



CS4704 Lab

- T/TH 3:30 - 5:00pm
- Wes J. Lloyd, GTA
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 - Office Hours: 11:00 - 1:00 W
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 - Course Web Page:
<http://courses.cs.vt.edu/~cs4704>



Topics / Activities

- Belbin's Leadership Roles
- Visual Basic GUI Design
- Java GUI Design
- Code Walkthroughs
- In-Lab Short Group Programming Projects
 - 3 people per group
 - 1 computer per group
 - 1 Project per class period



Lab Grading

- Lab is 10% of the overall grade for cs4704
- Lab grade is entirely based on attendance and participation in the lab activities.



Survey

- To determine student experience and background.
- Results to be made available



Programming Projects

- Teams of (3) people each will be assigned to work on in-class programming projects.
- Average project will take about 1 hour to complete.
- Each group will have access to (1) computer in the lab.



Microsoft Visual Basic

- Microsoft Product enhancement to Compiled Quick Basic
- Introduced in the early 1990's
- Versions 1-3
 - Windows 3.X
 - Both DOS and Windows versions
 - 16-bit
 - VBX Controls
 - Read-Only object oriented programming

Microsoft Visual Basic

- Version 4
 - Major Rewrite from Assembly Language into C++
 - First 32-bit version
 - Support for Class creation, not controls, properties
 - Last 16-bit version
- Version 5
 - Support for Control Creation (ActiveX)
 - Support for Interfaces, Interface Inheritance
 - Events, and Raising Events
- Version 6
 - Substantial Web Enhancements

Microsoft Visual Basic

- “RAD” Rapid Application Development Tool
- Interpreted Language, but as of VB 4.0 can be compiled into EXEs
 - Large Run-Time DLLs files must accompany your programs.
- Has Enhanced System & Interface Prototyping in Industry

Microsoft Visual Basic

- Has helped create/promote the Prototyping Software Life Cycle
- Original Syntax is the same as BASIC
- Many many extensions beyond BASIC
- Other similar products
 - Delphi (Borland’s Visual Pascal)
 - C++ Builder (Borland’s Visual C++)

What Can You Do In Visual Basic?

- Call Windows API Calls
- Create Externally callable DLLs
 - Callable from VB itself and other languages
- Create ActiveX (OCX) controls
 - User controls which can be used in GUIs created in other languages and the web
- Create DCOM Client/Servers
- Create GUIs for ODBC databases
- Interface with TCP/IP sockets

What Can’t You Do In Visual Basic?

- Write a good quality compiler, or operating system.
- Use OO Inheritance
- Write blazingly fast math, or graphics intensive applications
- Write multi-threaded applications
 - It’s possible but requires jumping through many hoops

File Types

- Modules
- Forms
 - MDI Forms
 - Child Forms
 - Dialogs
- Classes
- User Controls



Add Ins / Enhancements

- ActiveX Controls (OCXs)
- DLLs
- VBXs



Events

- VB is an event based language
- There is a single thread of control which is interrupted by various System/GUI events.
- GUI interfaces to your program through events



Basic Controls

- 2 Types of Controls, Input and Display only
- Each resides on a different graphical layer



Input Controls

- Essentially always shaped like a rectangle
- To Windows, each Input control is a separate Window
- Can have the "Focus"
- On the top layer graphically



Input Controls

- Picture Box (pic)
- Text Box (txt)
- Frame (fra)
- Command Button (cmd)
- Check box (chk)
- Option Button "radio button" (opt)
- Combo Box (cbo)
- List Box (lst)



Display Controls

- Shape not always a rectangle
- Not an instance of a Window
- Not tracked as thoroughly by Windows
- Always behind/below Input Controls Graphically

Display Controls

- Label (lbl)
- Image (img)
- Shape
- Line
- Timer (tmr)

Examples

