Abstract

The problem of inputting a mathematical expression at runtime in C is generally considered very difficult. The general approach to solve the problem is to include specialized parser packages as header files. It appears that such packages are available only for advanced versions of C like C++ or C#. In this paper we consider a very elementary solution to the problem which does not make use of external packages and uses only the basic concepts of the
C programming environment. It also does not require the in-line implementation of the extremely
difficult task of parsing a mathematical expression. This approach is accessible to beginning
programmers also. In broad outline, the approach adopted is that while a programme is being
executed, it generates another programme, compiles and executes the new programme, and
finally returns to the original programme. Even though the method may not be satisfactory in
terms of speed or efficiency, it is pedagogically significant as it can be employed as a tool for
throwing more light on the basic concepts of compilation and execution of a programme.

Reference

- Website dedicated to BBC BASIC: http://www.bbcbasic.co.uk/bbcbasic.html
- Steven Holzner, Perl Black Book (2nd Ed.) Dreamtech Press, 2004 (p.224).
- George Shepherd, "Add Scripting to Your Apps with Microsoft ScriptControl", MSDN
  and Sons, 2003 (p.463 464).
- Python v.2.7.1 documentation: The Python Standard Library:2. Built-in Functions”.
  Available: http://docs.python.org/library/functions.html#eval
  Delphi/Components Collection/ TbcParser Math Expression Parser-info.html
- Marcin Cuprjak, "Evaluating Mathematical Expressions by Compiling C# Code at
- A Function to Evaluate Arithmetic Expressions.
  http://www-formal.stanford.edu/jmc/history/lisp/node3.html

Index Terms

Computer Science Programming
languages

Key words

mathematical expressions runtime
evaluation
C eval

inputting mathematics

arser