SW Engineering CSC648-848-05 Spring 2023

ULingual

Team 6

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Milestone #4

M4V2	5/25/23
M4V1	5/18/23
M3V2	5/22/23
M3V1	4/27/23
M2V2	4/25/23
M2V1	4/4/23
M1V2	5/18/23

M1V1	3/5/23

Table of Contents

Product Summary

A. **Name of Product:** ULingual

B. **Description:** The world is built upon languages. Without languages, we would not be able to go about our daily lives. With ULingual not only can you learn a new language by chatting with others through our global forums and connecting with others via our video calls, but you can also learn about the culture. We emphasize learning by listening at ULingual, this is why we have Video Rooms where you can learn with others by speaking and listening. This is also why we offer a recommended content section where we offer you recommendations for books, videos, and music playlist to further immerse yourself in the culture. We recommend videos and music playlists so you can listen to the language you are learning more frequently, as one of the best ways to learn language is by repetition and phrase remembrance.

C. **What is unique in your product:**

What makes our product unique is the joint culmination of learning and connecting with ULingual. We offer generated flashcards that get updates for the user to test their language knowledge, as well as recommended content where the user can stay engaged with the language they are learning outside of ULingual. Not only this but we also offer Video Rooms where you can connect either with your friends or with someone you had a discussion with within the forums. What makes us stand out is our combination between learning and connections.

D. URL to product: https://50.18.108.83.nip.io/

Itemized P1 List:

1) A general user shall be able to register for an account at ULingual.

2) A general user shall be able to select the language they want to learn upon registration.

3) A general user shall be able to select what language they are native in upon registration.

4) A general user shall be able to access our Contact Form to send ULingual an inquiry email.

5) A general user shall be able to view the About Us page to see further details revolving around ULingual.

6) A general user shall be able to view the Frequently Asked Questions page to see common questions ULingual receives.

7) A general user shall be able to view our Terms and Conditions page prior to registering an account.

8) A general user shall be able to access our search bar to search for registered users by name or language.

9) A registered user shall be able to login with a username and password.

10) A registered user shall be able to logout of their account.

11) A registered user shall be able to access our Contact Form to send ULingual an inquiry email.

12) A registered user shall be able to view the About Us page to see further details revolving around ULingual.

13) A registered user shall be able to view the Frequently Asked Questions page to see common questions ULingual receives.

14) A registered user shall be able to access our search bar to search for other registered users by name or language.

15) A registered user shall be redirected upon search submission to the results page for their search.

16) A registered user search result shall be filtered by the alphabetic language relation they search to display other registered users who are native in the language searched.

17) A registered user search result shall be filtered by alphabetic name relation to other registered users.

18) A registered user shall be able to view their own profile.

19) A registered user profile shall display the language the registered user is learning.

20) A registered user profile shall display the amount of friends the registered user has.

21) A registered user profile shall display the language the registered user is native in.

22) A registered user profile shall display the description of the registered user.

23) A registered user profile shall display the profile picture of the registered user.

24) A registered user profile shall display the username of the registered user.

25) A registered user shall be able to edit their own profile.

26) A registered user profile shall display a "Edit Profile" button that allows registered users to edit their profile.

27) A registered user shall be able to upload a photo in place of their profile picture.

28) A registered user shall be able to edit the description of their profile.

29) A registered user shall be able to change what language they want to learn within their profile.

30) A registered user shall be able to edit their username.

31) A registered user shall be able to view their friends list.

32) A registered user shall be able to view their friends profile.

33) A registered user shall be able to access the main dashboard.

34) A registered user shall be able to access Global Forums within the dashboard.

35) A registered user shall be able to comment under a forum post.

36) A registered user shall be able to create a new forum post.

37) A registered user shall be able to access Video Rooms within the dashboard.

38) A registered user shall be able to create a video room.

39) A registered user shall be able to join a video room.

40) A registered user shall be able to access our Miscellaneous Content within the dashboard.

41) A registered user shall be able to access a list of book recommendations in their desired language they are learning.

42) A registered user shall be able to access a list of movie and tv show recommendations in a specified language.

43) A registered user shall be able to access playlists of music in relation to the language they desire to learn.

44) A registered user shall be able to access our Flashcards within the dashboard.

45) A registered user shall be able to access generated flashcards as a small test for their desired language.

46) A registered user shall be able to create their own flashcards within the flashcard page.

47) A registered user shall be able to access their inbox within their profile.

48) A registered user shall be able to accept or reject friend requests within their inbox.

49) The global forums shall display the name of the forum title.

50) The global forums shall display the amount of comments within the forum.

51) The global forums shall be sorted by relevance based on newest post.

52) The global forums shall display the date that a post was created.

53) The global forums shall display the time that a post was created.

