

Expression

An Interpreted
Scripting Language

By Daniel Young

Summary of Project Aims

1. To design a new, comprehensive scripting language. ✓
2. Build an efficient interpreter for the language. ✓
3. Build a form designer to enable interaction with the scripts. ✓
4. Application Builder to create stand-alone executables. ✓
5. Write comprehensive help and manuals. ✓

The Language

Developed using Borland C++ Builder...

Iteration

Iteration is supported to allow solutions to be written in a small amount of code.

The *REPEAT/UNTIL* construct was used.

Comprehensive Functionality

Use of functionality in the language is comparable to that of Visual Basic, and includes over 70 functions!

Conditional Statements

Conditional statements allow different flows of execution through the script based on the answers to questions.

The *IF/ELSEIF/ELSE/ENDIF* construct was used.

Commands

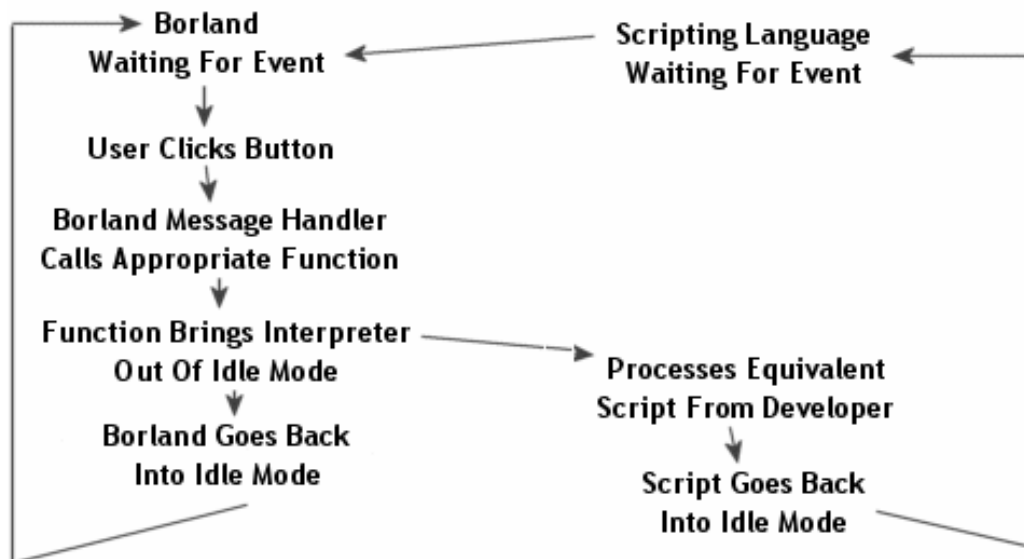
The language includes over fifty powerful commands to allow you to write many powerful mini scripts and applications.

It is much more than Microsoft Batch or QBasic!

Design of two particular features:

Event Driven Aspects

They piggy back onto the functionality provided by Borland C++ Builder and the following is a diagram of their implementation.



Function Parsing

If the function parsing algorithm is employed on the following line,

```
SUB(ADD(DIV(MUL(100,10),10),100), 50) = 150
```

The following occurs:

```
SUB(ADD(DIV(MUL(100,10),10),100), 50)
SUB(ADD(DIV(1000,10),100), 50)
SUB(ADD(100,100), 50)
SUB(200, 50)
```

--

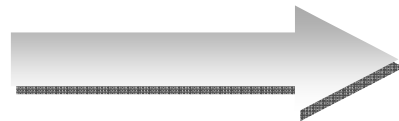
150

The algorithm works by parsing the innermost function next.

