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**Scrum Blasters**

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**Big Ole' Calculator  
Software Requirements Specifications**

**Version 1.0.02**

Big Ole Calculator	Version: 1.0.02
Software Requirements Specifications	Date: 10/16/2024
SRS	

## Revision History

Date	Version	Description	Author
10/02/2024	1.0.01	Rough draft of SRS	Everyone
10/16/2024	1.0.02	Proposed Completed SRS	Everyone

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# Software Requirements Specifications

## 1. Introduction

In this section, we will go over the purpose of SRS, what is included inside of SRS, the definitions, acronyms, abbreviations, references, and overview of the SRS.

### 1.1 Purpose

The purpose of this SRS is to formalize key components in the creation and behavioral outline of the Big Ole' Calculator (BOC). This includes functional requirements such as arithmetic priority for different mathematical operations (i.e. PEMDAS), clear display of the expression outcome, handling of parenthesis in determining expression validity, and numeric recognition within any given input. This also includes some non-functional requirements like constraining our development to C++, utilizing object-oriented programming principles, and maintaining well-written documentation of our code base.

### 1.2 Scope

This SRS document applies to our BOC. The features the project hopes to implement are PEMDAS understanding, parenthesis verification, result display, and error handling. The use cases of this project would be any actor hoping to receive answers to simple or complex mathematical expressions.

### 1.3 Definitions, Acronyms, and Abbreviations

- SRS: Software Requirements Specification
- PEMDAS: Parentheses, Exponents, Multiplication, Division, Addition, Subtraction
- BOC: Big Ole' Calculator

### 1.4 References

There are no references in the SRS.

### 1.5 Overview

The SRS will contain an overall description of what we plan to accomplish with the BOC, as well as provide insight into the functionality and use cases for the BOC.

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## 2. Overall Description

Our product will be a calculator with an intuitive design, able to perform various arithmetic functions.

### 2.1 Product perspective

The perspective of this product is that of a useful tool to help with math.

#### 2.1.1 User Interfaces

The user interface will consist of a text box where you can enter an equation and a display section that will show the answer to the entered equation. There will also be a description explaining what symbols are valid and can be understood.

#### 2.1.2 Software Interfaces

The software interface will be a collection of files containing functions that can be called. There will be various dependencies described in the makefile, so the functions can be easily exported and used.

#### 2.1.3 Memory Constraints

The memory constraints for this project will be that of the engineering computer lab computers. It should be able to run smoothly on these computers.

### 2.2 Product functions

2.2.1 This calculator can do basic operations such as addition, subtraction, multiplication, and division. it can also do mod and exponents and is capable of interpreting parentheses correctly.

### 2.3 User characteristics

2.3.1 The user is someone who wants to do quick math

### 2.4 Constraints

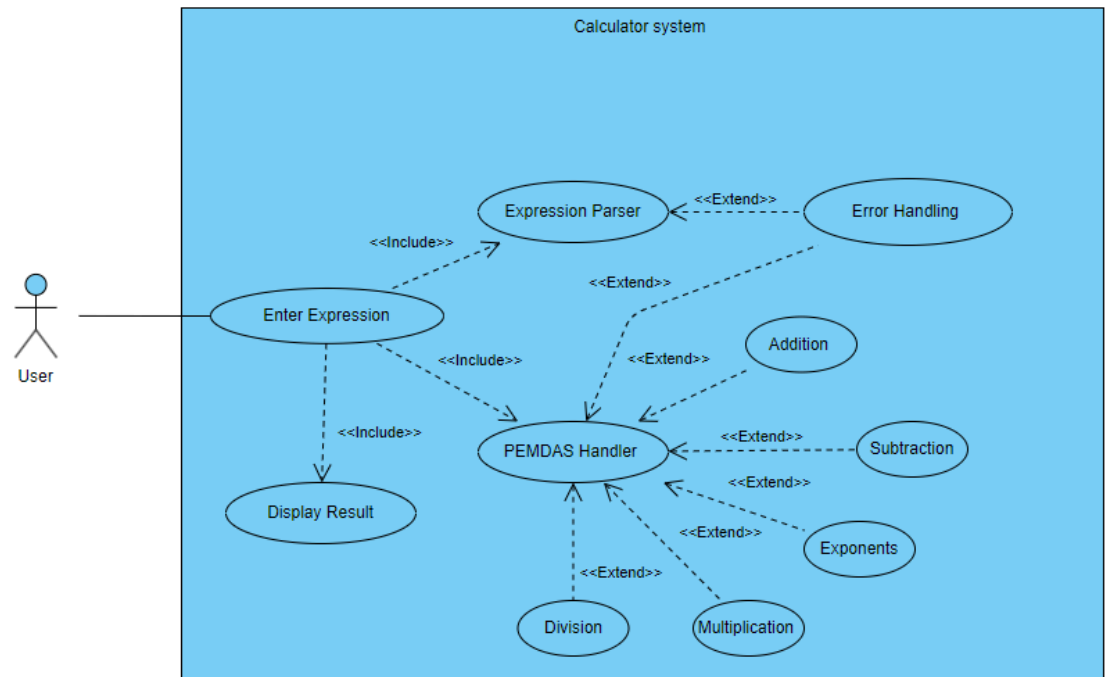
2.4.1 This project is written in C++.

### 2.5 Assumptions and dependencies

2.5.1 The plans for dependencies are currently fluid

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### 3. Specific Requirements



#### 3.1 Functionality

##### 3.1.1 PEMDAS Mathematical Logic

This program will identify the mathematical operations performed within a given input and prioritize expressional execution in accordance with standard PEMDAS order. This means expressions within parenthesis are determined first, exponential expressions come second, then multiplication, division, addition, and subtraction follow in that order.

##### 3.1.2 Parenthesis Handling

The program will parse through the parenthesis of a given input in order to determine the validity of a given input. This includes expressions that must close properly, expressions that contain sub-expressions within them, or redundant parentheticals.

##### 3.1.3 Graphical User Interface

While plans for a full graphical interface are not final, it can be stated that this functionality would involve building a clear, informative display for a user to interact with in order to more seamlessly complete a given expression.

##### 3.1.4 Error Handling

Will display the type of error encountered during the mathematical and input parsing process and display them in a user-friendly way.

#### 3.2 Use-Case Specifications

Enter Expression will prompt the user to type in their equation that needs to be solved and then pass it

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through to other components to check for correct input and right mathematical symbol usage. Along with that, there will be a component to handle the correct order to perform the equation.

### 3.3 Supplementary Requirements

Parentheses are a big focus in developing a calculator, and making sure that parentheses are handled correctly is a requirement that we are focused on. Another non-functional requirement is making sure the Big Ole Calculator is speedy in its calculations.

## 4. Classification of Functional Requirement

Functionality	Type
PEMDAS Mathematical Logic	Essential
Error Handling	Essential
Accurate Floating Point Calculation	Desirable
Graphical User Interface	Optional

## 5. Appendices

The appendices are not part of the requirements for the Big Ole Calculator.