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This program was built through the use of PHP, HTML, CSS, and JavaScript. The following document will outline the list of techniques used to build the product including the system templates, the general files of the product, the library and external services used, and the operating files of the product.

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List of Techniques Used

- MySQL Databases
- MySQLi Connect
- Bootstrap Stylesheet Library
- Hyperlinks
- Sessions Variables Technology
- Injections Check Functions (MySQL Real Escape String)
- PHP Mail Function
- PHP Conditions (if then)
- PHP Require Statements

- CURL Methods
- PHP Loops
- Form POST method
- Ajax POST method
- PHP MySQL CRUD Application
- HTML 5 DIV & SPAN elements
- PHP MySQL SELECT Query
- PHP Echo and Print Statements
- PHP isset() Function

Pre-Installed Libraries (CSS, Fonts, jQuery Libraries)

Font

Font-awesome.min.css (Awesome fonts) 1

```
<!--Score, back, logout, facebook-->
<link rel="stylesheet" href="css/font-awesome.min.css">
```

CSS Files

Sunset.css + Sunset folder (SUNSET CSS KIT) 2

```
<!--sunset ui kit & Welcome Ribbon-->
<link href="css/sunset.css" media="screen" rel="stylesheet">
```

Owl.carousel.css (Owl carousel script) ³

```
<!--Login/Register Slider-->
<link rel="stylesheet" href="css/owl.carousel.css">
```

Bootstrap.css (Bootstrap 4 CSS framework) 4

```
<!-- Adjustments in sizes for all platforms (mobile, computer...)-->
<link rel="stylesheet" href="css/bootstrap.css">
```

Flag-icon.css (Flags icons) 5

```
<!-- Flags icons -->
<link href="css/flag-icon.css" rel="stylesheet">
```

^{**}See Appendix C for a short description and definition for the techniques used above

¹ FontAwesome, Robmadole. "FontAwesome/Font-Awesome." GitHub, July 24, 2019. https://github.com/FortAwesome/Font-Awesome.

² "Arctic Sunset UI Kit." PixelKit Premium UI Design Resources. Themefuse Family. n.d. http://pixelkit.com/kits/clean-ui-kit.

³ Deutsch, David. "Owl Carousel 2." Home | Owl Carousel | 2.3.4. Accessed August 28, 2019. https://owlcarousel2.github.io/OwlCarousel2/.

⁴ Otto, Mark, and Jacob Thornton. "Bootstrap." · The most popular HTML, CSS, and JS library in the world. n.d. https://getbootstrap.com/.

⁵ Lipis. "Lipis/Flag-Icon-Css." GitHub, June 14, 2019. https://github.com/lipis/flag-icon-css.

¡Query Libraries

Sunset folder :sunset ui kit 6

```
<!-- ui kits js !-->
<script src="js/sunset/general.js"></script>
```

vendor/jquery: jquery framework ⁷

<u>Vendor/bootstrap.min.js</u>: bootstrap framework ⁸

```
<script src="js/vendor/bootstrap.min.js"></script>
```

Pgwslider.min.is: iquery slider ⁹

```
<script src="js/pgwslider.min.js"></script>
```

Waypoints.min.is: iquery waypoints 10

```
<script src="js/waypoints.min.js"></script>
```

is/progressbar.is 11

```
<script src="js/waypoints.min.js"></script>
```

Voice RSS Library

lib/voicerss tts.php

This service converts text into an audio format with a \$5 fee. It uses *RESTful API* programming interface. 12

The call of the API is very simple:

⁶ "Arctic Sunset UI Kit." PixelKit Premium UI Design Resources. Themefuse Family. n.d. http://pixelkit.com/kits/clean-ui-kit.

⁷ JS Foundation. "JQuery - Write Less Do More." jQuery. The jQuery Foundation. n.d. https://jquery.com/.

⁸ Otto, Mark, and Jacob Thornton. "Bootstrap." · The most popular HTML, CSS, and JS library in the world. n.d. https://getbootstrap.com/.

⁹ Piat, Jonathan M. "PgwSlider - Responsive Slider for JQuery / Zepto." PgwJS, 2014. https://pgwjs.com/pgwslider/. Troughton, Caleb. "JQuery Waypoints." Waypoints. Github, November 2013.

https://github.com/imakewebthings/waypoints.

11 Brunfeldt, Kimmo. "PROGRESS BAR.JS." ProgressBar.js - Progress bars with JavaScript, May 28, 2019.

https://kimmobrunfeldt.github.jo/progressBar.js/

https://kimmobrunfeldt.github.io/progressbar.js/.

12 "Voice RRS." Voice RSS - Free Text-to-speech (TTS) online service, 2018. http://www.voicerss.org/default.aspx.

System Templates

The web-app quicklang.net uses system templates, dividing each page into 4 different sections:

inc/header.php

QuickLang

The inc/header.php file displays the logo of the product, but also contains all the CSS scripts for all pages in the website.

```
!DOCTYPE html>
<html lang="fr" class="no-js">
<head>
<!-- This file is for the design of the header (black logo) and -->
  <!-- Mobile Specific Meta -->
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <link rel="shortcut icon" href="img/icon.png">
  <!-- Author Meta -->
  <meta name="author" content="Colorlib">
   <!-- Meta Description -->
  <meta name="description" content="">
  <!-- Meta Keyword -->
  <meta name="keywords" content="">
  <!-- meta character set -->
  <meta charset="UTF-8">
  <title>Quicklang @ - Learn English with Simplicity</title>
  <link href="https://fonts.googleapis.com/css?family=Poppins:100,300,500"</pre>
rel="stylesheet">
       <link rel="stylesheet" href="css/linearicons.css"> <!-- Game logos CSS HOMEPAGE-->
       <link rel="stylesheet" href="css/owl.carousel.css"> <!-- Login/Register Slider-->
       <link rel="stylesheet" href="css/font-awesome.min.css"> <!-- Score, back, logout,</pre>
facebook-->
       <link rel="stylesheet" href="css/nice-select.css"> <!-- Multiple Choice in</pre>
Listen&Write and Pics&Words-->
      <link rel="stylesheet" href="css/magnific-popup.css"><!-- Congratulations end of</pre>
      <link rel="stylesheet" href="css/bootstrap.css"> <!-- Adjustments in sizes for all</pre>
platforms (mobile, computer...)-->
       <link rel="stylesheet" href="css/main.css"> <!-- Fonts, page structure-->
      <link href="css/flag-icon.css" rel="stylesheet"><!-- Flags-->
       <link href="css/login.css" rel="stylesheet"><!-- Login/Register Style/Design-->
       <?php if ( (($_SERVER['PHP_SELF']) != '/index.php') && (($_SERVER['PHP_SELF']) !=</pre>
 /register.php') ) { ?>
       <link href="css/sunset.css" media="screen" rel="stylesheet"> <!-- Welcome Ribbon-->
       <?php } ?>
  </head>
   <body>
       <!-- <div class="oz-body-wrap"> -->
       <!-- Start Header Area -->
       <div class="header">
```

