DERIVATIVE CALCULATOR

Submitted by :
Tanvir Hasan Abir
BSSE Roll : 1321
Exam Roll : 115516

Supervised by :
Dr. Naushin Nower
Associate Professor,
Institute of Information
Technology

What Is Derivative Calculator ?

- Quickly and accurately compute derivatives

- Provide step-by-step solutions

- Save time and effort

Why Derivative Calulator?

serve as educational aids

explore and understand the concept

enable learners to verify their own work and

handle complex functions

BackGroud Study

- Differential Rules
- String Manipulation
- Tokenization
- Caching

Project Overview

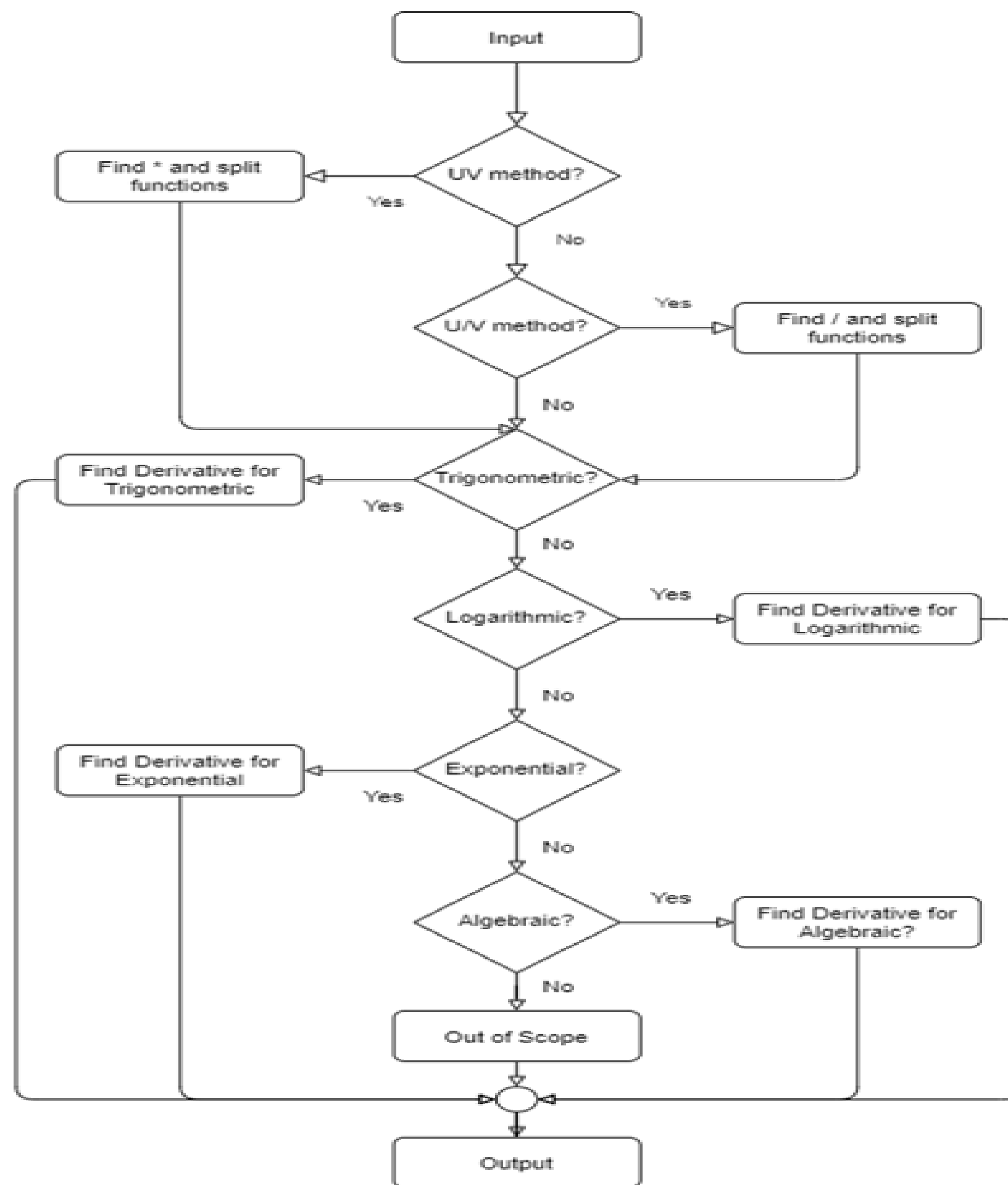Tokenization

Parsing

Derivative

Calculation

Shows Result

```
                    Welcome to DERIVATIVE CALCULATOR

                    Enter an Equation (Press '1' )
                    Exit (Press '2')


                    Enter your choice :

                          1
Input Equation : e^(tan(ln(x^3+3*x)


              Answer :

              Given-
                        f = e^(tan(ln(x^3+3*x)

                d/dx(f) = d/dx e^(tan(ln(x^3+3*x)

                     = d/dx(ln((x^3+3*x)*sec^2(ln((x^3+3*x)

                      = (3*x^2+3)*sec^2(ln((x^3+3*x)


              Finally-

                  = (3*x^2+3)*sec^2(ln((x^3+3*x)*e^tan(ln(x^3+3*x)      [Answer]
```

```
                    Welcome to DERIVATIVE CALCULATOR

                    Enter an Equation (Press '1' )
                    Exit (Press '2')


                    Enter your choice :

                          1
Input Equation : sqrt(e^(x^7+8*x^-3)


              Answer :

              Given-
                        f = sqrt(e^(x^7+8*x^-3)

                d/de(f) = d/de sqrt(e^(x^7+8*x^-3)

                     = (7*x^6-24*x^-4)*e^(((x^7+8*x^-3)/2*sqrt(e^(x^7+8*x^-3))   [Answer]



                    Welcome to DERIVATIVE CALCULATOR

                    Enter an Equation (Press '1' )
                    Exit (Press '2')
```

Challenges

- The characteristics of the given equation

- Variable Identification,Coefficient Detection,Constant Differentiation

- Implementation of differentiation methods

- Chain Rule Implementation

- Derivative of power function

Future scopes

- Finding MAX and MIN value from a given function
- Works for extended power functions
- Calculate partial derivatives
- Fractional Calculations

Project Link : SPL1

https://github.com/thabir303/SPL-1

Thank You