

# EECS 448 – Software Engineering I Project 03

## System Documentation

Group 08:

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## Story Point Analysis of Previous EECS Projects

1	2	3	5	8	13
Lab 1 -Simple Printing Exercise	Lab 6-Array reversal, file I/O	Lab 3-Lidear Sensor	Lab 10-Intro to OOP	Lab 11- DMV Class	Lab 7 -Recursion& Backtracking
Lab 4 - Fibonacci Numbers, ASCII Conversion	Lab 1- Command-line argument file manipulation	Lab6 – Recursion exercises	Lab4 – Elevator(Queue s&Stacks)	Lab9,Lab10- Binary Search Tree	EECS 448-project1
Homework Assignment 1	Lab8 – Time Complexities	Homework Assignment 2	Homework Assignment 3	Lab5-Browser Tracking (List)	EECS 448-Project2
	Homework Assignment 4	Lab 6-Unified Modeling Language		EECS 448- Project3	Homework Assignment 5

### **Legend:**

	<b>EECS 168</b>
	<b>EECS 268</b>
	<b>EECS 368</b>
	<b>EECS 388</b>
	<b>EECS 448</b>

### **Estimate of Hours/Story Point:**

1 hour/story point.

Initially we placed this project under 13 story points because we thought it would be difficult for us to familiarize ourselves with the GUI part. This is also the reason why we chose to make an arithmetic calculator for this project so that we could ease into the frontend programming aspect of things. However, when deciding which platform and language to work on, we realized that our EECS 368 knowledge of HTML and JavaScript could come in handy for this project. This allowed us to reduce the story points down to 8 and allocate 1 hour per story point. Even though the calculator was a bit more challenging, we were taught to work with Event Listeners and make buttons in EECS 368, which were an integral part of this project.

## **1. Introduction:**

Our project 3 is a calculator program implemented in JavaScript, HTML and CSS that performs addition, subtraction, multiplication, and division. We also created a windowed interface for this calculator. After a group discussion, we are going to improve the calculator in the project 4 into a scientific calculator that can calculate slightly more complex trigonometric and calculus equations.

## **2. Background:**

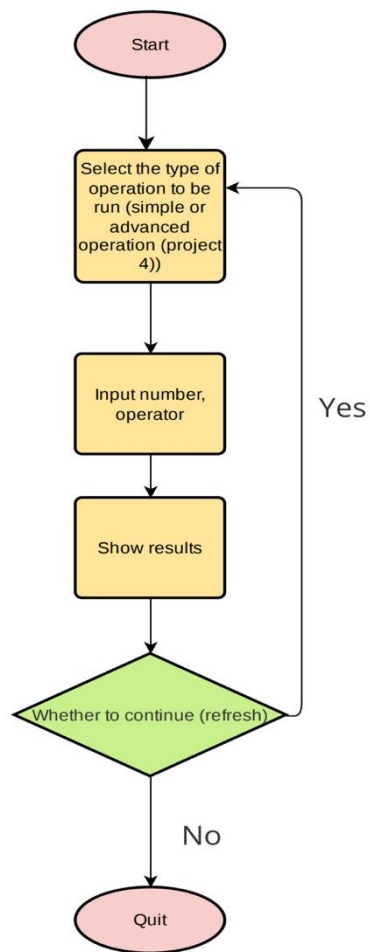
Calculator is one of the most basic features of a modern computer. Other than AI, modern calculator software reused lots of features in the past. Today, we would like to write our own, to mark our debut in the world of software engineering.

## **3. Code structure and detail:**

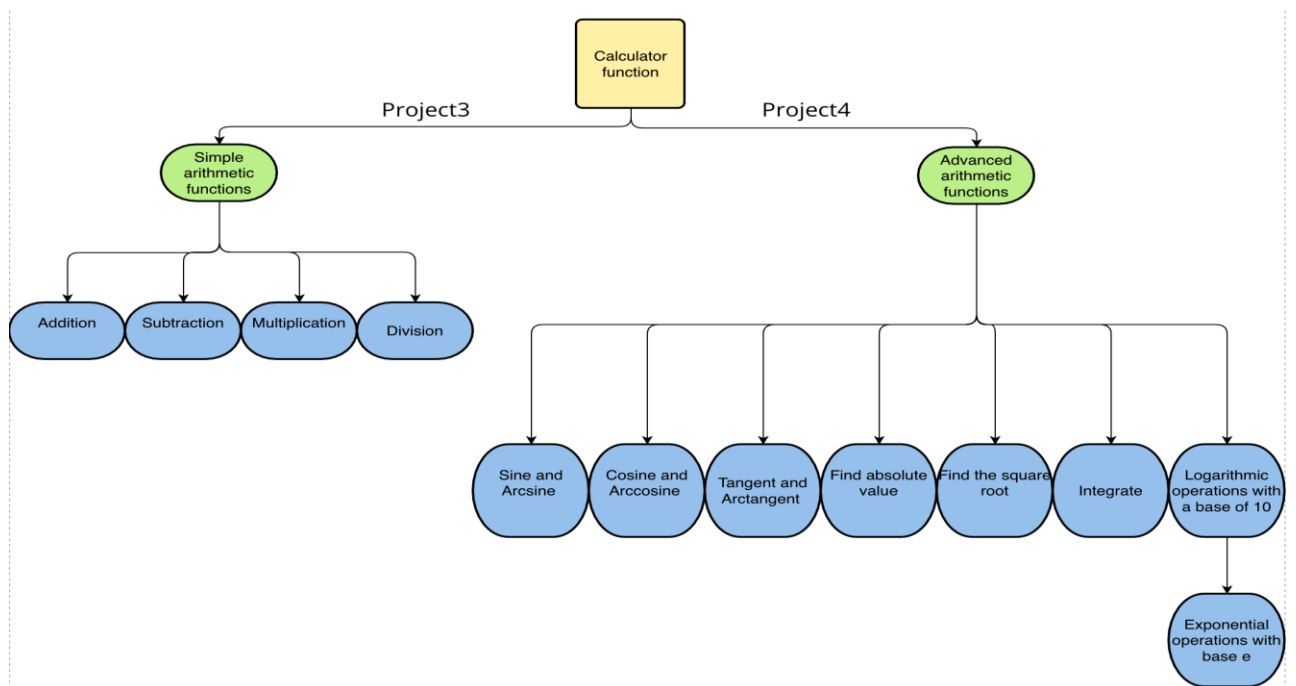
Basic design ideas:

- (1) Enables four operations (addition, subtraction, multiplication, and division).
- (2) Can realize multiple consecutive calculations. We have buttons for parenthesis which allows the user to determine the order of precedence of the operators.
- (3) For now, the maximum length is not limited to the maximum number of digits that can be accommodated on the display, and an ERROR message would be shown only when an equation is of invalid format.

### Project 3 Calculator Flow Chart



### Calculator function module diagram



**4. Conclusion:**

Trying to do a project in a different language for the first time was a new challenge, and it was also very helpful for our teamwork and innovation.