upload"></i>&nbsp
Upload</button>
                    </div>
                </div>
            </form>
        </div>
        <br>
        <hr>
        <div class="container ">
            <form action="#" method="post" enctype="multipart/form-data">
                Type Folder Name:<input type="text" name="foldername" /><br/><br/>
                Select Folder to Upload: <input type="file" name="files[]" id="files"
multiple directory=""  moxdirectory="" /><br/><br/>
                <input type="Submit" value="Upload" name="upload" />
            </form>
        </div>

        </div>
    </div>
    </div>
  </div>
  </body>
</html>
 <?php
  if(isset($_POST['upload']))
  {
    if($_POST['foldername'] != "")
    {
     $foldername=$_POST['foldername'];
     if(!is_dir($foldername))
       mkdir($foldername);
     foreach($_FILES['files']['name'] as $i => $name)
    {
       if(!is_dir($name))
       {
        mkdir($foldername."/".$name);
        if(strlen($_FILES['files']['name'][$i]) > 1)
        {
          move_uploaded_file($_FILES['files']['tmp_name'][$i],$foldername."/".$name);
        }
```

```php
    }
    else
    {
      if(strlen($_FILES['files']['name'][$i]) > 1)
      {
      move_uploaded_file($_FILES['files']['tmp_name'][$i],$foldername."/".$name);
      }
    }
  }
  echo "Folder is successfully uploaded";
 }
 else
  echo "Upload folder name is empty";
}
?>
```