Transition Documentation

Project Name

Applied Language Research

Prepared by

Applied Language Team

Date

24APR2021

1. **Overview of Project**
   a. **Name of Project**
      Applied Language Research

   b. **Description**
      Applied Language Research is a tool to aid in linguistic research of the Blackfoot language. This site is used by linguistics researchers, native language speakers, and language learners to upload, listen, and rate audio recordings of words being spoken.

   c. **Major Stakeholders and their roles**

STAKEHOLDER	Need/Problem Solved by Project
Dr. Mizuki Miyashita / Researchers	*A way to automate the existing process of gathering, organizing and analyzing data for second language acquisition research in Blackfoot.*
Language Speakers	*An easy-to-use interface to judge the accuracy of spoken words by the language learners.*
Language Learners	*A medium in which they can share their spoken words and receive feedback on their pronunciation.*
Dr. Yolanda Reimer	*A method to evaluate the skills acquired by the team members throughout their time at the University of Montana, and impart a real-world experience to the students.*
Applied Language Team	*An opportunity to acquire new skills and receive feedback on their performance in a professional/real-world setting.*

   d. **Status of requirements**
      The final project requirements document can be viewed in our documentation repository at: https://docs.google.com/document/d/1fzdSPtPyHq-9oFMuWWm_YFMk-0YPKH8waP-NvFVQhvo/edit?usp=sharing
      Most of the language learner and teacher requirements are not implemented. We focused on the minimum features needed to fulfill Dr. Miyashita's primary purpose.

   e. **Suggested next steps**
      Any group continuing this project should review the project requirements and discuss with Dr. Miyashita about what she would like to prioritize. Future teams should make sure that the website is not vulnerable to SQL injection. Design a system for researcher verification so that anyone can't just make a researcher account.

f.   Contact Info

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2. **Technical Information**
   a. **Source Code Repository Information**
      The source code is located at https://github.com/Ditronian/ALT. Furthermore, the code is hosted on alr.hs.umt.edu.

   b. **Assets that may not be in the repositories**
      The team's documentation and deliverables are not in the repository. Necessary documents can be found below:
      Database Schema
      Requirements Specification (Unimplemented Requirements highlighted in red)

   c. **Dev-Ops**
      i. **Backups**
         Code is available on github and is backed up as part of automated UM server backups. Contacts for accessing server backups are in the hosting information section below. The database may be manually backed up by logging into the server, going to /home/site/alr-site and copying sqlite3_default.db. It is not password protected and any database browser can access the information

ii. **Hosting Information**

UM IT hosts the website at alr.cs.umt.edu. The contact familiar with the project is Shayne Johnson, Systems Administrator (shayne.johnson@mso.umt.edu , 243-6772). Shayne can assist with retrieving backups of the server.

The server can only be accessed by ssh (port 22) while connected through a UM network. Shayne can be contacted to set up an account on the server. To connect to the server, request UM VPN access through https://www.umt.edu/it/support/vpn/default.php, this uses Cisco AnyConnect there are instructions in the linked page on how to get started. A UM NetID is required and the director of security will have to approve it, so it is necessary to give Shayne a heads-up before requesting so that he can talk to security, he may request your teams' NetIDs.

iii. **Deploying information**

After receiving access from Shayne, get Cisco AnyConnect setup so you can access the server. See Hosting information.

> Username: your netID
> Password: Your University of Montana password

Use FileZilla to connect to the host (alr.hs.umt.edu). From here you can change the files.

> Username: your netID
> Password: Your University of Montana password
> Port: 22

Use PuTTy (or equivalent) to connect to the server or ssh netid@alr.hs.umt.edu in the Windows Command Prompt or Linux/Mac Terminal.

Navigate into alr_site.

Run the command 'python3 manage.py runserver 10.10.40.137:8000' to start the website. The site will be hosted on a public IP address.

If the website remains inaccessible, you may have to run the server's httpd service to make it visible to the web. The commands for starting/stopping this service are below:

> sudo systemctl start httpd
> sudo systemctl stop httpd
> sudo systemctl restart httpd
> sudo systemctl reload httpd

d. **Technology stack and hardware requirements**

i. **Analysis of dependencies of third party libraries (e.g. what would break if you had to stop using this dependency, say, due to a security flaw)**

The project is dependent on an open source web framework based on Python called Django (https://www.djangoproject.com/). No other libraries were used.

ii. **Detailed instructions to install all components necessary to develop and operate.**
You will need Python (3.6.8) and Django (3.0.2) installed:
https://docs.djangoproject.com/en/3.0/intro/install/
Once you have those installed, you can run an instance of the site on your local machine by executing "*alr_site/manage.py runserver*" with your version of Python. The HTML pages are found in *alr_site/alr/templates*. The CSS stylesheets are located in *alr_site/alr/static/css*. Images are found in *alr_site/alr/static/imgs*. JavaScript code is located in *alr_site/alr/static/js*. Uploaded audio files are stored in *alr_site/alr/media*. The main file for functionality is *alr_site/alr/views.py*. Database information is in *alr_site/alr/models.py*. The database is SQLite and is located at *alr_site/sqlite3_default.db*.

