

EE / CprE / SE 492 Weekly Report 06: SDMay21-29

Intelligent Code Editor

Mar. 30 - Apr. 12

Client: Hung Phan

Advisor: Dr. Ali Jannesari

Team Members & Roles:

Evan Christensen - Meeting Scribe

Ben Gonner - Report Manager

Jacob Puetz - Chief Engineer Software Systems

Jordan Silvers - Meeting Facilitator

Cory Smith - Test Engineer

Weekly Summary:

In the previous week, the classification GNN was completed. Our client is still working on the final natural language to code dataset that we will use to train the GNN, but it currently is working well on one of the sample datasets that came with it. The dataset classification system has been improved and can now properly classify almost every line. We have added functionality to the plugin that gives our command access to the string that gets passed in from the text editor.

Past Week Accomplishments:

- GNN Finalization and Improvements - Cory
 - The GNN can now make accurate predictions based on data that was not in the original set.
 - The calculations are now done in multiple processes to improve performance
 - On a single process, the calculations would take 40 to 50 seconds
 - With 4 separate processes, the calculation time is down to 20 to 30 seconds
 - This is still longer than we hoped for, but there isn't much else that can be done to improve the system
 - The GNN now runs with a sort of API
 - It can be initialized once and make multiple predictions without needing to reload the model
- Data Sorting by Classification - Jacob & Evan
 - Sorting program can further sort the c++ code into its classifications
 - Tested up to 128,000 lines in the SPOC Data sheet
- Plugin development - Ben & Jordan
 - The plugin can access the strings passed into the command
 - Research on IronPython
 - Using IronPython with C#/.NET to run python code from C#

Individual Contributions:

Name	Contributions	Hours This Week	Total Hours
Evan Christensen	SPOC Data set sorting	4	24
Ben Gonner	Plugin development	6	28
Jacob Puetz	SPOC Data set sorting	7	24
Jordan Silvers	Plugin development	4	29
Cory Smith	GNN Finalization and Improvements	5	52

Upcoming Plans:

- Dataset
 - Continue creating classifications for lines for samples that slip through sorting
- Plugin
 - Replace text in the editor with strings from the command
 - Start tasks in isolated threads
 - Be able to run python scripts from C# using IronPython

Examples:

```
dynamic builtin = engine.GetBuiltinModule();
// you can store variables if you want
dynamic list = builtin.list;
dynamic itertools = engine.ImportModule("itertools");
var numbers = new[] { 1, 1, 2, 3, 6, 2, 2 };
Console.WriteLine(builtin.str(list(itertools.chain(numbers, "foobar"))));
// prints `[1, 1, 2, 3, 6, 2, 2, 'f', 'o', 'o', 'b', 'a', 'r']`

// to add to the search paths
var searchPaths = engine.GetSearchPaths();
searchPaths.Add(@"C:\path\to\modules");
engine.SetSearchPaths(searchPaths);

// import the module
dynamic myModule = engine.ImportModule("mymodule");
```