54) The global forums shall display the username of the person that created the post.

55) The global forums shall display a return button per forum to go back to the main global forums page.

56) The video rooms shall display a mute/unmute button where registered users can mute/unmute themselves during a video call.

57) The video rooms shall display a leave call button where registered users can leave a video call.

58) The video rooms shall display a Video On/Off button where registered users can turn their camera off or own in a video call.

59) The flashcards shall be viewed by registered users.

60) The flashcards shall be formatted into two sides: Word/Phrase & Translation of given Word/Phrase.

61) The flashcards shall be displayed based on registered users selected language choice upon registration.

62) The miscellaneous content shall be displayed by category of "Books", "Movies & Shows, and "Music Playlists".

63) The miscellaneous content shall only be accessible by registered users.

64) The miscellaneous content shall display links where registered users can access this content to either purchase or enjoy for free.

65) The miscellaneous content shall display a title of the content we are suggesting to registered users.

66) The inbox shall be displayed within a registered user profile.

67) The inbox shall display pending friend requests.

68) The inbox shall display messages based on the most recent notification.

69) The inbox shall display the time and date a message was received.

Usability Test Plan

Test Objectives: What is being tested.
1. Post a Comment on a Forum Thread:
   a. In order for users to communicate with each other, they will need to be able to post a comment. This is being being tested to figure out whether a user can find where to comment as well as being able to post the comment
2. Find a Book Recommendation:
   a. One of our features is recommendations of various content so that you can enjoy content from the language you learned. This is tested to make sure users are able to find and receive recommendations.
3. Edit Your Profile Description
   a. Being a website where you're likely to meet people, it is important to be able update a description of yourself so that people can understand you a bit more
4. Join a Video Room
   a. Language is meant to be spoken, so video rooms are an important part of this site. This is being tested because users should know where to find and how to create video rooms.
5. Flip a Flashcard
   a. Flashcards will allow users to re-study things they have learned

Test Descriptions:

Post a Comment on a Forum Thread:
- System Setup: Windows 11, Chrome Browser, Testers actions being watched over a video call
- Starting Point: ULingual (nip.io) when Logged in.
- Intended Users: Any Registered Users who want to connect with other users and potentially add each other as friends to participate in video calls with.
- URL being tested: ULingual (nip.io)
- Task Steps: Click on Get Started or Profile Icon, go to Dashboard, Click on Global Forums, Click on a Forum, Write in the Text box, Click Submit.

Find a Book Recommendation:
- System Setup: Windows 11, Chrome Browser, Testers actions being watched over a video call
- Starting Point: ULingual (nip.io) when Logged in.
- Intended Users: Any Registered Users, People who Enjoy Reading
- URL being tested: ULingual (nip.io)

- Task Steps: Task Steps: Click on Get Started or Profile Icon, go to Dashboard, Click on Go to Recommendations, Click on Book Recommendations

Edit Your Profile Description:
- System Setup: Windows 11, Chrome Browser, Testers actions being watched over a video call
- Starting Point: ULingual (nip.io) when Logged in.
- Intended Users: Any Registered Users
- URL being tested: ULingual (nip.io)
- Task Steps: Task Steps: Click on the Profile Icon, go to Profile, Click on Edit Profile, Add Text to the text box, Click done.

Join a video room:
- System Setup: Windows 11, Chrome Browser, Testers actions being watched over a video call
- Starting Point: ULingual (nip.io) when Logged in.
- Intended Users: Any Registered Users who want to see and speak with others in their own or other languages.
- URL being tested: ULingual (nip.io)
- Task Steps: Click on Get Started or Profile Icon, go to Dashboard, Click on Go To Video Rooms, Click Generate Room Code, Enter required information, Click Join.

Flip a Flash Card:
- System Setup: Windows 11, Chrome Browser, Testers actions being watched over a video call
- Starting Point: ULingual (nip.io) when Logged in.
- Intended Users: Any Registered Users
- URL being tested: ULingual (nip.io)
- Task Steps: Click on Get Started or Profile Icon, go to Dashboard, Click on Go To Flashcards, Click on a flashcard.

