Math Expression Evaluator Manual

Overview

This program evaluates a mathematical expression provided by the user. It is written in ARM assembly for the Raspberry Pi and can handle expressions up to 1024 characters in length.

Prerequisites

Before installing and running the program, ensure you have the following:

1. **Raspberry Pi**: Any model with ARM architecture.
2. **Operating System**: A Unix-like operating system (e.g., Raspbian).
3. **ARM Toolchain**: Installed and configured.
    - You can install the GNU ARM toolchain using the following command:

      ```
      $ sudo apt-get install gcc-arm-none-eabi
      ```

4. **Make Utility**: Ensure `make` is installed.
    - Install `make` using:

      ```
      $ sudo apt-get install make
      ```

Installation

1. **Download the program folder**:
    - Download the folder containing the source code and Makefile from the repository or provided location.
2. **Navigate to the program folder**: `sh $ cd path/to/program-folder`

Compilation

To compile the program, a Makefile is provided. This Makefile will assemble the main.s file into an executable named main.

```
$ make
```

Usage

After compiling the program, you can run it from the command line.

1. **Run the program:**

```
$ ./main
```

2. **Input Restrictions:**

- The input should not begin or end with an operator.
- The maximum length of the input expression is 1024 characters.

3. **Example:**

```
$ ./main
Enter expression: 3+5*2
Result: 13
```

Troubleshooting

Compilation Errors:

- Ensure you have the ARM toolchain installed and properly configured.
- Verify that you are in the correct directory containing the main.s file and Makefile.

Runtime Errors:

- Ensure the input expression does not begin or end with an operator.
- Ensure the input expression does not exceed 1024 characters in length.