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# EE / CPR E / SE 491 - Biweekly Report 04

02/24/2020 – 03/12/2020

**Group number:** sdmay20-41  
**Project title:** Machine Learning for Understanding Aging  
**Client &/Advisor:** Dr. Julie Dickerson  
**Team Members/Role:**

- Ian Simon / Chief Engineer
- Jacob Laing / Chief Engineer
- Nathan Carter / Test Engineer
- Samantha Williams / Meeting Scribe
- Scott Rose / Meeting Facilitator
- Aria Sheets / Report Manager

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## Biweekly Summary:

- These past two weeks we continued to divide up responsibilities as we work on many different but vital components of our project. The first week we spent a lot of time fixing some known issues we had from previous weeks, and shoring everything up. In the second week some of us moved into the machine learning component of the project, the main feature of our project. Others worked on expanding and fixing the parameters of our data reading component, while we also began to do research on how we can implement a more functional user interface.

## Past Two Weeks Accomplishments:

- Ian Simon: Worked on parameter flags for parseTSV. Now that we are implementing a variety of different ways for users to set up the system, we are working on adapting a lot of our methods to utilize this functionality. Worked on peer evaluation video.
- Jacob Laing: Worked on adding a parameter flag for users to input the location of the column parameters file as well as worked on fixing up broken tests that were created from merging my branch into master. Started looking into GUI's to use with python to make the program easier to use.
- Nathan Carter: Worked on finishing up work on missingValuehandler methods. Spent time fixing various bugs and errors to fix our implemented pipeline. I also spent time starting the machine learning component. Most of the time spent looking into Tensorflow and making sure I had a good grasp on techniques used so that I can implement them for our module.
- Samantha Williams: Worked on continuing the testing of metadata. Researched and began implementing the scatter plot options from plotly. The plotly graph for our output will consist of error calculations outputted by the machine learning component. Added user parameter that specifies which processing method to use for the daily diary file.
- Scott Rose: Worked on a way of differentiating our columns so that we can set certain ones as inputs to the tensor flow model and set others as outputs to test against. This

meant modifying how the program currently handles parameters for the different columns. Reviewed merge requests on our repository and conducted code reviews.

- Aria Sheets: Worked on fixing tests that were breaking on the master branch. This required a lot of effort and communication with teammates to figure out why tests were breaking. The main root problem of the breaking tests were misunderstandings of expectations of method results. The pipeline had a bug where sometimes failing tests would allow the pipeline to succeed which was fixed. Looked into Plotly (A Python graphing library) and how to incorporate it into our project.

**Pending Issues:**

- Ian Simon: ParseTSV is still giving me trouble and I am working on debugging the program currently.
- Jacob Laing: Deciding on which GUI we want to use and start implementing it into our program.
- Nathan Carter: There seems to be a lot of confusion about what our machine learning module is supposed to do/predict. It will be hard to begin developing the Tensorflow component if we don't know how it's going to work.
- Samantha Williams: Complete the plots and deciding how to output the plots to the user. Do we want to create the UI output or just print to a pdf file?
- Scott Rose: Still needs to determine how to pass the extra array of columns to the machine learning module.
- Aria Sheets: Figuring out what the output of the machine learning module will look like so that I can start making methods that take that input and use Plotly to display the results.

**Individual Contributions:**

| <u>Name</u>       | <u>Individual Contributions</u>   | <u>Past Two Weeks Hours</u> | <u>Hours Cumulative</u> |
|-------------------|---|-----------------------------|-------------------------|
| Ian Simon         | Parameters and parseTSV.<br>Recording voice for peer evaluation.  | 13                          | 38                      |
| Jacob Laing       | Parameters for column parameter file location, fixing broken tests due to merge, researching GUI's to use   | 12                          | 42                      |
| Nathan Carter     | Finalized missing value handler methods: calcMissingVals, calcColAvg, handleMissingdata. Fixed bugs in various methods and tests. Started Tensorflow component. | 15                          | 42                      |
| Samantha Williams | Tested MetaData. Added the daily diary processing method as a user specified console input. Worked on adding plotly   | 12                          | 39                      |

|             |   |    |    |
|-------------|---|----|----|
|             | graph for output.   |    |    |
| Scott Rose  | Added a column parameter that allows the program to differentiate between output and input columns. Conducted code reviews and merge requests.    | 14 | 43 |
| Aria Sheets | Fixing tests that were breaking on the master branch. Fix and improve the pipeline. Look into Plotly, and how to incorporate it into the project. | 13 | 43 |

**Comments and Extended Discussion:**

- Some of the effort in the second week was dedicated to getting the Peer Evaluation Presentation/Video finished and discussing in-person how we wanted to get that finished.

**Plans for the Upcoming Two Weeks:**

- Ian Simon: In the upcoming weeks I will work on implementing more parameters for users to have when importing files. These parameters include allowing for users to specify the restrictions on missing data, something that is very important to the outputs of our project.
- Jacob Laing: Decide on a GUI to use with our project and start implementing a solution that we can use for our project.
- Nathan Carter: Works on getting the Tensorflow component developed to a level where we can demo it to our client.
- Samantha Williams: Work on developing the User Interface component so that the input is easier for the user to specify and our program is more user friendly to those who may not be so familiar with the command line. Completing the plotly error graph we spoke about in our meeting.
- Scott Rose: Making sure all of the data is being transferred from the data extraction module to the machine learning module.
- Aria Sheets: Work on finding a way to get Plotly into the project, and then implementing it once details are discussed.