Usability Test Table: Effectiveness:

Test/Use Case	% Completed	Errors	Comments
Post a Comment on a Forum Thread	100%	N/A	Weird Layout
Find a Book Recommendation	100%	N/A	N/A

Test/Use Case	% Completed	Errors	Comments
Edit Your Profile Description	100%	N/A	Good design
Join a Video Room	75%	Video Room not created	Not finished
Flip a Flash Card	100%	N/A	Liked how each language had its own row. Feedback when clicking cards was nice

Usability Test Table: Efficiency:

Test/Use Case	Avg Time	# of pages navigated to accomplish task	Comments
Post a Comment on a Forum Thread	16s	4	Quick
Find a Book Recommendation	14s	4	Quick/easy to find
Edit Your Profile Description	22s	3	Quick/easy to find
Join a Video Room	28s	5	Unfinished
Flip a Flash Card	12s	3	Quick

User Satisfaction Questionnaire:

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Where to comment to a forum thread was clearly marked.		o			
Adding a comment to a forum	o				

thread was intuitive.					
In a real application, I would comment to forum posts to connect with other users			o		
I was able to find a Book Recommendation quickly.	o				
I was satisfied with the variety of book recommendations offered.			o		
In a real application, I would explore the books being recommended.	o				
Editing my Profile Description was intuitive.	o				
Finding where to edit my profile was quick.	o				
Editing my profile was an enjoyable experience.	o				
Navigating to join a video room was easy.			o		
The process of joining a video room was straightforward.			o		
The video room joining process should be changed.	o				
Flipping flashcards is an enjoyable experience.	o				
Flashcards make it easier for me to study the things I've learned.	o				
It is easy to flip Flash Cards.	o				

QA Test Plan

Test Objectives: what is being tested.

    a. *Security*

       - Test objectives: The system's ability to protect information and resources from illegal access.

       - HW and SW setup (including URL): https://50.18.108.83.nip.io/ Testing setting with security tools and fake attack scenarios.

       - Feature to be tested: User identification, validation and access control.

       - QA Test plan:

Test #	Test title	Test Description	Test Input	Expected correct output	Pass/Fail
Test 1	User Password	Testing make sure the password is correct	Test with incorrect password	Incorrect input must denies access and show error	Pass
Test 2	Email validation	Testing if an email field containing a domain or not	sami@yahoo.com	sami@yahoo.com	Pass
Test 3	Password encryption	Testing if the password is encrypted	123456	·····	Pass

    b. *Performance*

       - **Test objectives:** Checking the speed of loading test, response time and scalability test.

       - HW and SW setup (including URL): https://50.18.108.83.nip.io/ Tools for server and network monitoring, as well as tools for creating messages and web browsers.

       - Feature to be tested: Accessibility to the server performance, loading test, response time and scalability test.

       - QA Test plan:

Test #	Test title	Test Description	Test Input	Expected correct output	Test Results
Test 1	Loading test	Monitor the website response time, resource utilization	Brows different pages, submitting forms.	Our website handle the loads without degradation	Pass
Test 2	Response Time	Test the responsiveness of the website by measuring the time it takes to respond.	User request to login to the website and access lecture	The response takes a second	Pass
Test 3	Scalability Testing	Test the website's ability to handle the scale effectively.	Test the website performance by increasing traffic to the website.	The website performs effectively during high traffic.	Pass

c. Storage

-**Test objectives:** the storage test is to evaluate the system's capacity.

- **HW and SW setup (including URL):** https://50.18.108.83.nip.io/ SW requirement setup requirement for operating system.

- **Feature to be tested:** storage test

- **QA Test plan:**

Test #	Test title	Test Description	Test Input	Expected correct output	Test Results
Test 1	capacity	Verify storage capacity	The software it reserves a sufficient amount of storage space so that unexpected termination does not occur due to lack of space	Testing the maximum capacity of the system in terms of traffic. Not able to test because users were only limited to 5.	Fail
Test 2	Backup	Recovery testing the system when the storage capacity is reached or exceeded	It test of creating a copy of the data on the system that can use recovery in case the original data is lost	Run test to recover deleted	Fail
Test 3	Storage testing	Test the system ability to scale the storage capacity to accommodat e increasing data volumes	It is testing to verify how the system will react when hardware device is replaced	Testing which is used to ensure that the software program saves necessary data in correct folder	Pass

d. *Privacy*

-**Test objectives:** To check that data is protected and encrypted.

- **HW and SW setup (including URL):** https://50.18.108.83.nip.io/

- **Feature to be tested:** Testing the system's performance by accessing various data, checking if data is stored via cookies, and seeing how it manages users data.

- **QA Test plan:**

Test #	Test title	Test Description	Test Input	Expected correct output	pass/Fail
Test 1	Data Collection	It store personal information while protecting individual privacy right	Testing the system capability performance by access different data	Not able to access the data	Fail
Test 2	Data encryption	It test the security of data transmission over networks	It verify that sensitive data is encrypted during transmission protocol such as HTTPS is used to protect users privacy	https://50.18.108.83.nip.io/	Pass
Test 3	Privacy policy	It checks that the system provides clear privacy policy and disclosure to its user	How the company collects and handle data from site visitors	checking the button of website policy before signing up	Pass

e. *Compatibility*

    - Test objectives: Verification of ULingual ability to browse in different web browsers, divicess and modify content to fit various screen sizes.