Furthermore, this header has additional functionalities — the logo **QuickLang** can act as a button resulting in two different outputs through the use of PHP Conditions.

```
<?php
                                ### PHP Condition ###
                                      ## #### ##
 If the user is in a game session (writing/listen/pair/translate/complete/pics)
  the logo link will redirect to the games menu page, else the logo link will
  redirect to the global main page (first display), hence logging out the user.
                                     ## #### ##
if ( (($ SERVER['PHP SELF']) == '/writing.php') ||
                                                      (($ SERVER['PHP SELF']) ==
'/listen.php') || (($_SERVER['PHP_SELF']) == '/pics.php')
(($ SERVER['PHP SELF']) == '/pair.php') ||
                                            (($ SERVER['PHP SELF']) ==
/translate.php') || (($_SERVER['PHP_SELF']) == '/complete.php') ) {
    $logo_link='start';
} else {
    $logo_link ='https://www.quicklang.net';
                     ### Displays the QuickLang Logo Image ###
<a href="<?php echo $logo link; ?>"><img src="img/logo quick.jpg"></a>
 <div class="header-right">
</div>
</div>
       <!-- End Header Area -->
```

inc/footer.php



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This file serves as the bottom footer for all pages in the website. This file includes the logo with a link to my client's business homepage and Facebook page. These functionalities were achieved by using the HyperLink (HREF) attribute and the tag <a> between the image and my client's URLs.

```
<!-- Start Footer Area -->
<footer class="section-gap">
<div class="container">
  <div class="footer-bottom d-flex justify-content-between align-items-center-flex-wrap">
        <a href="https://www.fondationababou.ma/" target=" blank">
        <img src="https://www.fondationababou.ma/media/2019/02/logofondation.png"/></a>
 <!-- Link back to Colorlib can't be removed. Template is licensed under CC BY 3.0. -->
       Copyright©<script>document.write(new
Date().getFullYear());</script> <br/><i class="fa fa-facebook" aria-hidden="true"></i>
        <a href="https://www.facebook.com/FondationAbabou/" target=" blank">Fondation
        Ababou</a>
 <!-- Link back to Colorlib can't be removed. Template is licensed under CC BY 3.0. -->
         </div>
       </div>
     </footer>
  <!-- End Footer Area -->
</div>
<?php include("footer scripts.php"); ?>
```

inc/footer scripts

```
This file is an extension to the previous file (inc/footer.php), containing all
of the JavaScripts code called from the game. Through the use of this file, other
algorithms can make a jQuery 3.3.1 library call. jQuery is a javascript framework
            designed to simplify html and events calls and handling.
   <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
     <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.11.0/umd/popper.min.js"</pre>
      integrity="sha384-b/U6ypiBEHpOf/4+1nzFpr53nxSS+GLCkfwBdFNTxtclqqenISfwAzpKaMNFNmj4"
      crossorigin="anonymous"></script>
   <script src="js/vendor/bootstrap.min.js"></script>
     <script src="js/jquery.ajaxchimp.min.js"></script>
     <script src="js/owl.carousel.min.js"></script>
     <script src="js/jquery.nice-select.min.js"></script>
     <script src="js/jquery.magnific-popup.min.js"></script>
     <script src="js/jquery.counterup.min.js"></script>
     <script src="js/waypoints.min.js"></script>
     <script src="js/main.js"></script>
      <script src="js/login.js"></script>
```

```
<!-- ui kits js !-->
<script src="js/sunset/general.js"></script>
```

inc/cnx.php

This file includes the PHP code to connect to the MySQL database server. I was able to establish a MySQL database connection by using the MySQLi connect technique. In the code below, a new connection is established with the admin credentials given at *\$login* and *\$pass*.

General files of the application

The web application consists of 11 files that are used as a display to the user. Hence, the reason why they are called the "*General files of the application*".

index.php





Copyright@2020 Taha Ababou *index.php* is the homepage and the first display to the user. In the first line of code, the file *inc/header.php* is called through the PHP include() function.

```
<!-- Includes the header.php file (Black Header with Title of Page) --> <?php include("inc/header.php"); ?>
```

```
<?php
                          ##################################
The following code was created using HTML 5 DIV tags and SPAN elements, including
External CSS. I used the SPAN element to make the text bold and more appealing to
                                      the user.
                          #### BODY CODE FOR THE MAIN PAGE - INCLUDES RUSSELL, SLOGAN, AND GET STARTED ####
      <!-- Start Banner Area -->
      <section class="banner-area relative">
          <div class="container">
              <div class="row fullscreen align-items-center justify-content-center">
                  <div class="banner-left col-lg-6">
                     <img class="d-flex mx-auto img-fluid" src="img/russel.jpg" alt="">
                 </div>
                 <div class="col-lg-6">
                  <div class="story-content">
                         <h1>Learn <span class="sp-1">English</span><br>
                         With simplicity <span class="sp-2">Forever</span></h1>
                         <a href="register" class="genric-btn primary circle arrow">Get
Started<span class="lnr lnr-arrow-right"></span></a>
                     </div>
                 </div>
              </div>
          </div>
      </section>
```

```
Start Feature Area
     I used basic Bootstrap and HTML to display the description for each game as
    seen in the screenshots above. The following code was repeated with minor
           alterations to change the position of the description boxes.
      <?php #### ÉCRITURE/WRITING CODE - POSITIONING, EFFECT, DESCRIPTIONS#### ?>
      <section class="feature-area pt-100 pb-100 relative">
          <div class="overlay overlay-bg"></div>
          <div class="container">
              <div class="row">
                  <div class="col-lg-4 col-sm-6 d-flex align-items-stretch">
                      <div class="single-feature">
                          <div class="icon">
                              <span class="lnr lnr-pencil"></span>
                          </div>
                          <div class="desc">
                              <h2 class="text-uppercase">Écriture / Writing</h2>
                                <span class="flag-icon flag-icon-fr"></span> Réécrire les
phrases anglaises en français.<br/>br/>
                                 <span class="flag-icon flag-icon-gb"></span> Rewrite
English sentences in French.
                              </div>
                      </div>
```

```
</div>
[...] <!-- Code above repeated for the other game descriptions --
</section>
```

The code below was used to create the feedback form at the bottom of the page.