FileZilla was used for uploading and changing files easily on the server:
https://filezilla-project.org/

PuTTy was used for SSHing into the server:
https://www.putty.org/
*Note: Use of PuTTy is deprecated as Windows now has SSH functionality.

iii. **Recommended IDEs**
To develop code for the website, members of the team utilized Microsoft Windows 10 with Visual Studio Code or WebStorm for the HTML/CSS/JS/Django development. To make changes to the SQLite database, SQLite Studio (GUI) was used. Note: Any changes made to the SQLite database must be reflected in models.py (and vice versa) due to the unique way Django handles database operations.

Other IDEs and operating systems may be utilized if preferred. However, the Cisco VPN software set up instructions are not readily available via the University of Montana. If you choose to use Linux you may need to do your own research to get Cisco working on your machine.

e. **Security considerations**
   i. **Privacy of data**
   As of this time, the only Personally Identifiable Information stored on the site are user names and email addresses. These are stored in the SQLite database. Dr. Miyashita has subjects sign a release as part of the University's research process. This release indicates the information will remain confidential. Users with a learner type account who have uploaded data can only see the data they have uploaded, and evaluators can only see data assigned to them by the researcher so confidentiality is maintained.

   ii. **Vulnerability to hacking**
   A security assessment has not been performed on the website due to time constraints. We

encourage future teams to review the existing data input fields for defense against SQL injection and cross-site scripting attacks.

3. **Ownership of Data and Accounts**

   Applied Language Research and all associated files and data belong to the University of Montana and Dr. Mizuki Miyashita.

4. **User's Guide**

   a. **Account Creation**

   To create an account on Applied Language Research, navigate to https://alr.hs.umt.edu/Register/, and fill out the required form data. Make sure you choose the correct account type from the Account Type dropdown. When your data has been entered, go ahead and click the "Create Account button".

   b. **Confirmation**

   After registering, a confirmation email will be sent to you. In this email is a unique link that will confirm your account when you go to the url. If after several minutes you still have not received this email, you may try again by hitting the "Resend" button. If you attempt to login without first confirming your account, you will be redirected to this page.

   c. **Login**

   After confirming your account enter your email into the Email text box and your password into the Password text box then click Login. If both do not exactly match (case-sensitive), then you will receive an error message stating that one of the two is incorrect.

   d. **Uploading Audio**

   To upload audio, navigate to the 'Upload Audio' tab. Here you must select a file from your computer to upload. The file type must be an audio file type of less than 50 megabytes in size. Next, enter the spoken language in text in the 'Original Text' textbox. Next, enter the English translation in the 'English Text' textbox. Finally, select the spoken language from the dropdown and click on 'Submit'. A notification will pop-up and tell you if the file was successfully uploaded. If you require a new language to be added to the language dropdown, please get in touch with a team member at the contact info listed above.

   e. **Sending Audio to Native speakers**

   For Researcher accounts only: Go to the View Audio page and check the boxes to the right of the audios that you wish to send to the Native speaker. After the desired boxes are checked click the button labeled 'Copy Link for Selected'. This will automatically copy a link to your clipboard that can be sent to as many Native speakers as you wish. The link will also be displayed in a pop-up if you do not trust the auto copy.

f. **Rating Audio**

To rate audio you must first create a rater link. To do this, see the previous section above. After navigating to this link, you will be able to play back the audio files. To rate the pronunciation: select one of the radio boxes between 1 and 7, and write in a comment. If there are multiple files to rate, you may navigate between them via the controls at the bottom of the rating box. When all the files have been rated, you may submit the rating.

g. **Viewing Feedback on Audio Files**

Navigate to View Audio and click on the 'Feedback' button on the same line as the audio you wish to see feedback for. You can click 'Next' and 'Previous' as desired to look through feedback if there are multiple. If there is not any feedback for that audio a default feedback will appear that says "No feedback is available for this audio recording." in the comment section.