    - HW and SW setup (including URL): https://50.18.108.83.nip.io/ Test website with different platforms such as desktop, laptop, and screen sizes. Also with different browsers.

    - Feature to be tested: Adaptability and flexibility of the website, browser compatibility, operating system and device compatibility.

    - QA Test plan:

Test #	Test title	Test Description	Test Input	Expected correct output	Test Results
Test 1	Testing browser compatibility	Test browser compatibility in different web browser and all futures are functional	Validate the website on different browsers. Such as Safari, Chrome, Firefox	Website functions correctly on all browser	pass
Test 2	Screen resolution	Test screen resolution in different device	Launch website to ensure all elements are display correctly in different device	The website must display in different screen resolutions without cutting information.	pass
Test 3	Device compatibility	Test website in different devices and operating systems. such as Desktop,laptops, tablets.	Verify that all functionality are access and working correctly in different devices	Our website works on different devices and operating system	pass

Code Review

We follow the general coding Standard i.e:

1. **Proper naming conventions relative to React:** Where all our files names relate to the content of code written.
2. **Proper convention of Files:** Where all our files have proper extensions relative to our React Project.
3. **Proper commenting and layout:** Where we properly comment highly important code making it easier for team members to understand what's going on within a given code section.
4. **Limiting Usage of Global Variables:** Where we mitigate our usage of global variables and rather take advantage of reacts component features.
5. **Proper Exception Handling:** Where we set parameters to return appropriate errors based on certain exception handles. As well as providing proper handling of issues–for example registration validation.
6. **Mitigation of Problematic Loops:** Where we mitigate usage of potential loop conventions that can cause issues, i.e do…while.
7. **Indentation:** Where we do proper indentation to make our code and clear to understand in especially dense sections.

Team Member- John Code Review:
Files reviewed:
Maincontent.js
Maincontent.css

(Maintcontent.js)

```jsx
1   import React from 'react'
2   import './stylesheets/Maincontent.css'
3   import americanFlag from '../images/americanFlag.png'
4   import spanishFlag from '../images/spanishFlag.png'
5   import frenchFlag from '../images/frenchFlag.png'
6   import arabLeagueFlag from '../images/arabLeagueFlag.png'
7   import koreanFlag from '../images/koreanFlag.png'
8   import { Link } from 'react-router-dom'
9   import LandingPage from '../images/Designer-girl.jpg'
10  // import { FcGraduationCap, FcPicture,FcReading,FcFilmReel } from "react-icons/fc";
11  // import { FaUserFriends,FaRegLaughBeam } from "react-icons/fa";
12  // import { MdVideoCall,MdOutlineForum} from "react-icons/md";
13  // import { GiTeacher } from "react-icons/gi";
14  // import { BiMusic } from "react-icons/bi";
15  // import { ImBooks } from "react-icons/im";
16
17
18
19  function MainContent(props) {
20      const {loggedIn} = props;
21      //const languages = {}
22
23      return(
24      <div className='maincontender'>
25          <div id="banner" className='sec-1'>
26              <div className='content-one'>
27                  <div className='inter-1'>
28                      <h1 className='title-inter-1'>ULingual</h1>
29                      <h2 className='title-inter-1'>
30                          Learn languages with people globally.</h2>
31                      <div className='descript-1'>
32                          <p>
33                              Connect with native speakers from around the world
34                              with a click of a button.
35                          </p>
36                          {loggedIn ? (
37                          <div className='sign-up'>
38                              <Link to="/Dashboard">
39                                  <label className='sign-up-btn'>
40                                      Get Started!
41                                  </label>
42                              </Link>
43                          </div>
44                          ) : (
45                              <div className='sign-up'>
46                              <Link to="/register">
47                                  <label className='sign-up-btn'>
48                                      Sign Up Here!
49                                  </label>
50                              </Link>
51                          </div>
52                          )}
53                      </div>
54                  </div>
55              <div className='land-page-image-1'>
56                  <img src={LandingPage} alt="image of person"></img>
57              </div>
```

```
57                </div>
58                </div>
59            </div>
60            <div id="info-1" className='sec-2'>
61                <div className='content-two'>
62                    <h2 className='hp-title'>Join a supportive community</h2>
63                    <p>At ULingual we understand learning a language can be difficult,
64                        this is why we emphasize creating a supportive community where any one
65                        can feel welcome to learn without judgment.
66                    </p>
67                </div>
68            </div>
69            <div id="offerings" className='sec-3'>
70                <div className='content-three'>
71                    <h2 className='hp-sec3-title'>ULinguals Dashboard</h2>
72                    <div className='hp-sec3-info'>
73                        <p>Get access to our dashboard that offers
74                            Flashcards, Global Forums, Video Rooms, and Recommended
75                            Content.
76                        </p>
77                    </div>
78                    <div className='card-setup'>
79                        <article className='hp-card'>
80                            <h3 className='hp-card-title'>Flashcards</h3>
81                            <p>Access our array of flashcards that test your knowledge
82                                in the language you're learning!
83                            </p>
84                        </article>
85                        <article className='hp-card'>
86                            <h3 className='hp-card-title'>Global Forums</h3>
87                            <p>Want to chat globally? Access our global Forums
88                                and connect with users from around the world.
89                            </p>
90                        </article>
91                        <article className='hp-card'>
92                            <h3 className='hp-card-title'>Video Rooms</h3>
93                            <p>Tired of learning and not practice? Access our video
94                                rooms and connect with someone to practice with!
95                            </p>
96                        </article>
97                        <article className='hp-card'>
98                            <h3 className='hp-card-title'>Rec. Content</h3>
99                            <p>
100                                Access our recommended content including custom books, tv shows, and
101                                music playlist to expand your learning outside of ULingual.
102                            </p>
103                        </article>
104                    </div>
105                </div>
106            </div>
107        </div>
108    );
109
110 }
111
112    export default MainContent
```