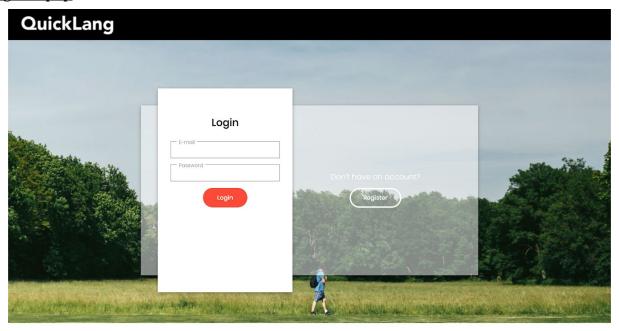
```
<!-- Start Contact Form Area
      <a name="contact"></a>
      <section class="contact-area pt-100 pb-100 relative">
          <div class="overlay overlay-bg"></div>
          <div class="container">
              <div class="row justify-content-center text-center">
                  <div class="single-contact col-lg-6 col-md-8">
                      <h2 class="text-white">Send Us <span>Message</span></h2>
                      Dans le souci d'améliorer sans cesse cette application,
n'hésitez pas à nous laisser un message afin de nous faire partager vos impressions, vos
remarques ou suggestions. Merci !
                          <br/><br/>
                          In order to constantly improve this application, please leave
us a message to share your impressions, comments or suggestions. Thank you !
                     </div>
              </div>
```

The code below tells the program to initiate the PHP script of mail.php file once the user has clicked the *Send* button. The user's information (name, email address, and message) is saved and sent to the mail.php file by using the PHP POST method.

```
<form id="myForm" action="mail.php" method="post" class="contact-form">
<!-- Once the user inputs all the necessary data below, send the data to mail.php
to proceed action -->
                   <div class="row justify-content-center">
                       <div class="col-lg-5">
                           <input name="fname" placeholder="Enter your name"</pre>
onfocus="this.placeholder = ''" onblur="this.placeholder = 'Enter your name'"
class="common-input mt-20" required="" type="text">
                       </div>
                       <div class="col-lg-5">
                           <input name="email" placeholder="Enter email address"</pre>
pattern="[A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Za-z]{1,63}$" onfocus="this.placeholder =
''" onblur="this.placeholder = 'Enter email address'" class="common-input mt-20"
required="" type="email">
                       </div>
                       <div class="col-lg-10">
                           <textarea class="common-textarea mt-20" name="message"</pre>
placeholder="Message" onfocus="this.placeholder = ''" onblur="this.placeholder =
'Message'" required=""></textarea>
                   </div>
                   <div class="col-lg-10 d-flex justify-content-end">
                       <button class="primary-btn white-bg d-inline-flex</pre>
align-items-center mt-20"><span class="mr-10">Send / Envoyez </span><span class="lnr
lnr-arrow-right"></span></button> <br>
                   <div class="alert-msg"></div>
                   </div>
               </form>
       </section>
       <!-- End Contact Form Area -->
```

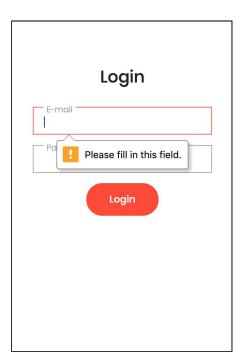
<?php include("inc/footer.php"); ##Bottom part of the page?>
<?php include("inc/footer_close.php"); ?>

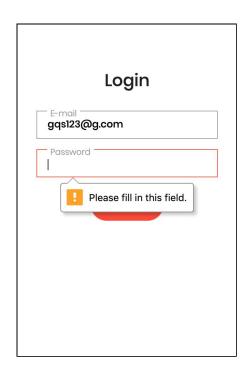
register.php





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By using the PHP POST form method, the program collects the user's data from the client side and sends it to the server side to authenticate the credentials inputted.

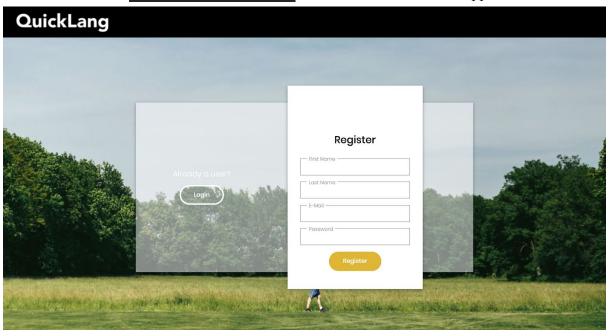
```
<?php include("inc/header.php");</pre>
session start();
                                      ############
     This file is divided into two sections: the authentication form and the
 registration form. To access the website's content, the existing user will have
                        to go through the authentication form.
                                       ###########
?>
      <!-- Start Banner Area -->
      <section class="login-area relative">
           <div class="container">
              <div class="row fullscreen align-items-center justify-content-center">
              <div class="col-lg-12 signform">
div class="veen">
          <div class="login-btn splits">
              Already a user?
              <?php
               ############# initialising variables ###############
              $value='';
              $login='login';
              $forgot='';
               $message='';
            <div class="wrapper">
               <form id="login" tabindex="500" action="login" method="POST">
                  <h3>Login</h3>
                  <?php echo $message; ?>
                  <div class="mail">
                      <input type="mail" name="email" <?php echo $value; ?>
<pattern="[a-z0-9._%+-]+[A-Z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$" required>
                       <label>E-mail</label>
                   </div>
                   <div class="passwd">
                       <input type="password" name="password" pattern=".{6,}"</pre>
title="Please enter at least 6 characters" required>
                       <label>Password</label>
                  </div>
                  <?php echo $forgot; ?>
                  <div class="submit">
                      <button class="dark">Login</button>
                   </div>
               </form>
```

Below are the actions that the program has to take in the occurrence of an error. The technique used for the following piece of code are PHP Conditional statements and hyperlink attributes.

```
$value='value="'.$email_error.'"';
$forgot='';
break;
```

```
###########
 Case 2 tells the program that if a user attempts to login and inputs the wrong
  password, a button will appear in the form, allowing the user to reset their
     password. The button will then redirect the user to the file reset.php.
                                    ##########
                     case 2:
                 $message='<i class="error">Wrong password</i></br>';
                 $forgot='<u class="reset"><a href="reset">Recover
password</a></u></br></br>';
                 break:
                                    ##########
     In Case 3, the program verifies that the user inputted an email address
 registered in the database. If yes, a message will be displayed confirming that
                         the recovery email has been sent.
                                    ###########
                     case 3:
                 $message='<i class="error">The Password recovery email has been sent to
your on-file email address</i></br></br>';
                 $forgot='';
                         break:
                 ########## end errors test ##########
```

If the user does not have an account and wishes to register one, they must press the *Register* button telling the program to make a slide translation from the login form to the registration form. The CSS file "css/owl.carousel.css" allows this transition to happen.





