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**Company Name: MXDC**

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**<Project Name>**

**User's Manual**

**Version <1.0>**

Project Name: Calculator	Version: <1.0>
User Manual	Date: <29/11/23>
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## Revision History

Date	Version	Description	Author
<29/11/23>	<1.0>	<First additions to user manual>	<Xavier Ruyle>

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# User Manual

## 1. Purpose

The purpose of this document is to inform the user of how to install and use the MXDC calculator. It will outline the problems that a user might face installing or running the program and answer commonly asked questions about the calculator. It will also provide the user with examples of the calculator's usage.

## 2. Introduction

This software includes an arithmetic expression calculator which allows the user to calculate expressions over the command line.

To download the software the user should:

- 1) clone the repository.

```
C:\Users\Xavier\Desktop>git clone https://github.com/hmhoopes/348_project
```

- 2) Open a command line and locate the repository's directory.
- 3) Open the calculator/bin director using either file explorer or command line

bin	✓	11/26/2023 8:21 PM	File folder	
src	✓	11/26/2023 8:21 PM	File folder	
makefile	✓	11/9/2023 10:27 AM	File	1 KB
todo.md	✓	10/27/2023 10:40 AM	Markdown Source...	2 KB

- 4) run the calculator.exe file by typing ./calculator.exe or by double clicking the executable using file explorer

calculator.exe	✓	11/22/2023 7:38 PM	Application	2,930 KB
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- 5) You should now be able to input expressions into the command line

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### 3. Getting started

After starting the calculator.exe program, the user should see a prompt that looks like this.

```
Input expression:
```

As you might expect, the user can type any valid expression here and obtain a result.

```
Input expression: 3+4
Answer: 7
```

A prompt will then show up which asks the user if they would like to continue

```
Would you like to Continue? (y/n):
```

If the user types y, they can input another expression, otherwise, the program will exit.

The user can use any valid operator from the following list, [(, ), -, +, /, \*, \*\*, or ^, % ], however sin, cos or other functions are not available.

Floating point calculatings are also a feature.

```
Input expression: 3.8+3.2%3
Answer: 4
```

If a user encounters an error, the prompt will display an error that looks like this.

```
Input expression: 3 / 0
terminate called after throwing an instance of 'std::runtime_error'
what(): CALCULATOR ERROR: Divison by Zero
```

The program will then exit.

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## 4. Advanced features

Since this is a simple arithmetic expression calculator, there are no custom functions or variables for this calculator and there is no ability to save and load expressions.

## 5. Troubleshooting

Running calculator.exe by double clicking in a file explorer does not work.

- try to run it in the command line as directed in the introduction.

## 6. Examples

A good starting point is a basic addition calculation.

```
Input expression: 3+4
Answer: 7
```

```
Input expression: 3*4+(2+3)
Answer: 17
```

Exponents can be represented by either \*\* or ^.

```
Input expression: 2^3 + 2**3
Answer: 16
```

Expressions follow PEMDAS rules.

```
Input expression: 3*(3+2)
Answer: 15
```

Whitespace is ignored for user input.

```
Input expression: 3      +      4 / 2
Answer: 5
```

## 7. Glossary of terms

Clone: to use the git clone command

Repository: Another git term. The repository from the GitHub page

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PEMDAS: Order of operations

## 8. FAQ

Are functions a feature?

- No, functions are not a feature since they are not in the scope of the project deliverables.

Are variables a feature?

- No, algebra is not within the scope of the project deliverables.

Does whitespace matter for user input?

- No, the tokenizer will ignore whitespace

Can I use x for multiplication, or ÷ for division?

- No, the user must use correct ascii values for operators. However, exponents can be used by either inputting \*\* or ^.