

# Mini Programming Language - README

## Overview

This is a simple mini programming language implemented using **Flex** and **Bison**.

It supports:

- Variable declarations (int, float, char, string)
- Arithmetic calculations using CAL keyword
- Printing strings using print
- Simple if-else statements (integers only)

## How to Run

1. Make sure you have **Flex** and **Bison** installed.
2. Open a terminal in the project directory.
3. Run the following commands:

```
bison -d code.y          # Generate parser code
flex code.l              # Generate lexer code
gcc -o app code.tab.c lex.yy.c # Compile
app.exe                  # Run the program
```

## How to Use

### 1. Declare Variables

```
int x = 5;
float y = 2.5;
char c = 'A';
string s = "hello";
```

### 2. Perform Calculations

```
CAL 5 + 3 * 2;
CAL x + y;
```

### 3. Print Strings

```
print "Hello World";
```

### 4. Use If-Else (Integers only)

```
if (5 > 2) print 10 else print 20;
```

**Note:** Every statement must end with a semicolon ;.

## Example Program

```
int x = 10;
float y = 3.5;
CAL 10 + 3.5;
print "Calculation complete!";
if (10 > 5) print 1 else print 0;
```

### Expected Output:

```
x = 10
y = 3.50
Result: 13.50
Calculation complete!
Result: 1
```

## Notes

- All arithmetic operations are supported: +, -, \*, /.
- Comparisons supported in expressions: >, <, >=, <=, ==, !=.
- Variables in arithmetic must be declared before use.
- The language currently does not support float or string variables in if-else.