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The code for the registration form is demonstrated in the code below. I provided a registration for interface by using basic HTML DIV tags, assigning each text field as a variable.

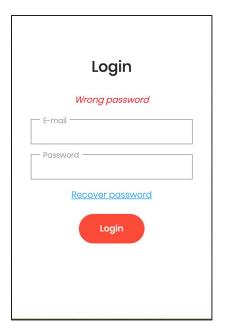
The information inputted by the user is stored in the client server; it is sent to the server side when the user clicks *Register* by using the PHP POST method. The action *adduser* tells the program to send the data from the form to the file: services/adduser.php.

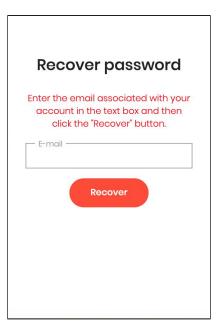
```
<form id="register" action="adduser" tabindex="502" method="POST">
```

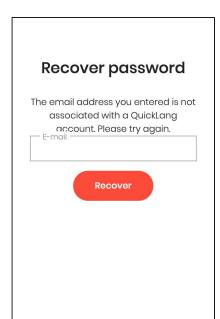
The program will proceed the code only if the user inputted the fields under the correct format as seen below. This functionality was achieved through the use of PHP require() statements.

```
<h3>Register</h3>
                  <div class="name">
                      <input type="text" name="firstname"</pre>
pattern="[a-zA-Z][a-zA-Z0-9\s]*" required>
                      <label>First Name</label>
                  <div class="name">
                       <input type="text" name="lastname"</pre>
pattern="[a-zA-Z][a-zA-Z0-9\s]*" required>
                      <label>Last Name
                  <div class="mail">
                      <input type="mail" name="email"</pre>
pattern="[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$+\.[A-Z]{2,}$" required>
                      <label>E-Mail</label>
                  </div>
                  <div class="passwd">
                      <input type="password" name="password" title="Please enter at least</pre>
6 characters" pattern=".{6,}" required>
</a>
                  <label>Password</label>
                  </div>
                  <div class="submit">
                      <button class="dark">Register
                   </div>
               </form>
          </div>
      </div>
              </div>
              </div>
<!-- Link to the files inc/footer.php and inc/footer close.php — These files
include the JavaScript code used for all webpages and also displays the bottom
footer where my client's logo and a link to their Facebook page -->
  <?php include("inc/footer.php"); ?>
  <?php include("inc/footer close.php"); ?>
```

reset.php







The purpose of this file is to allow an existing user to restore their password in case they cannot remember or simply wish to change it to a new one. This file is a continuation to the *error case 2*.

Technique Used:

- The code is using a PHP Conditional Statements and a MySQL request for checking if the email address inputted exists on the database.

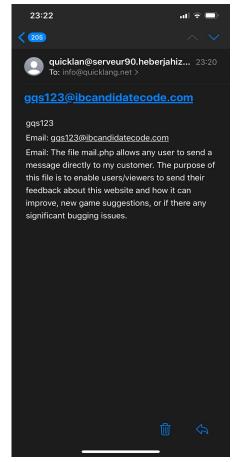
PHP isset() function was used to declare the variable to the database. If the variable is null, the program will output an error message.

```
<?php echo $message; ?>
                   <div class="mail">
                       <input type="mail" name="email"</pre>
pattern="[a-z0-9._%+-]+@[a-z0-9.-]+\.[a-z]{2,}$" required>
                       <label>E-mail</label>
                   </div>
                   <div class="submit">
                       <button class="dark">Recover</button>
                   </div>
               </form>
           </div>
       </div>
              </div>
            </div>
          </div>
       </section>
<?php include("inc/footer.php"); ?>
<?php include("inc/footer_close.php"); ?>
```

mail.php





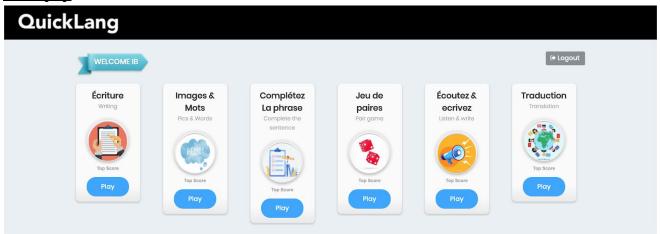


This snippet of code sends an email with the data entered in contact form to a dedicated email address (info@quicklang.net). It uses a simple PHP mail function — a SMTP server is already installed on the hosting server.

```
<?php include("inc/header.php"); ?> <!-- Includes the header.php file (Black Header with)</pre>
Title of Page) -->
<?php
  $to = 'info@quicklang.net';
  $firstname = $ POST["fname"];
  $email= $ POST["email"];
  $text= $ POST["message"];
  $headers = 'MIME-Version: 1.0' . "\r\n";
  $headers .= "From: " . $email . "\r\n"; // Sender's E-mail
  $headers .= 'Content-type: text/html; charset=iso-8859-1' . "\r\n";
  $message ='
      '.$firstname.'
      Email: '.$email.'
      Email: '.$text.'
  ';
<!-- PHP POST Method was used to send the user's input (name, email, and their
message) to the PHP Mail function -->
  if (@mail($to, $email, $message, $headers))
      echo "<style> body { background-image: url(../img/contact-bg.jpg); } </style>" ?>
      <div class = "container"></div>
      <div class="row justify-content-center text-center"></div>
      <div class="col-lg-3 col-md-6">
         <h2 class="text-white">Your message <span>has been sent!</span></h2>
         </div>
<?php
  }else{
      echo 'failed';
?>
```