(Maincontent.css)

```css
1   .maincontender{
2       z-index: 0;
3       position: relative;
4   }
5
6   #banner{
7       position: relative;
8       overflow: hidden;
9       padding: 6.0vw 0;
10      display: flex;
11      align-items: center;
12  }
13
14  #banner .content-one{
15      position: relative;
16      z-index: 2;
17      height: auto;
18      padding: 0;
19      width: 92%;
20      display: flex;
21  }
22
23  .sec-1 .content-one {
24      margin: 0 auto;
25      text-align: center;
26  }
27  #banner .content-one .inter-1 {
28      position: relative;
29      margin-top: 0;
30      margin-right: 0;
31      text-align: center;
32  }
33
34  #banner .content-one .title-inter-1 {
35      position: relative;
36      display: block;
37      color: #000;
38      text-align: left;
39      margin: 0;
40      font-weight: 700;
41      width: 100%;
42      padding-right: 0;
43      right: 0;
44      opacity: 1;
45      transform: translate(0,0);
46  }
47  #banner .content-one .title-inter-1 h1{
48      margin-bottom: 10px;
49  }
50
51  .inter-1 h1{
52      font-size: 60px;
53  }
54  .inter-1 h2{
55      font-size: 33px;
56  }
57
```

```css
58    #banner .content-one .descript-1 {
59        text-align: left;
60        width: 100%;
61        max-width: 850px;
62        margin: 30px 0 0;
63    }
64    #banner .content-one .descript-1 p {
65        color: #1d1d1f;
66        font-size: 23px;
67        font-weight: 400;
68        line-height: 1.2em;
69        letter-spacing: .008em;
70        font-family: 'Comme', sans-serif;
71    }
72
73    .sec-1 p{
74        margin-bottom: 1rem;
75        font-family: 'Comme', sans-serif;
76    }
77
78    #banner .content-one .descript-1 .sign-up{
79        margin: 0;
80        text-align: left;
81
82    }
83
84    #banner .content-one .descript-1 label.sign-up-btn {
85        display: inline-block;
86        padding: 0;
87        margin: 0 auto;
88        color: black;
89        background: var(--mint-green);
90        height: 48px;
91        line-height: 48px;
92        width: 256px;
93        text-align: center;
94        text-transform: uppercase;
95        cursor: pointer;
96        border-radius: 5px;
97    }
98    #banner .content-one .descript-1 label.sign-up-btn:hover {
99        background: black;
100       color: white;
101
102   }
103
104   .sec-1 label.sign-up-btn {
105       font-size: 16px;
106       font-weight: 600;
107       min-width: 256px;
108       letter-spacing: .2em;
109   }
110
111   .sec-1 span.spn{
112       color: black;
113       margin-left: 1rem;
114       font-family: 'Comme', sans-serif;
```

```css
115    }
116
117    /* NEED to work on image responsiveness*/
118    #banner .land-page-image-1 img{
119        position: absolute;
120        background-size: contain;
121        max-width: 375px;
122        max-height: 350px;
123        margin: auto 0;
124        top: 0;
125        bottom: 0;
126        display: flex;
127        object-fit: cover;
128        margin-left: 5em;
129    }
130    @media only screen and (max-width: 1350px){
131        #banner img{
132            left: 770px;
133        }
134    }
135    @media only screen and (max-width: 1180px){
136        #banner img{
137            left: 680px;
138        }
139    }
140    @media only screen and (max-width: 980px){
141        #bannerimg{
142            overflow: hidden;
143        }
144
145    }
146
147
148    #info-1{
149        background: var(--primary);
150    }
151
152    #info-1 .content-two {
153        width: 100%;
154        padding: 5rem 0 3rem;
155        text-align: center;
156    }
157
158    #info-1 .hp-title {
159        margin-top: 0;
160        margin-left: auto;
161        margin-right: auto;
162
163    }
164    #info-1 h2{
165        font-size: 52.5px;
166        font-family: 'Comme', sans-serif;
167
168    }
169
170
```

```css
170
171    #info-1 p{
172        font-size: 21px;
173        letter-spacing: .010em;
174        line-height: 1.13em;
175        width: 100%;
176        font-weight: 600;
177        margin-bottom: 1rem;
178        font-family: 'Comme', sans-serif;
179    }
180
181    #offerings{
182        background: ■whitesmoke;
183    }
184
185    #offerings h2{
186        margin-top: 0px;
187        text-align: center;
188        color: var(--primary);
189        font-size: 50px;
190        font-family: 'Comme', sans-serif;
191    }
192    .content-three .hp-sec3-info p{
193        text-align: center;
194        color: var(--primary);
195        font-size: 30px;
196        font-family: 'Comme', sans-serif;
197    }
198
199    .card-setup{
200        display: grid;
201        grid-template-columns: repeat(auto-fit, minmax(250px,1fr));
202        gap: 1em;
203        margin-left: 1em;
204        margin-right: 1em;
205        margin-top: 2em;
206    }
207
208    .hp-card{
209        background: □black;
210        border-radius: 5px;
211        margin-bottom: 10px
212    }
213
214    .hp-card h3{
215        text-align: center;
216        background:var(--mint-green);
217        border-radius: 5px;
218        border-bottom-left-radius: 0px;
219        border-bottom-right-radius: 0px;
220        color:□black;
221        font-weight: 800;
222        font-family: 'Comme', sans-serif;
223    }
224
225    .hp-card p{
226        text-align: center;
227        color: ■white;
228        text-decoration: solid;
229        font-weight: 500;
230        font-family: 'Comme', sans-serif;
231        font-size: 22px;
232    }
```

