

Module 8: Using Dynamic-Link Libraries

Overview

What Are Dynamic-Link Libraries (DLLs)?

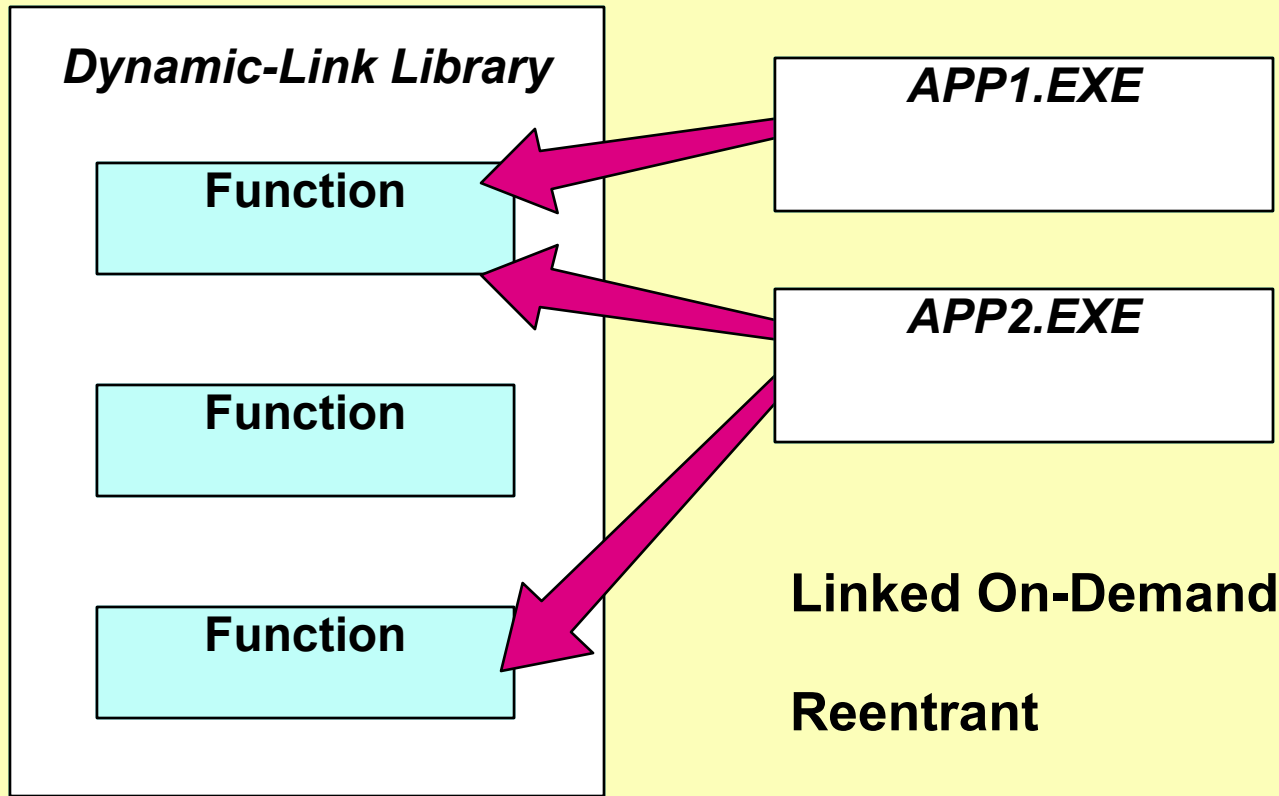
Implementing DLLs in a Visual Basic Application

Declaring DLLs

Calling DLL functions

Examples of Using DLLs

What Are DLLs?



What DLL Functions Can I Call?

