Arithmetic Expression Evaluator

User’s Manual

Version <1.1>

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 12/02/2023 | 1.0 | Purpose and Introduction | Elizabeth Channel |
| 12/02/2023 | 1.1 | FAQ | C. Cooper |
|  |  |  |  |
|  |  |  |  |

Table of Contents

1. Purpose 4

2. Introduction 4

3. Getting started 4

4. Advanced features 4

5. Troubleshooting 4

6. Examples 4

7. Glossary of terms 4

*This section should define any technical terms that are used in the manual.* 4

8. FAQ 4

8.1 Can you input floating point values? 4

8.2 How do you exit the program? 4

8.3 What is the range of values that you can input? 4

8.4 What operations are supported? 4

8.5 Does the program support implied multiplication with parentheses? 5

8.6 What order of operations does the program use? 5

8.7 Where can I find the program’s source code? 5

# Purpose

The purpose of this document is to act as a reference for use of the *Arithmetic Expression Evaluator*. Users of the program can look to this for information on how to use the evaluator. It will include the following sections: Introduction, Getting Started, Advanced Feature, Troubleshooting, Examples, Glossary of Terms, and FAQs.

# Introduction

This software is an arithmetic expression evaluator. It is a program that takes an input of an arithmetic expression and calculates the results in observance of PEMDAS. Features of this program include an easy-to-use input command line. It supports the following operators: Addition (+), Subtraction (-), Multiplication (\*), Division (/), Modulo (%), and Exponentiation (^). To install the program simply download the source folder. To run the evaluator, compile and run the program as required by your specific system.

# Getting started

*This section should provide a step-by-step guide on how to use the software to evaluate arithmetic expressions. It should include instructions on how to enter expressions, how to use the various operators and functions, and how to interpret the results.*

# Advanced features

*This section should describe any advanced features of the software, such as the ability to save and load expressions, or to define custom variables and functions.*

# Troubleshooting

*This section should provide a list of common problems, if any, that users may encounter, and how to solve them.*

# Examples

*This section should provide examples of how to use the software to evaluate different types of arithmetic expressions.*

# Glossary of terms

# *This section should define any technical terms that are used in the manual.*

# FAQ

## Can you input floating point values?

No; direct input of floating-point values is not supported. However, you can use floating point values by representing them fractionally, such as using (3/2) to represent 1.5.

## How do you exit the program?

By inputting “exit” or closing the window.

## What is the range of values that you can input?

You can input values with a magnitude less than or equal to (2^31)-1. This is because that is the maximum value a 32-bit signed integer can store.

## What operations are supported?

The supported operations are addition, subtraction, multiplication, division, modulo, exponentiation, negation, and absolute value. Parentheses are supported for grouping. Division is always floating-point.

## Does the program support implied multiplication with parentheses?

No; the program does not support implied multiplication.

## What order of operations does the program use?

There are five levels of precedence; these are (in the order they are evaluated):

1: Parentheses

2: Exponentiation

3: Multiplication, Division, and Modulo

4: Absolute Value and Negation

5: Addition and Subtraction

Within each level, operations are evaluated left-to-right.

## Where can I find the program’s source code?

The source code can be found at [github.com/FlyingTNT/EECS-348-Project](https://github.com/FlyingTNT/EECS-348-Project).