

User Document

Purpose

Evaluates arithmetic infix expressions with operators +, −, *, /, and parentheses.
Validates input, detects unbalanced parentheses, and handles runtime errors safely.

Compilation Instructions

In the terminal, navigate to your project folder and compile:
`g++ main.cpp InfixCalculator.cpp -o calc`

Execution Instructions

Run the program:
`./calc`
Then enter expressions like:
`(2+3)*4`
Type `exit` to terminate the program.

Sample Run

=== Infix Expression Calculator ===

Enter infix expression (or 'exit' to quit): `2+3`
Result: 5

Enter infix expression (or 'exit' to quit): `2+3*4`
Result: 14

Enter infix expression (or 'exit' to quit): `9/(3-3)`
Error: Division by zero

Enter infix expression (or 'exit' to quit): `exit`
Exiting calculator. Goodbye!

Error Messages and Meaning

| Message | Description |
|--|--|
| Invalid or unbalanced expressions. Please try again. | Input has syntax or bracket errors. |
| Error: Division by zero | Attempted division by zero. |
| Stack underflow | Internal exception on empty stack operation. |

Programming Limitations

- Accepts only **single-digit** operands (0–9).
- Unary operators are not supported.
- Input must not contain space.

Future Enhancements

- Support multi-digit and floating-point numbers.
- Add operators like ^ and %.
- Develop GUI interface or file-based batch mode.