Program Assignment 3

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COSC 461 - Compilers

I am writing a program using Yacc and Lex. The Lex portion is used to parse the text which is the equation I want to solve. Then using Yacc I am using it to actually solve the equation using its lookahead left to right parse with c to solve the equation broken down to a simpler equation. My approach was to first understand how Yacc works because it was the first time using it. So I started off with solving a simple equation like 1+2 which Jantz actually gave us so I tried understanding that. Then I wanted to try to make my own so I did multiplication and then built up from there. I had to keep in mind the precedence issue so I had to figure out if multiplication went above or below the addition and then found out the lower in the recursion the higher the precedence. After that, I had everything I needed to complete the whole assignment. I tested my solution with the input file in the tar file given us and of course, I ran into problems off the bat. My calculator would only work with 1+a but not a+1 so I had to make another case in each case that took care of variables being on the left. I also ran into a problem with overflow which I think I actually solved a better way while writing this. But I had a problem of when adding two ints to a long long I would get overflow still when checking if it was bigger then the max integer an int can hold. But making everything into an unsigned long long and putting those into temp variables solved that, the other solution I just tried is having lex pass numbers as a long long to yacc, which solves the case of overflow when entering “999999999;” in the calculator when before it didn’t so I am assuming this is the better way of doing it and I do not want to take away code at this point. I finally was able to test my solution when I got all of his input.txt right and used a previous student’s grade script to test it. It uses his program to take input in and

saves the output and then I run mine to test if it matches which it did for ridiculous sized equations and all possibilities and error checking. After I tried over 100 cases that is when I decided I was done.