

Lab 6 report

I believe the true objective of this lab was to dip our toes into the ANTLR toolset and get us more comfortable using it and debugging with it in particular the syntax diagram and parser interpreter features, within that objective we had to create a calculator that met several requirements. The requirements of the calculator include parsing and evaluating several expressions while maintaining mathematical precedence. Our calculator must run from the Makefile that was provided to us by the lab template. A side note to the calculator is that when performing evaluation we must perform all arithmetic using floating point values, we are also to catch any divide by zero attempts.

When it comes to my specific design and implementation of the lab I tried to stick to a simple design and have an `expr` rule which held all expressions and then each rule in there did an operation and then would call `expr` again, that did not exactly work how I wanted it to. How my calculator works is it is able to do most operations, but if more than one operation/rule is entered on a line, it will only do the first one and not even bother with the rest for example doing $(5+5+5)$ will result in 10 because it only did the first addition expression and ignored the second. I'd say this was my biggest problem that I ran into, I figured out a way to do multiple expressions if it is the same expression for example the $(5+5+5)$ but it would not be able to handle $(5+5-5)$; I usually ended up with some error saying the expression is not in the rule or it would run but it would give me a ton of warnings and still give me the wrong output. I attempted to tackle this problems several different ways, and within the ANTLR debugging tool to me it looks like the nfa is working the way that it should be, so I was unsure of what to check next.