**Project I**

**Symbolic Derivative Calculator**

**Alec Farfan**

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**Introduction**

The purpose of this project is to implement a computer program that can calculate the derivative of a function of a single variable. Writing a program to take the derivative of just a plain old elementary function is trivial, but taking the derivative of composite functions and/or functions containing products, quotients, sums, or differences leads to a more interesting problem. This problem is one that can very naturally be solved with trees and recursion.

**Concepts Utilized**

|  |  |  |
| --- | --- | --- |
| **Topic** | **Description** | **Location** |
| Trees |  |  |
| Recursion |  |  |
| Hashing |  |  |
| Maps |  |  |
| Sets |  |  |
| Stacks |  |  |