These files were chosen as its the main landing page for our website and the structure holds great value to get people's attention.

"Proper use of import statements.
Some imports are not being used and could be removed from the code.
Some code is commented out. These can also be removed to avoid confusion.
Structure of the main function is well organized and consistent with indentations.
Uses CSS classes to apply styling to the content.

Naming conventions for classes are mostly consistent.
All styling is done within the imported CSS file; no in-line styling.
Lack of comments, but they're not really necessary in this case. The code is
pretty self-explanatory and sectioned nicely."

Team 4 Lead Saru Code Review:
File reviewed:
       videoIndex.js

```javascript
1   // File to contain all video-related API calls
2   const express = require('express');
3   const bodyParser = require('body-parser');
4   const config = require('./config');
5   const { videoToken } = require('./tokens');
6
7   // Create a new instance of the Express application
8   const app = express();
9
10  // Use body-parser middleware to parse incoming request bodies
11  app.use(bodyParser.urlencoded({ extended: false }));
12  app.use(bodyParser.json());
13
14  // Function to send the Twilio Access Token as a JSON response
15  const sendTokenResponse = (token, res) => {
16    res.set('Content-Type', 'application/json');
17    res.send(
18      JSON.stringify({
19        token: token.toJwt()
20      })
21    );
22  };
23
24  // API route for generating a Twilio Access Token for a GET request
25  app.get('/video/token', (req, res) => {
26    // Get the identity and room parameters from the query string of the request
27    const identity = req.query.identity;
28    const room = req.query.room;
29
30    // Generate a new Twilio Access Token with the videoToken function
31    const token = videoToken(identity, room, config);
32
33    // Send the token as a JSON response
34    sendTokenResponse(token, res);
35  });
36
37
38  // API route for generating a Twilio Access Token for a POST request
39  app.post('/video/token', (req, res) => {
40    // Get the identity and room parameters from the request body
41    const identity = req.body.identity;
42    const room = req.body.room;
```

```
38    // API route for generating a Twilio Access Token for a POST request
39    app.post('/video/token', (req, res) => {
40      // Get the identity and room parameters from the request body
41      const identity = req.body.identity;
42      const room = req.body.room;
43
44      // Generate a new Twilio Access Token with the videoToken function
45      const token = videoToken(identity, room, config);
46
47      // Send the token as a JSON response
48      sendTokenResponse(token, res);
49    });
50
51    module.exports = app;
```

This file was chosen as its the structure for how our video rooms are implemented–which is one of our key features within the website.

"The standard naming convention has been followed.
The name of the file is descriptive to reflect the content inside the file.
Added comments add quality to the understanding of the code.
There is limited use of global variables and functions indicating good coding practice.
The indentations are placed properly increasing readability of the code.
Cannot confirm if there are exception handlers for functions in the provided code snippet. Adding exception handlers is recommended for code to run smoothly and to get the desired result.
The statements are clear and comprehensive."