Windows DLLs

User - Manipulates Windows; Interface Devices

GDI - Renders Graphics on Screens, Printers

Kernel - Does O/S Stuff; Tasks, Memory, I/O

About 800 Functions in Windows 3.1

myown.DLL - FORTRAN, COBOL, C/C++, PASCAL

Other Applications (DLLs)

VBRUN300.DLL

Information on Windows API Functions

WIN31API.HLP

WIN31WH.HLP

WIN31EXT.TXT

WIN30API.TXT

Steps to Implement DLLs in a Visual Basic Application

- 1** Declare the DLL Function
- 2** Write the Call Statement for the DLL Function
- 3** Save Your Work ! ! !
- 4** Test the Application

Run-Time Properties for DLL's

hWnd - Window Handle

All Objects (Controls and Forms)

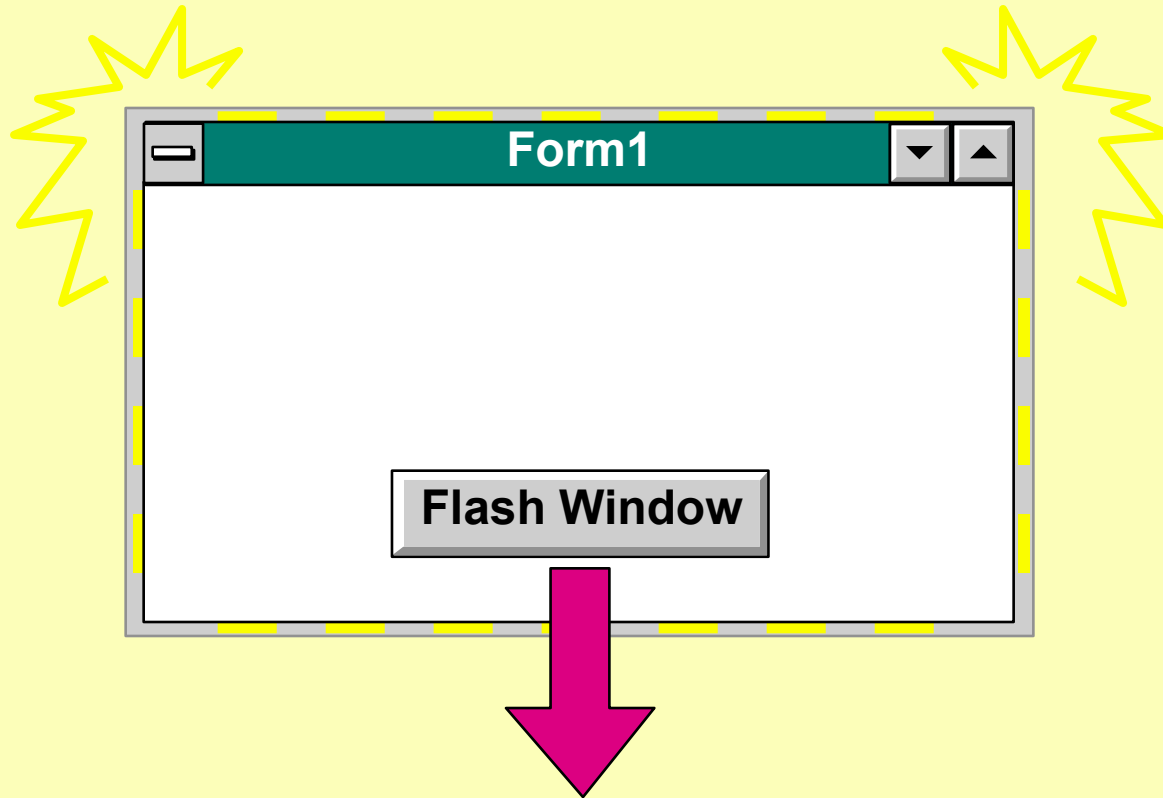
hDC - Device Context Handle

Forms

PictureBox

Printer

A Simple Example

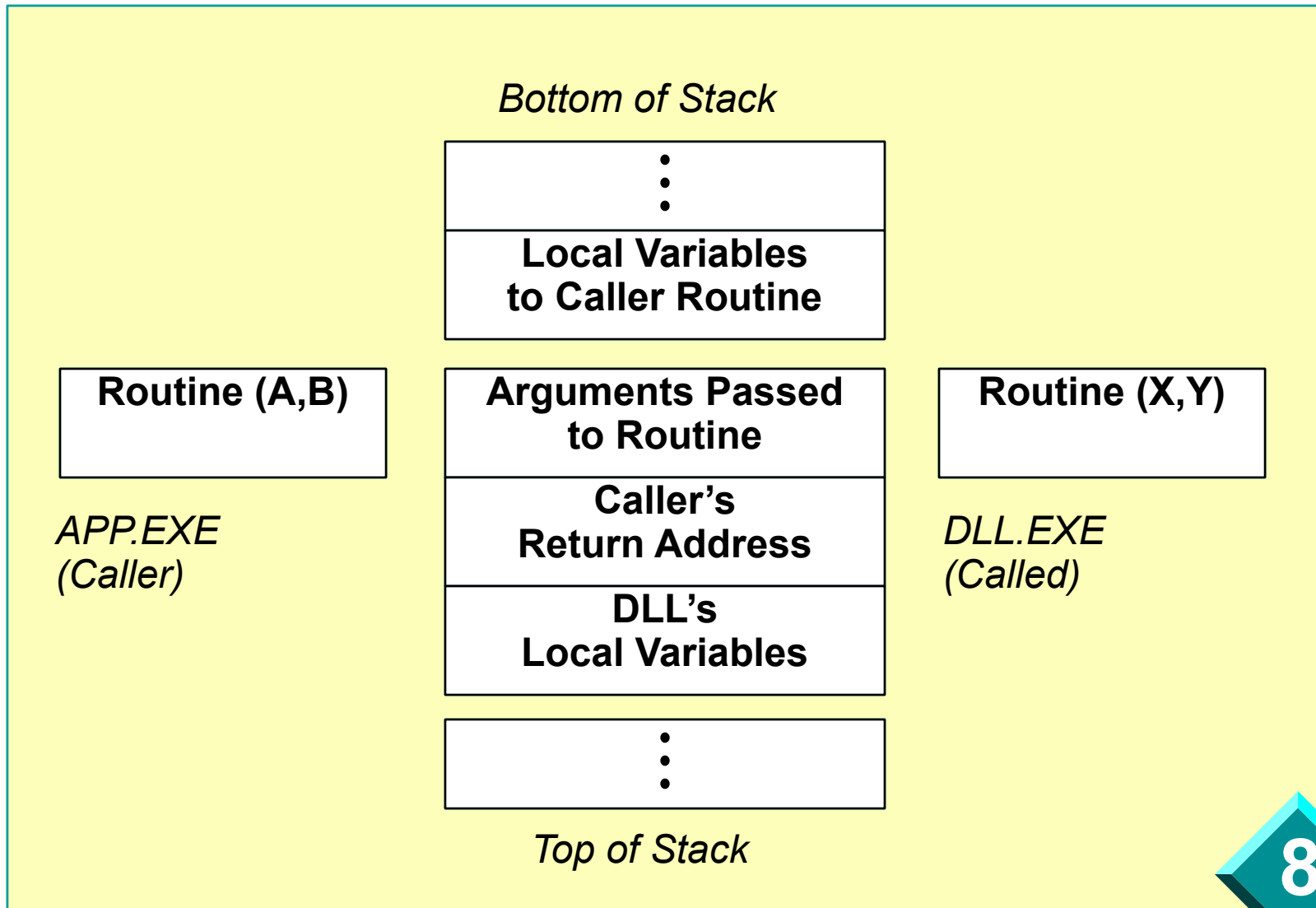


```
result = FlashWindow(Form1.hWnd, 1)
```


Using FlashWindow — Walkthrough



What Happens When You Call a Function in a DLL?



Declare the Function

If Function Returns NULL

```
Declare Sub BringWindowToTop Lib "User"  
    ↪(ByVal hWnd As Integer)
```

If Function Returns Value

```
Declare Function IsZoomed Lib "User"  
    ↪(ByVal hWnd As Integer) As Integer
```