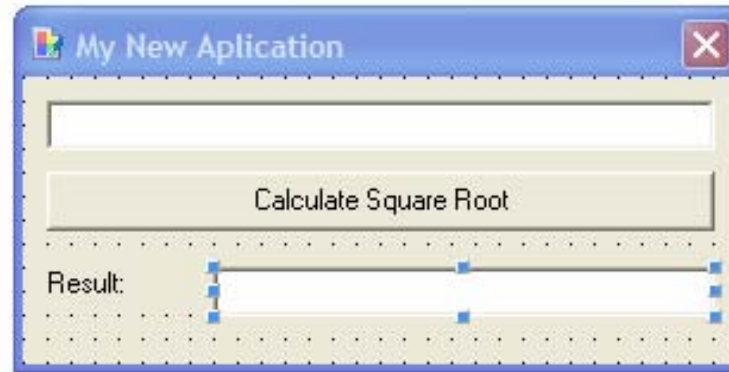
Windows Common Controls



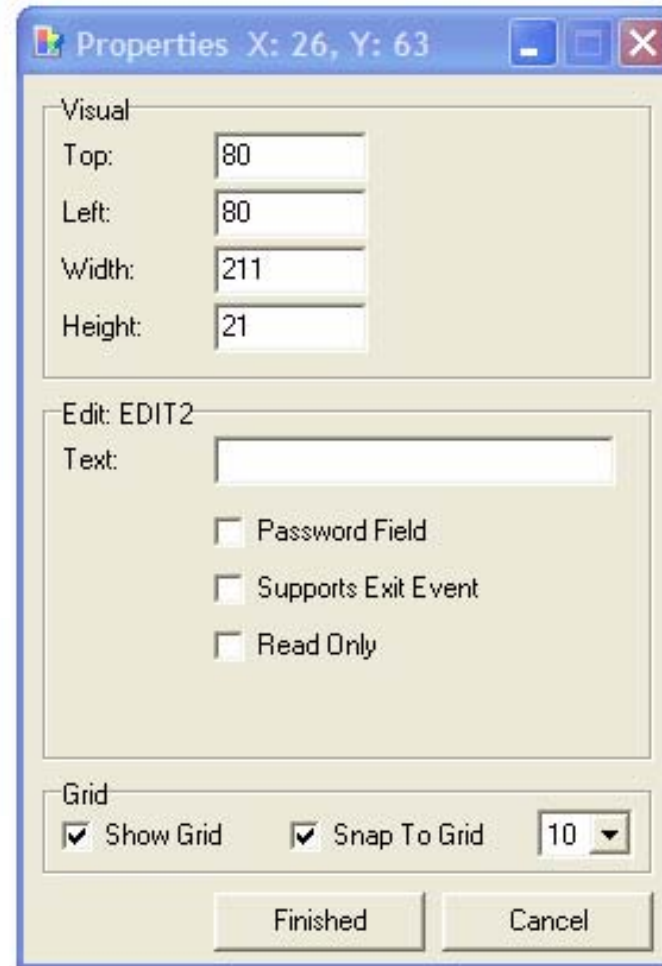
Properties Editor
Manipulate
options for the
particular control.



Form Designer



Designer
Form
Edit controls
in a
'WYSIWYG'
environment

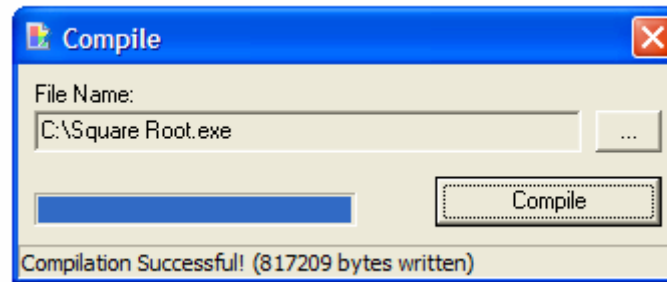


Includes
Snapping to
Grid!

Application Builder

Create stand alone executables!

```
:BUTTON1CLICK  
  if not (numeric(formtext("EDIT1")))  
    INFO "The data you entered is not  
  else  
    FORM SET, EDIT2, Fsqrt(formtext("ED  
  endif  
GOTO WAITFOREVENT
```



