Ericson Demo

Assignment 6

It’s hard to say exactly how long this assignment took, I did I over a few different days, it probably took 4 hours. Writing the assembly for this assignment wasn’t too bad, I referenced the Code files in the D2l content that made it very easy. What was hard about this assignment was getting the associative law to fail. I thought I was using big enough numbers but apparently not. I used the numbers 100,000,000,000,000,000,000, -100,000,000,000,000,000,000 and 1 and the law then failed. What I found interesting in the assignment is why the law fails,

1 + (100,000,000,000,000,000,000, + -100,000,000,000,000,000,000) = 0  
this works fine because two numbers in the parentheses are the same magnitude so there is no issue when the computer does arithmetic, we get 0 out of out first operation 0 has no magnitude so it won’t be a problem when we add 1 or any number.

1100,000,000,000,000,000,000, + (1 + -100,000,000,000,000,000,000) = 0

The issue here is 1 and -100,000,000,000,000,000,000 magnitude are so different that

1 + -100,000,000,000,000,000,000 will still be represented as -100,000,000,000,000,000,000 and then -100,000,000,000,000,000,000 + 100,000,000,000,000,000,000 will come out to 0.

*I*n conclusion, what I learned from this assessment is the reason the law fails using floating point arithmetic is not do to the actual numbers it’s the magnitude differences in the numbers. For example, 1.0e20 + 1.0 = 1.0e20 the 1.0 is so small that it won’t get represented I assume this is because of how we represent numbers using mantissa format. I hope this is the correct way to think about this, if not please leave a comment on the assignment feedback.