Joseph Insalaco, Bernard Tran, William Zheng
Professor Dov Kruger
CPE 593

Project Proposal:
Easy Parser Project

Overview:

Using regular expressions (regex) the Easy Parser project aims to create an easy to follow syntax to identify a given function based on an input. Given inputs can be of multiple types, and it is the job of the parser to identify which token or input was given to the program. The main programming language the group will be using for this project is C++.

Objectives and Scope:

One objective of this project is to better understand regex and lexical analysis programs such as Lex and Yacc. This parser should be able to read and identify patterns from a token. The regex parser should then be able to identify patterns from this token and execute matching functions.

Another goal of this project is to remain simple and lightweight. Although there exist lexical analysis programs such as Lex and Yacc, they are over complicated and not as simple for users. This parser will aim to be lightweight and will be able to parse multiple levels in a single expression.

The scope of this project will be to implement a basic regex engine that will be able to interpret regex expressions from user input. The engine should be able to read input from the user and be able to parse the expressions into a hierarchical data structure. The engine should then iterate through the data structure to execute functions based on the expressions contained in each node. The main structure of the lexical engine will contain a main parser class that will contain parser functions dedicated to each regex expression including: identifiers, integers, long integers, floats, whitespace, and keywords. All of these expressions will not allocate memory in the heap, but will

only identify and return the position and length of each expression. These aspects will ensure that the compiler will run with comparatively high speeds.

Team Roles:

Joseph: Will work on the regex parser and supporting documentation

William/Bernard: Will work on the regex parser and related functions

Resources

- https://en.wikipedia.org/wiki/Lexical_analysis
- https://github.com/westes/flex/
- http://alumni.cs.ucr.edu/~lgao/teaching/flex.html
- https://www.geeksforgeeks.org/flex-fast-lexical-analyzer-generator/