After login

home.php





This file displays the user's home page; this page contains a list of games and a play button for each game. The program acquires the user's data via a MySQL request and stores the data into session variables, which is linked with the file: "services/check.php".

```
<?php
                                ########################
    This page include session variable with name and best score for logged
     player
     It uses PHP session technology for getting user data by a MySQL request and
    storing it into session variables (check.php).
    Second MySQL request is getting the best score of each game based on Player
    ID retrieved previously by MySQL request and stored into the session.
                                #############################
<?php include("services/check.php"); ?>
<?php include("inc/header.php"); ?>
      <!-- Start Banner Area
      <!-- Start Feature Area -->
          <section class="banner-area relative">
          <div class="overlay overlay-bg"></div>
          <div class="container">
              <div class="row">
               <div class="col-md-4 col-sm-offset-1">
                      <div class="ribbons">
   <?php ##### calling first name variable stored in session after login and displays it</pre>
                                 in the ribbon ##### ?>
                          <div class="ribbon ribbon-blue"><span>Welcome <?php echo</pre>
$ SESSION['firstname']; ?></span> </div>
                      </div>
                  </div>
              <?php ##### logout button ##### ?>
              <div class="col-md-8 text-right" style="margin-top:25px"><a href="logout"</pre>
class="btn btn-secondary btn-sm"><span><i style="color:white" class="fa
fa-sign-out"></i>&nbsp;Logout&nbsp;</span></a></div>
              <div class="row">
                  <div class="col-md-2">
              <!-- Avatar Placeholder -
               <div class="widget-container widget avatar boxed">
                  <div class="inner">
                      <h5>Écriture</h5>
                      <span class="subtitle">Writing </span>
                      <div class="avatar"><img src="img/write.jpg" alt="" /></div>
                      <div class="followers">
                         <span>Top Score</span>
   <?php ####### showing top_s1 top score variable for game1 from received from</pre>
    check.php with a sql request (SELECT TOP SCORE from game where id game=1)
                                     #########
                         <span class="counter"><?php echo $top_s1;?></span>
                      <div class="follow">
                          <a href="writing" class="genric-btn info circle
text-decoration-none"><span>Play</span></a>
```

```
</div>
                   </div>
              </div>
              <!--/ Avatar Placeholder -->
              </div>
              <div class="col-md-2">
               <div class="widget-container widget_avatar boxed">
                   <div class="inner">
                       <h5>Images & Mots</h5>
                       <span class="subtitle">Pics & Words</span>
                       <div class="avatar"><img src="img/word.jpg" alt="" /></div>
                      <div class="followers">
                          <span>Top Score
                               <span class="counter"><?php echo $top_s2;?></span>
                       </div>
                       <div class="follow">
                           <a href="pictures" class="genric-btn info circle"
text-decoration-none"><span>Play</span></a>
                       </div>
                   </div>
              </div>
               </div>
              <div class="col-md-2">
              <div class="widget-container widget_avatar boxed">
                   <div class="inner">
                      <h5>Complétez La phrase </h5>
                       <span class="subtitle">Complete the sentence</span>
                       <div class="avatar"><img src="img/complete.jpg" alt="" /></div>
                       <div class="followers">
                       <span>Top Score
                           <span class="counter"><?php echo $top_s3;?></span>
                      </div>
                      <div class="follow">
                           <a href="complete" class="genric-btn info circle"
text-decoration-none"><span>Play</span></a>
                       </div>
                   </div>
              </div>
               <!--/ Avatar Placeholder -->
                   </div>
              <div class="col-md-2">
                   <!-- Avatar Placeholder -->
               <div class="widget-container widget avatar boxed">
                   <div class="inner">
                       <h5>Jeu de paires</h5>
                       <span class="subtitle">Pair game</span>
                      <div class="avatar"><img src="img/dice.jpg" alt="" /></div>
                      <div class="followers">
                       <span>Top Score
                           <span class="counter"><?php echo $top_s4;?></span>
                       </div>
                       <div class="follow">
                           <a href="pair" class="genric-btn info circle
text-decoration-none"><span>Play</span></a>
                       </div>
                   </div>
              </div>
               <!--/ Avatar Placeholder -->
                   </div>
                  <div class="col-md-2">
                   <!-- Avatar Placeholder -->
               <div class="widget-container widget avatar boxed">
                   <div class="inner">
                      <h5>Écoutez & ecrivez</h5>
```

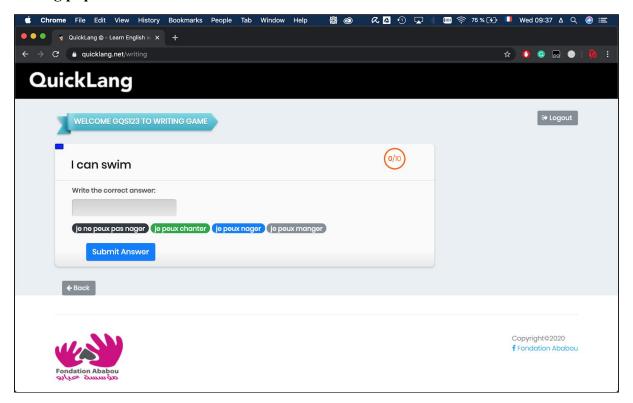
```
<span class="subtitle">Listen & write</span>
                       <div class="avatar"><img src="img/listen.jpg" alt="" /></div>
                       <div class="followers">
                         <span>Top Score</span>
                           <span class="counter"><?php echo $top s5;?></span>
                       </div>
                       <div class="follow">
                           <a href="listen" class="genric-btn info circle"
text-decoration-none"><span>Play</span></a>
                      </div>
                   </div>
              </div>
               </div>
          <div class="col-md-2">
              <div class="widget-container widget_avatar boxed">
                   <div class="inner">
                       <h5>Traduction </h5>
                       <span class="subtitle">Translation</span>
                       <div class="avatar"><img src="img/translate.jpg" alt="" /></div>
                       <div class="followers">
                         <span>Top Score</span>
                           <span class="counter"><?php echo $top_s6;?></span>
                       <div class="follow">
                          <a href="translate" class="genric-btn info circle"
text-decoration-none"><span>Play</span></a>
                      </div>
                   </div>
              </div>
               </div>
          </div>
       </div>
  </section>
<?php include("inc/footer.php"); ?>
<?php include("inc/footer close.php"); ?>
```

Games Files

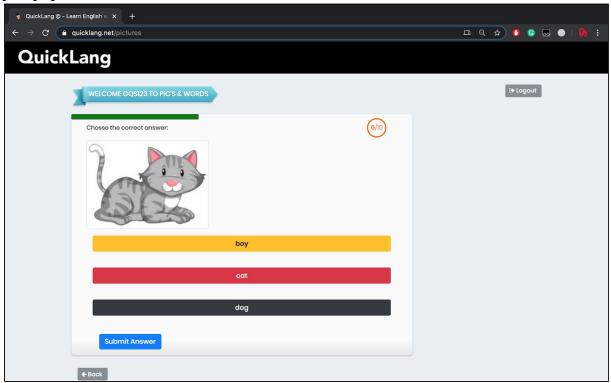
For every game session, 10 questions (with their responses) are chosen at random from the database. This function is enabled by using the PHP MySQL request function.

