Criterion E: Evaluation

Meeting the Criteria for Success:

1. Application is able to reliably calculate derivatives of basic functions. - this is met

2. Application is able to reliably calculate derivatives of slightly complex functions that are slightly harder to parse. - this is met

3. Application is able to reliably calculate the derivatives of complex functions that are very difficult to parse. - this is basically met. Some very specific inputs do not work, but those inputs would not be real world scenarios for a classroom, so I would count this as met.

4. Application is able to output the steps necessary to find the derivative of the user input String. - this is met

Recommendations for future Improvements:

Although I found great success with regular expression, my pattern is extremely hard to edit due to its difficulty to read. I am unsure if this is simply due to my inexperience or if this is how regular expressions usually manifest, but either way, further research is needed. Also, A more robust regular expression is needed to allow for even broader cases of possible function inputs. The current regular expression also doesn't all for single numbers to be part of an input, i.e. "2". The derivative of a single digit is 0, but because my regular expression requires at least a variable, this input is not possible. However if i make it so that a variable is not required, my regular expression will allow any string to be passed it, which is bad. Further research is necessary.

Another improvement that is necessary is the addition of trig identities. I went to implement them but found that my method for adding coefficients to coefficient-less functions would cause my application to fail. Due to limited time I was not able to adjust the method to allow for trig functions to pass through unscathed. This will be something I will need to revisit and improve upon.

This has been a surprisingly successful exploration into computer science for me, and I am confident that with some refinement, I will be ready to add more functionality to PowerRuleSolver and will eventually be able to call it CalcBuddy as it will help in all realms of calculus.

Recommendations for Further Development