If Function has "Illegal" VB Syntax Name

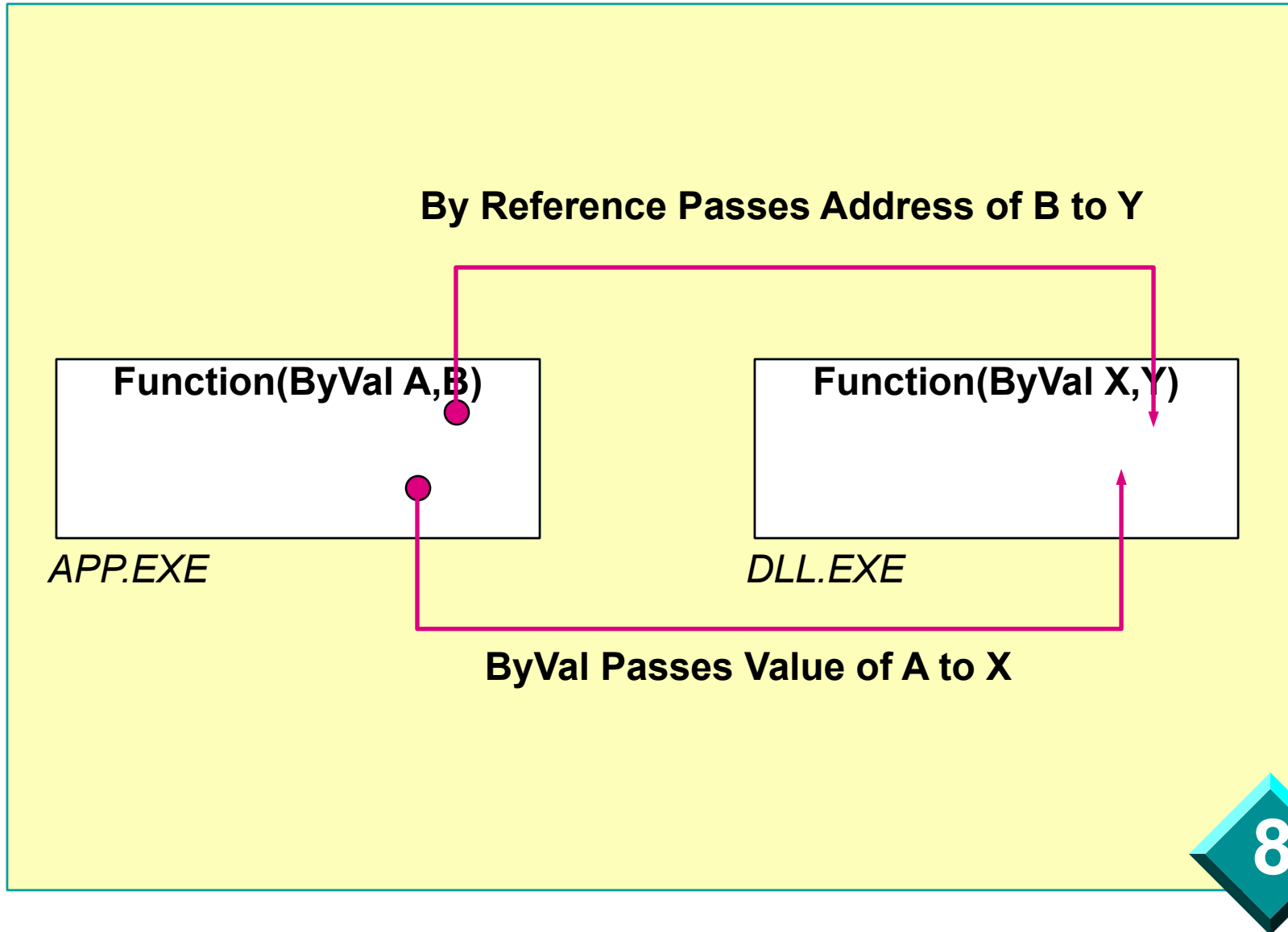
```
Declare Function lopen Lib "Kernel"  
    ↪ Alias "_lopen" (ByVal lpPathName As String,  
    ↪ ByVal iReadWrite As Integer) As Integer
```