Self-check on Best Practices for Security

Protected Assets:

     Passwords

After validating the user's information during account creation, passwords are encrypted using the bcrypt module and stored in our database. For testing purposes, several of these passwords were intentionally made the same during registration. However, since bcrypt's encryption algorithm is probabilistic, the encrypted passwords will always be different even if the unencrypted passwords are the same. During login, bcrypt is also used to validate the user's information. The user's unencrypted password is never saved anywhere on our website.

Password encryption during registration:

```
bcrypt.hash(Upassword, salt, (err, hash) => {
```

Password decryption during login:

```
bcrypt.compare(Upassword, foundUser.Upassword, (err, response) => {
```

Encrypted passwords in the database:

Uusername	Upassword
1234	$2b$10$YdlA/gbMa5q0L.x42kX9l.t1L7FHUsQSK...
123123	$2b$10$yExQCNb0t1fn0jNl5GQOfuzwAbbRy4y...
asdasdasdasd	$2b$10$eyZhqQ8qS5z/pa3jUvBd/epeSOj/VwiDI...
111111	$2b$10$ahZEfR.10rmHezxYN9Inf.BZKD3MYHvL...
usertest	$2b$10$ZDvhIeSaRyi0pDvssN5/Aeyqwpd4nuip...
jtaylor	$2b$10$A8Hf89jNjls.pXGSCLajd.DTMMnHL6Ny...
curry30	$2b$10$SnXS.lE6T0qDEeR/LY4sc.3/l4U2PLe2xR...
qwee	$2b$10$9EW3CKbH2QWWZYgo1nOhMOiWWO...
mj23	$2b$10$dmHuPsJMdnsC12DT4xRNpOlf/BY9YBy...
Tbros	$2b$10$UFFwdUoBQmAdK8MGWOXlz.CQkNcfS...
PGriffin	$2b$10$8LrLVkrL2LY7h59nTYnToeEU8HbfAAw...
12345	$2b$10$FX6VXcGi42qxmK9RsYn4lurNG8jVVlW7...
BBongo	$2b$10$8TONp79/AK0CC4Pl1cMi.OUtPZqTAfjYr...
KD35	$2b$10$lWON8x1qYTSE0KzcILOX/O.D/MHS/g4...
douglasyao	$2b$10$et7whAEdXBx7swlBZc.buugk9ubCRftfy...
testing	$2b$10$7EwfiOKxsLjxp35/4Lc.f.59s/PlnpgBOdu...
test	$2b$10$QrwdFX0KHq.ilEBTop4AVuYwPT6.bcEx...
jojokai	$2b$10$OTevdAICbal5r2GaHxiMrOwNl.3XZ0Vtt...
prathiba	$2b$10$pemMMgUEwRSW9L1rT445ye.mM8ubG...
nique	$2b$10$nJZpgn8etwG4B.ixWse7qe4ZfAJTOXch...
PrettyGood	$2b$10$OJWy9W6jrq5cX3YU8.SKLuepKwj0TKp...
NULL	NULL

Input Data Validation:

All forms of input by the user are validated and visual feedback is provided when the user does not satisfy the input requirements. This includes registering an account, logging in, posting to the forum, sending messages to other users, and using the search bar.

Example of invalid input:

Email:

fake@email

Valid Format: valid@email.com
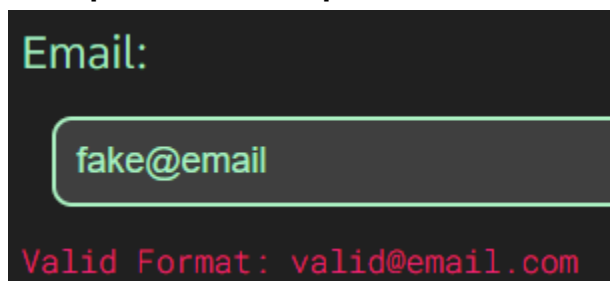
For the search bar we're only making sure that the user doesn't try to search with an empty query.

```
if(searchQuery.length == 0) {
    alert("Please enter a search term.");
```

Example of empty field submission:

localhost:3000 says

Please enter a search term.

OK

Search for a Tutor...