The operating files for each game are the following:

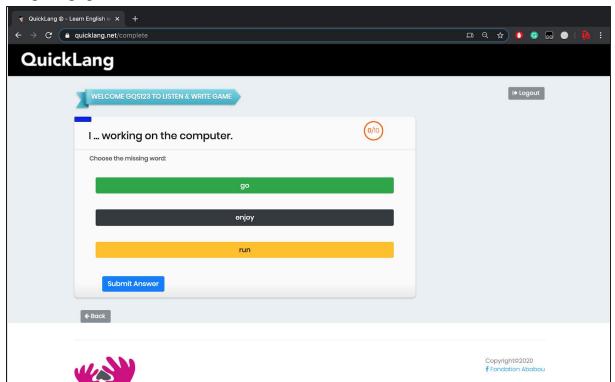
writing.php



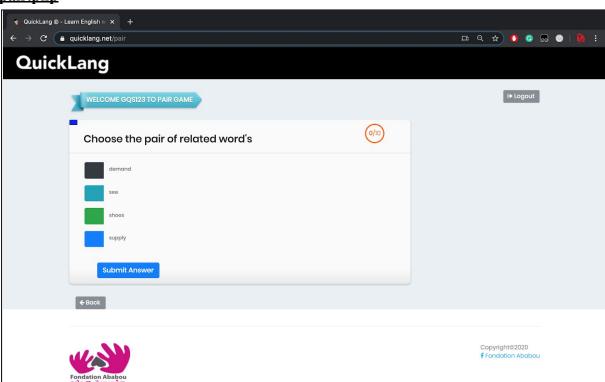
pics.php



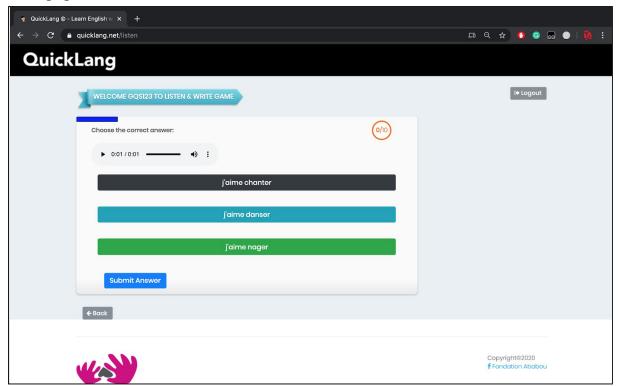
complete.php



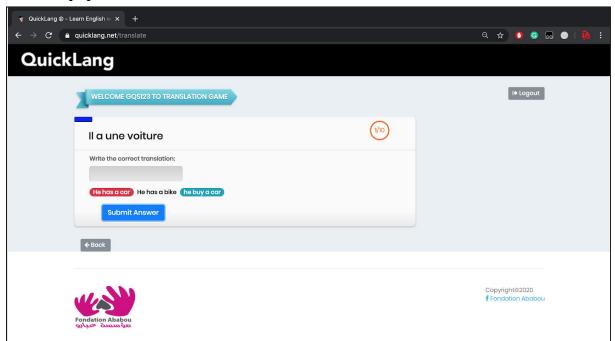
pair.php



listen.php



translate.php



Operating files of the application

services/check.php

- This file is present on each game and each action it makes a verification on the database of the login and passwords input through the session variables created before on the file loginuser.php and containing the login and passwords input.
- This file displays after checking the best score of the player in each game he played via a MySQL request
 - Session variable function
 Non used Cookies (data stored in browser session data is stored on server side)

```
<?php
####### This file verifies whether the user has passed through the login form. ########
session start();
include('inc/cnx.php');
#######defining variable id & email & password #########"
$id=$ SESSION['id'];
$email=$ SESSION['email'];
$password=$ SESSION['password'];
#########check if stored variables in session are in database ################""
$sql user="SELECT * from app users WHERE id='$id' AND email='$email' AND
password='$password'";
$req user=mysqli query($cnx,$sql user);
$total=mysqli num rows($req user);
$aff user=mysqli fetch array($req user,MYSQLI ASSOC);
########## total 0 mean if no record found using this email and password, redirect user
to register page #############
if ($total==0) {
header('location:register');
} else {
##### ELSE get top score user for each game and store it into variable that will be called
in home file #####
$sql score game1="SELECT MAX(score) as TOP GAME1 FROM app scores where (id game=1 AND
id user='".$aff user['id']."')";
$sql_score_game2="SELECT MAX(score) as TOP_GAME2 FROM app scores where (id game=2 AND
id user='".$aff user['id']."')";
$sql_score_game3="SELECT MAX(score) as TOP_GAME3 FROM app_scores where (id_game=3 AND
id_user='".$aff_user['id']."')";
$sql_score_game4="SELECT MAX(score) as TOP_GAME4 FROM app_scores where (id_game=4 AND)
id_user='".$aff_user['id']."')";
$sql score game5="SELECT MAX(score) as TOP GAME5 FROM app scores where (id game=5 AND
id user='".$aff user['id']."')";
$sql score game6="SELECT MAX(score) as TOP GAME6 FROM app scores where (id game=6 AND
id user='".$aff user['id']."')";
$req_score_game1=mysqli_query($cnx,$sql_score_game1);
$req_score_game2=mysqli_query($cnx,$sql_score_game2);
$req_score_game3=mysqli_query($cnx,$sql_score_game3);
$req_score_game4=mysqli_query($cnx,$sql_score_game4);
$req_score_game5=mysqli_query($cnx,$sql_score_game5);
$req_score_game6=mysqli_query($cnx,$sql_score_game6);
$aff_score_game1=mysqli_fetch_array($req_score_game1,MYSQLI_ASSOC);
$top_s1=$aff_score_game1['TOP_GAME1'];
$aff score game2=mysqli fetch array($req score game2,MYSQLI ASSOC);
$top s2=$aff score game2['TOP GAME2'];
$aff score game3=mysqli fetch array($req score game3,MYSQLI ASSOC);
$top s3=$aff score game3['TOP GAME3'];
```

services/loginuser.php

The authentication process is done through a PHP request on the MySQL database to check if the credentials inputted by the user are valid. MySQL guaranteed high data performance and data security.

```
<?php
                                ###############
    1) The file to check the login & password entered after insertion in the
                      authentication form on register.php
 2) If the login & passwords are correct and present in the database (app users
                                    table)
3) This file saves the user's data (last name, first name, login, password, email)
    in session variables, which is then used in the services/check.php file
                                ################
include('../inc/cnx.php');
session start();
############################# check if was sent from login form ##############################
if ((isset($POST['email'])) && (isset($POST['password']))
$email=mysqli real escape string($cnx,$ POST['email']);
  $password=mysqli_real_escape_string($cnx,$_POST['password']);
########################### check if exist in data base #########################
  $sql check="SELECT * FROM `app users` WHERE email='$email' AND password='$password'";
  $req check=mysqli query($cnx,$sql check);
  $total=mysqli num rows($req check);
  $aff check=mysqli fetch array($req check,MYSQLI ASSOC);
$firstname=$aff check['firstname'];
  $lastname=$aff check['lastname'];
  $email=$aff check['email'];
  $id=$aff check['id'];
  if ($total==0) {
########################### user does not exist or wrong password redirect to register
page ##########################
     header('Location: register');
      $ SESSION['error'] = 2;
  } else {
     $ SESSION['firstname'] = $firstname;
```

```
$_SESSION['lastname'] = $lastname;
$_SESSION['password'] = $password;
$_SESSION['email'] = $email;
$_SESSION['id'] = $id;
header('Location: start');
}
} else {
########### if no data sent from form ########
header('Location: home');
}
```