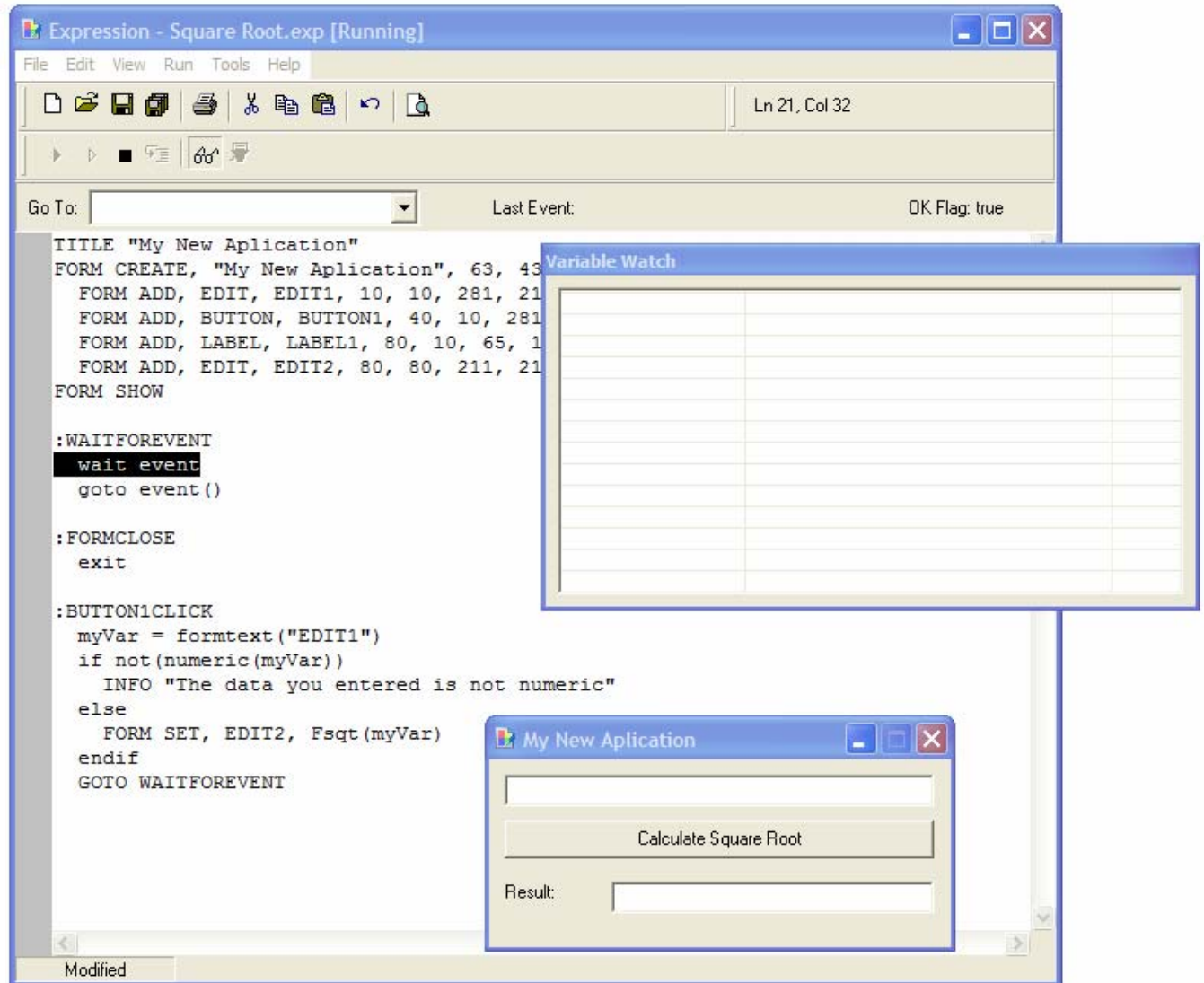
Square Root.exe

- No DLL's required nor system-wide Virtual Machine like JAVA.
 - Encodes your script to protect it from plagiarism!
- Quick Execution Speed!

IDE

Features Include:

- Script Editor
- Full Debugging Tools
- Typical functionality such as New, Open, Save, Print, Cut, Copy and Paste, etc
- Linkage to other project aspects such as form designer and application builder
- Easy To Use!



Extras:

Line Highlighting during Execution
Find / Replace tool

Miscellaneous and Conclusions

All aspects of the project were implemented as per the specification

It has been used by many people already, who have built scripts for many different purposes, including:

- Application Launcher
- Calculator
- System Information Tool
- Registry Modifier
- Volume Information Tool

Future Improvements!

Colour Syntax Highlighting in the Editor!

Change Icon of Built Applications

Breakpoints

Standard I/O for use with Web Sites!

Finally, I invite you to take a look for yourself.