Self-check: Adherence to Original Non-Functional Specifications

1. **System Requirements:**
   - **1.1.** Operating System Minimums: System shall support operating systems running Windows 7, Mac OS 10.8 or newer. **(DONE)**
2. **Performance:**
   - **2.1.** Server Uptime: The server shall be run through the day for 24 hours a day. **(DONE)**

2.2. Minimal Message Delay: The server shall be able to process and display live texts within 3 seconds. **(DONE)**

2.3. Minimal Page Load Delay: The server shall load pages for the user within 2 seconds. **(DONE)**

3. **Storage:**

3.1. Server Storage Capability: ULingual's server shall be run on 8GiB Volume. **(DONE)**

4. **Security:**

4.1. Data Privacy: The user's password information shall be protected and encrypted within ULinguals database. **(DONE)**

4.2. Secure Password: The user shall have a secure password that includes an uppercase, lowercase, special symbol, a numerical value, and be a length of at least 8 characters. **(DONE)**

4.3. Username Uniqueness: There shall be no duplicate usernames within the database of ULingual. **(DONE)**

5. **Environmental:**

5.1. Safe Space Environment: The user shall experience a judgment free zone while using ULingual services. **(DONE)**

6. **Marketing:**

6.1. ULingual shall have an easy to identify logo that distinguishes itself from others. **(DONE)**

7. **Legal:**

7.1. Acceptance of Policies & Services: The user must accept our policies and terms of service prior to creating a ULingual account. **(DONE)**

8. **Content:**

8.1. Immersive & Interactive Content: The user shall experience content that's both enjoyable and also interactive. **(DONE)**

9. **Look and Feel:**

9.1. Smooth User Experience: The user shall experience the services of ULingual in an easy and smooth way, mitigating confusion and frustration. **(DONE)**

9.2. Smooth Customer Support: The system shall provide a form system where the user shall be able to contact us regarding inquiries, feedback, and issues they are facing regarding the software. **(DONE)**

10. **Usability:**

10.1. Accessibility: ULingual shall be accessible to anyone with a general internet connection and the minimum required operating system requirements. **(DONE)**

10.2. Efficiency: The ULingual system shall be efficient for the users. **(DONE)**

10.3. Username Changes: The user shall be able to change their username whenever they please, granted it isn't taken already. **(DONE)**

11. Privacy:
11.1. Data Encryption: The system shall encrypt and protect all user password data. **(DONE)**
11.2. Data Privacy: The user's data shall not be spread elsewhere outside the bounds of the systems database. **(DONE)**

12. Compatibility:
12.1. ULingual shall be dynamic and be able to scale to the proper size of web content in relation to a device's screen size. **(ON TRACK)**

13. Organizational:
13.1. Form Branch: ULingual shall have dedicated personnel to respond to and review all form responses sent to ULingual. **(DONE)**

14. Coding Standards:
14.1. Naming Conventions: ULingual shall follow standard naming conventions for variables, i.e meaningful and understandable variable names. **(DONE)**
14.2. Documentation: ULingual shall follow adequate documentation protocol; comments in regard to code should be easily understandable. **(DONE)**

List of Contributions

John Santiago Contribution Score : 9

John was very helpful through the entire process of M4 helping with validation for registration pages, loading data to user profiles, setting up https for our website, updating our search results data pulls, and helping update our server with pulls when needed. Great help! In version 2, john helped revise sections of documentation especially for self check.

Sara Murad Ahmed Seid Score: 4

Sara helped with documentation within M4, I asked her to style a few pages but she couldn't do it and gave up on styling and rather focused on documentation. Sara did help me with flashcards by sending me phrases in Arabic for me to use as data.

Steven Anthony Vasquez Score: 7.5

Steven helped set up the video rooms which is a critical component of our website. Where the user can mute/unmute themselves and turn the camera on and off. He also implemented the code to generate a room for registered users to allow them to join a given room. He also contributed to the documentation of M4

Nik Shahrul Nafiz Bin Nik Azhan Score: 9

Nik made a vast amount of changes to the website that were really nice like user profiles, editing user profiles, the inbox, recommended content update, and as well as work on documentation. Nik's dedication and participation helped tremendously for this milestone.

Elias G Yetechalew Score: 4

Elias revised the database structure again for us. It took him a while to send the updated diagrams for us to update within previous documentations and I wish he sent them earlier. Elias helped with documentation as well within M4.

Aidan Carl Stivers Score: 8

Aidan helped with the progression of global forums, where a user can create a forum and comment on a forum; however, the code where this is saved in the database is still not yet complete. Aidan did help with documentation for M4. In version 2, Aidan revised documentation, especially in the Usability Test Plan section. Aidan also helped style the video calls page which was very helpful!

Jonathan Valadez Contribution:

Completely revised M1V2 for our self-check section of M4V1, as well as reformat and restructure M3V3 functional requirements to reference within M4V1. Redid the format for dashboard, adjusted the footer, styled the page in the video room where the user enters their credentials prior to joining a room, changed the appearance of navbar based on if user is logged in or not, added drop down selection to registration for user to add their native language and language learning, updated home page information, and FAQ page information, set up flashcards page and flashcard templates, helped with documentation for M4. In version 2, I updated the code review section.