services/logout.php

- File called when user logging out.
- It deletes the session variables and redirects the user to the home page.
- Technique used: session destroy (empty and delete session variable)

```
<?php session_start();
session_destroy();
header('location:home');
######## on click on logout button start session destroy session and go to homepage ########</pre>
```

services/recover.php

- The file is called during the action/password forgotten allows the program to see if the entered email is present on the table app_users if yes he sends the password by email.
- Techniques used:
 - Session DATA to get user data and MySQL request
 - Mail PHP function simple and quick email send function

```
<?php
include('../inc/cnx.php');
session start();
/// check if was sent from login form
if ((isset($ POST['email'])) )
   //clean email & password//
  $email=mysqli real escape string($cnx,$ POST['email']);
  $sql check="SELECT * FROM `app users` WHERE email='$email'";
  $req check=mysqli query($cnx,$sql check);
  $total=mysqli_num_rows($req_check);
  $aff_check=mysqli_fetch_array($req_check,MYSQLI_ASSOC);
   /// get password from database to send it by email
  $firstname=$aff_check['firstname'];
  $lastname=$aff_check['lastname'];
$password=$aff_check['password'];
  $email=$aff check['email'];
  $id=$aff check['id'];
  if ($total==0) {
  //// email dosent exist in database
  header('Location: reset');
$ SESSION['error'] = 1;
  } else {
      include("../emailings/reset.php");
  $message=$reset message;
to = \epsilon;
$from = 'info@quicklang.net';
$headers = "From: " . strip tags($from) . "\r\n";
$headers .= "Reply-To: ". strip_tags($from) . "\r\n";
$headers .= "MIME-Version: 1.0\r\n";
```

services/adduser.php

- The program registers a player and add this information on the table app_users (database) in case it is not already registered.
- Technique used:
 - PHP and MySQL Insert Request for adding data to user table

```
<?php
include('../inc/cnx.php');
session start();
#########check if there is a data coming from register form ####################
if ( (isset($ POST['firstname'])) && (isset($ POST['lastname']))&&
(isset($ POST['email'])) &&(isset($ POST['password'])) ) {
#### using mysql real escape string function to clear data coming from register form #####
  $firstname=mysqli real escape string($cnx,$ POST['firstname']);
  $lastname=mysqli real escape string($cnx,$ POST['lastname']);
  $email=mysqli_real_escape_string($cnx,$_POST['email']);
  $password=mysqli real escape string($cnx,$ POST['password']);
  ####### get user ip #######
       $ip = $ SERVER['REMOTE ADDR'];
  ####### check if user is not already member #######"
  $sql_check="SELECT * FROM app_users where email='$email'";
  $req check=mysqli query($cnx,$sql check);
  $total=mysqli num rows($req check);
  if ($total>0) {
      $ SESSION['error'] = 1;
       $ SESSION['error email'] = $email;
      header('Location: register');
  } else {
  ######## if not then registre the user and save data in session ########
  $sql sign="INSERT INTO `app users` (`id`, `firstname`, `lastname`, `email`, `password`,
date`, `
        ip`) VALUES ('', '$firstname', '$lastname', '$email', '$password', now(),
$ip')";
  $query_sign=mysqli_query($cnx,$sql_sign);
  $ SESSION['firstname'] = $firstname;
  $ SESSION['lastname'] = $lastname;
  $ SESSION['email'] = $email;
  $ SESSION['password'] = $password;
  ###########################"send welcome email script ##########################
  include("../emailings/register.php");
  $message=$rgister_message;
```

```
$to = $email;
    $from = 'no-reply@quicklang.net';
    $headers = "From: " . strip_tags($from) . "\r\n";
    $headers .= "Reply-To: ". strip_tags($from) . "\r\n";
    $headers .= "MIME-Version: 1.0\r\n";
    $headers .= "Content-Type: text/html; charset=ISO-8859-1\r\n";

$subject="Quicklang Account";
    mail($to, $subject, $message, $headers);
### after sending email go to register page to insert login & password newly created ###
        header('Location: register');
    }
} else {
    //header('Location: ../index.php');
}
```

Services for the games

Each game has their own game services to authenticate the user's answer inputs. The files are the following:

- 1) services/checkanswer.php → Writing Game
- 2) services/checkanswer2.php → *Picture Game*
- 3) services/checkanswer3.php \rightarrow *Complete the Sentence Game*
- 4) services/checkanswer4.php → *Complete the Pair Game*
- 5) services/checkanswer5.php → *Listen Game*
- 6) services/checkanswer6.php → *Translation Game*

Due to the word count limit, I will be explaining only of the files above to describe the functionalities used.

services/checkanswer.php

This files allows the verification of the user's answer input / Picks which user is playing from the page **writing.php**

The following data is sent by the page writing.php in the format of AJAX via jQuery

- 1. id game (Game ID 1 Writing Game)
- 2. question_list (List of questions pre-generated)
- 3. answer (Chosen answer for previous question)
- 4. score (Player's score during the game session)
- 5. id question (Question ID)

Technique used:

