USF EEG Platform Project

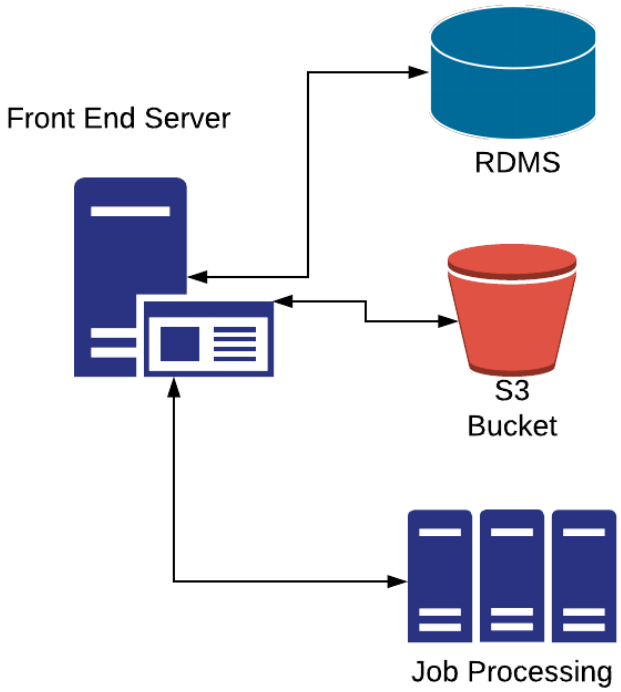
Introduction and Description

There is a system currently being built by USF researchers to analyze EEG files in the hopes this data can be utilized as an accurate diagnosis tool. The platform created is meant to automate the extraction of information from these files.

One major problem is the lack of an interface for researchers to use this system. Ideally, researchers from other institutions can use this platform by uploading EEG files they would like to be processed and download the results.

For the purposes of our project we are focusing on building out the infrastructure around the interface as well as completing part of the back-end processing. Specifically, the final goal is to have a web page where researchers can upload EEG files, then choose what part of the EEG file they would to be processed, what information they wish to be extracted and then, finally, allow those researchers to download the results when they are complete.

Requirements



Front End Server

1. File Management
    a. Upload files
    b. See what files have been uploaded
    c. See what files have been processed
    d. See and edit metadata of files
    e. Delete files
2. Data Download
    a. Download info on files
    b. User's are restricted to their own files

Tech:

- Python 3.6
- Flask (Python micro framework)
- HTML/CSS
- Bootstrap

S3 Bucket

1. Each file upload should be put in a S3 bucket folder associated with the user's account
2. Restrict user to their own file

Tech:

- AWS S3
- Boto3 (Python library)

RDMS

1. Backend database
2. Stores information on users, files, processes, and features

Tech:

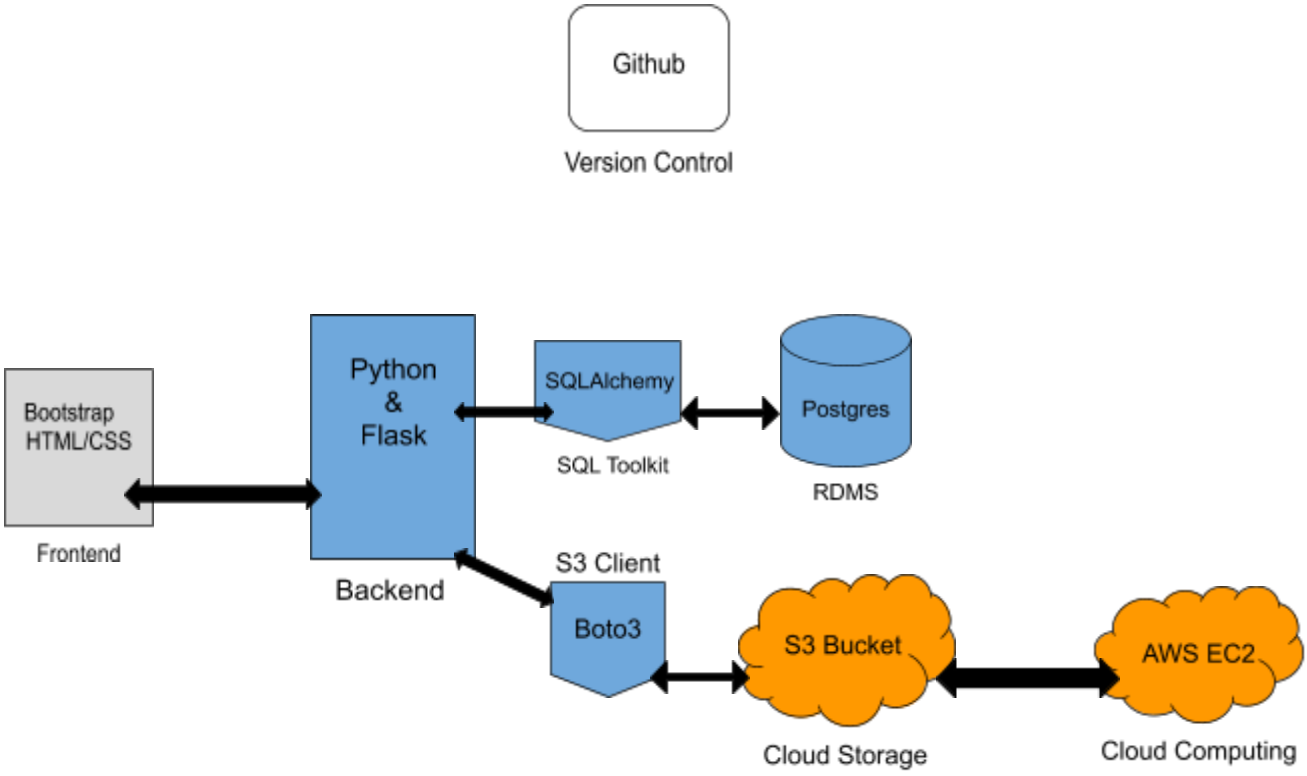
- PostgresQL
- SQLAlchemy (Python library)

Job Processing

1. Process EEG files

Tech:

- AWS EC2



Timeline

This second contains timeline information and goals/milestones that are to be achieved at each stage:

- **2/28 Milestone 0:** Setting up accounts, local environments, getting the web server running locally and getting the deployment to work:
- **3/6 Milestone 1:** Upload Files to s3 via web interface, store file information in relational database
- **3/20 Milestone 2:** Create an interface to allow researchers to pick parameters for each processed file which will be passed to the processing script.
- **4/10 Milestone 3:** Refine processing script to process EEG files by the specifications given by interface. Store results in relational database.
- **4/17 Milestone 4:** Web page to see results of the processed EEG file with the ability to download.

Personnel

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