You Must Pass the Correct Data Types

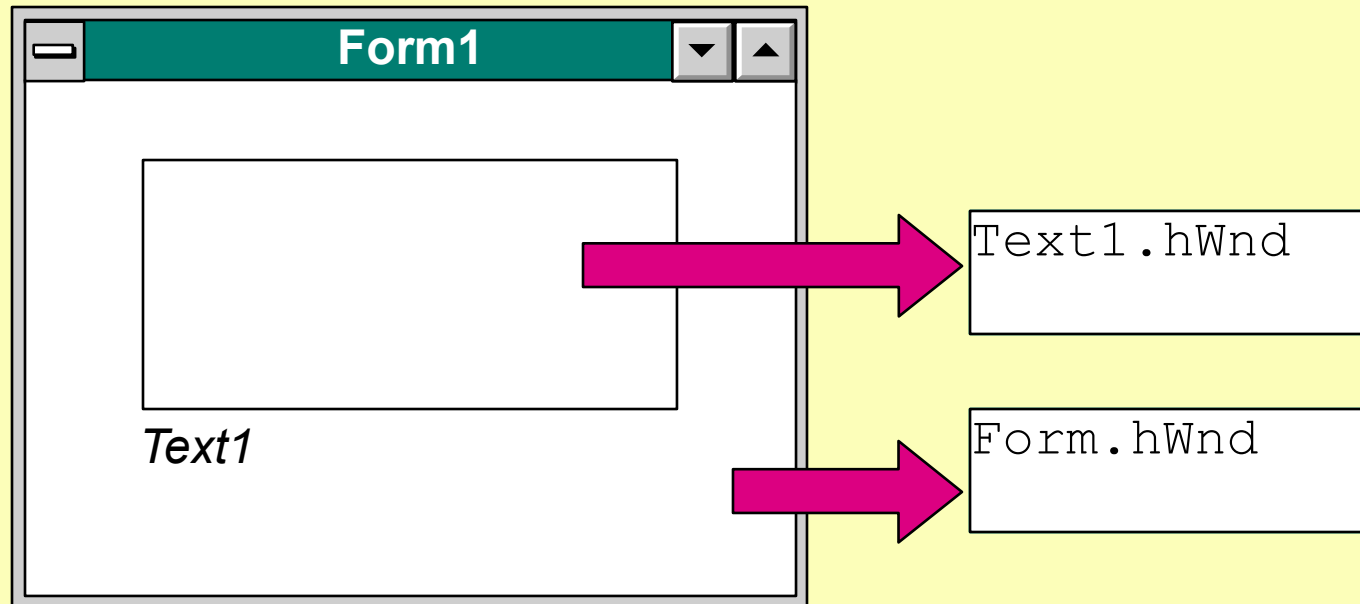
Size	C	Visual Basic	Visual Basic
1 byte	char	(notes)	n/a
2 bytes	int	Integer	%
4 bytes	long	Long	&
4 bytes	float	Single	!
8 bytes	double	Double	#
8 bytes	n/a	Currency	@