MySQL Select Request for getting the right answer then insert answer to add score to score table.

```
<?php
                           #########################
This file allows the verification of the user's answer input. If it's a
good answer: add +1 to the score, generate a new question via MySQL request
from the table questions (make sure the question is not already asked to
the user by comparing it with the list of questions already generated by
the request), send a response in JSON format containing the following
elements:
     - New question
      - Proposed answers
     - Score update
If the question asked is the 10th (last) question this file saves the score
in the apps_scores table and displays a message with the final score with
two buttons for "Replay" or "Choose another game."
                           #######################
include('../inc/cnx.php');
session start();
$id_user=$_SESSION['id'];
```

```
$total questions=10;
page id game, question ist, answer, score, id question (last
question) ###########################
$id game=mysqli real escape string($cnx,$ POST['id game']);
$question list=mysqli real escape string($cnx,$ POST['question list']);
$answer=mysqli real escape string($cnx,$ POST['answer']);
$score=mysqli_real_escape_string($cnx,$_POST['score']);
$id_question=mysqli_real_escape_string($cnx,$_POST['qst']);
############################# first detecting if correct answer from answers
table############################
$sql score="SELECT * FROM answers WHERE answer text='".$answer."' AND
id question="".$id question."";
$req score=mysqli query($cnx,$sql score);
$aff_score=mysqli_fetch_array($req_score,MYSQLI_ASSOC);
#####################################
$new score=$aff score['correct']+$score;
$last score=" <strong>".$new score."</strong>/10";
$html answer='';
#################################### check how many remaining questions to show based on
$questionArray = explode(',', $question list);
$count=count($questionArray);
$hsab=($count-1);
if($hsab<$total questions) {</pre>
  $sql next="SELECT * FROM questions WHERE id game="".$id game."' AND id NOT
IN(".substr($question list,0,-1).") ORDER BY RAND() LIMIT 1";
  $req next=mysqli query($cnx,$sql next);
  $aff next=mysqli fetch array($req next,MYSQLI ASSOC);
  $next question=$aff next['question text'];
   variables that will be sent to game page in html format ( writing) #############
$sql answ="SELECT * FROM answers WHERE id question=".$aff next['id']." ORDER BY
RAND() LIMIT 4";
$req answ=mysqli query($cnx,$sql answ);
#########applying random bootstrap style for answers options #############"""
$i = 1;
$array cls = ['primary', 'secondary', 'success', 'danger', 'warning', 'info',
'light', 'dark'];
shuffle($array_cls);
while ($aff answ=mysqli fetch array($req answ,MYSQLI ASSOC)) {
$html answer.='<span style="font-size:14px;margin-top:3px" class="badge badge-pill</pre>
badge-'.$array cls[$i].'"> '.$aff answ['answer text'].'</span>';
$i++;
$new_list=$question_list.$aff_next['id'].',';
```

```
$question div = "<h3>".$next question." </h3>";
$end=0;
#######end 0 mean there is other question player not reaching 10 questions
#################
#######send all data question, score, to game page in json format supported by
jqueury #############
echo json encode(['end'=>$end, 'score'=>$last score, 'qst'=>$aff next['id'],
score_val'=>$new_score, 'question'=>$question_div,
'question_list'=>$new_list,'html_answer'=>$html_answer]);
} else {
############ player reaches 10 questions the program sends a message in html
format with end message ############
$html end='<div class="alert alert-success" role="alert">
You have completed the quiz and your score is <strong>'.$new_score.'</strong>
<a href="writing" class="btn btn-primary">Retry</a>
<a href="start" class="btn btn-success">More games</button>
####################if reaching 10 questions saving score, with id game, and
$sql inset score="INSERT INTO app scores
VALUES('', '". $id user. "', '". $id game. "', '". $new score. "', now()) ";
mysqli query($cnx,$sql inset score);
################send response to game page in json format (format supported by
jquery)###############################
echo json encode(['end'=>$end, 'score'=>$last score, 'score val'=>$new score,
'html end'=>$html end]);
```

Admin Panel Files

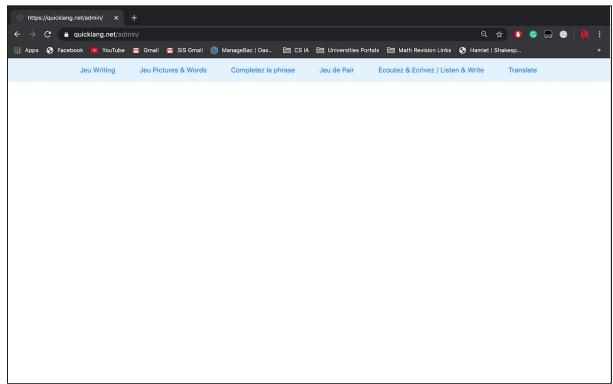
In this section, I will be explaining the code and techniques used that allowed my client to edit the games. These files allow the adding of new questions, answers to the questions, editing the pre-existing questions or answers, and lastly, being able to delete the question for particular games. The files operating the admin panel can be found in *Appendix D*.

Explanation of techniques used

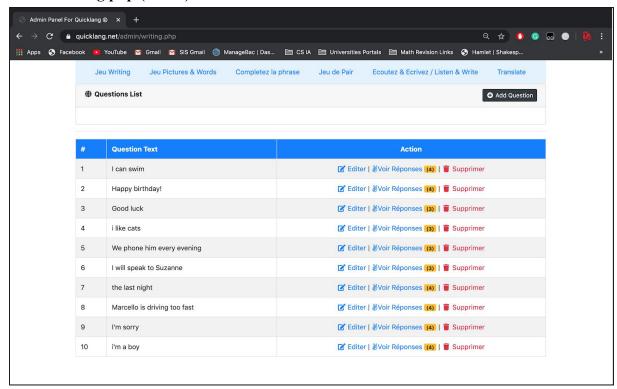
- Admin Backend Used Simple CRUD functions for PHP 5
- CRUD stands for Create-Read-Update-Delete
- Requests are used to add edit or delete questions or answers to the database.
 - More details included in Appendix D

Screenshots of display

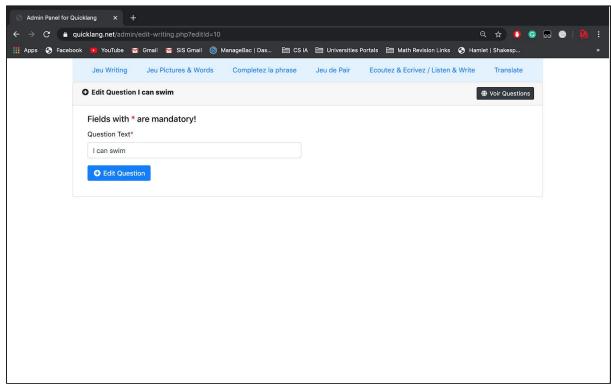
admin.php (Admin Panel)



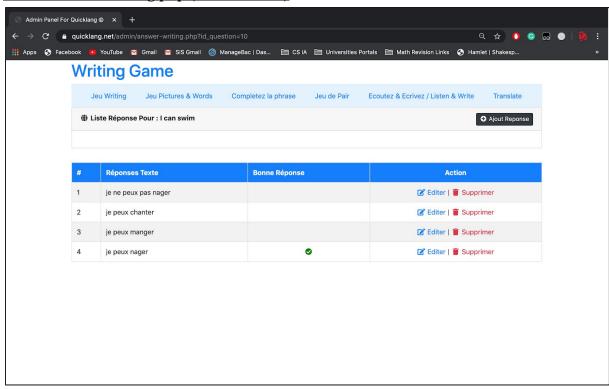
admin/writing.php (Menu)



admin/edit-writing.php (Edit questions)



admin/answer-writing.php (Edit answers)



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