Note: Arguments Aligned on Word (16 bit) Boundaries

Arguments Can Be Passed by Value or by Reference



Getting the Windows Handle of an Object



Calling DLL Functions That Pass Properties

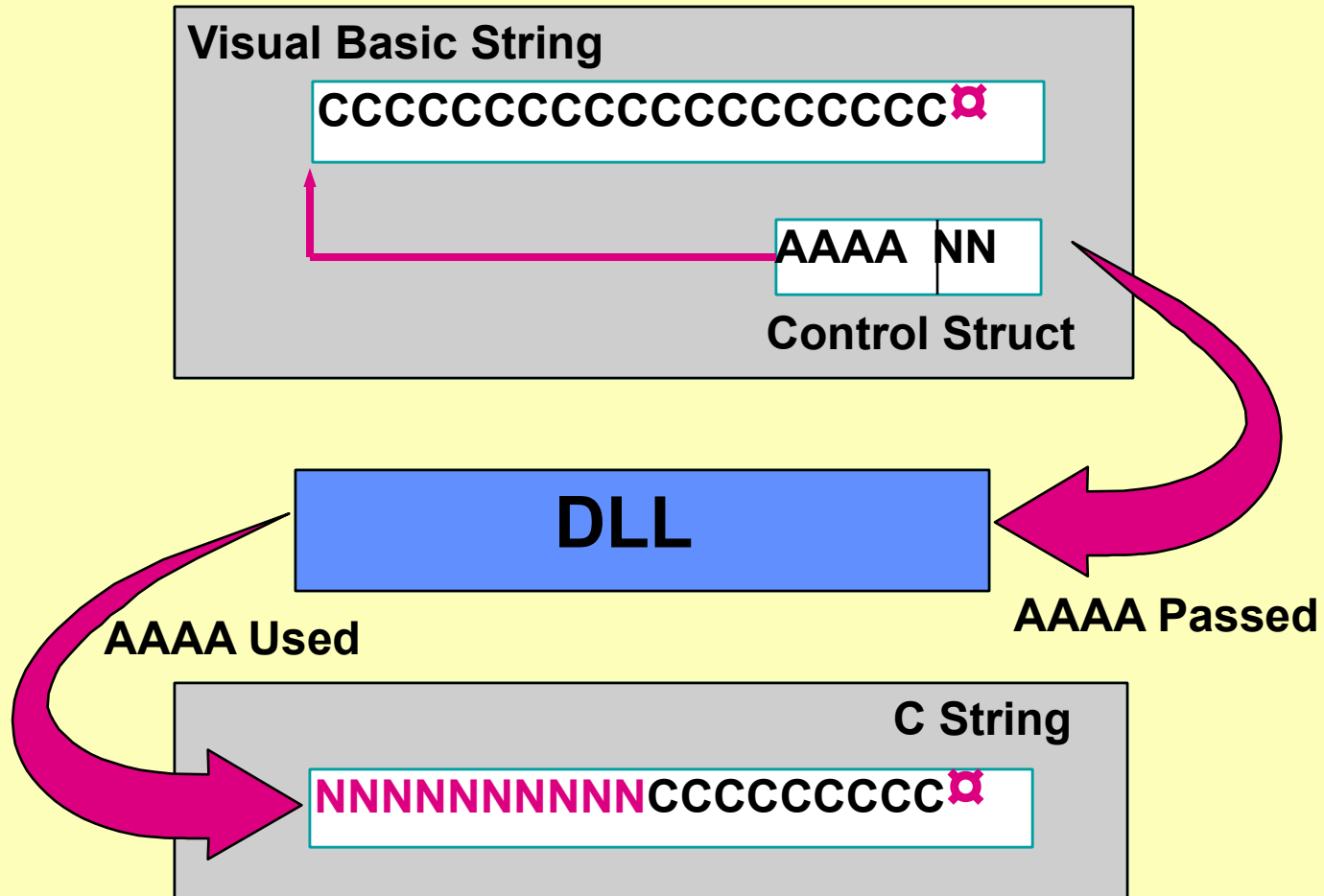
Always Pass Properties by Value

This Includes String Variables

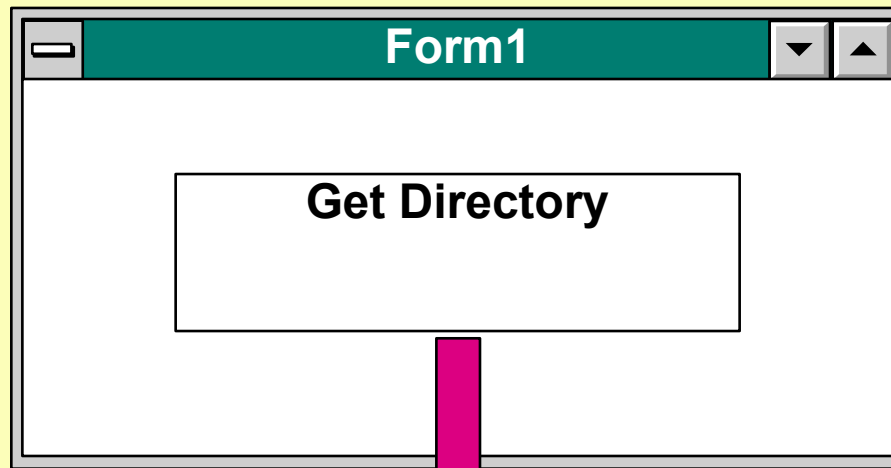
ByVal Strings Auto-Converted by VB to Address

How Strings Are Passed

Declaration or Call - Pass ByVal



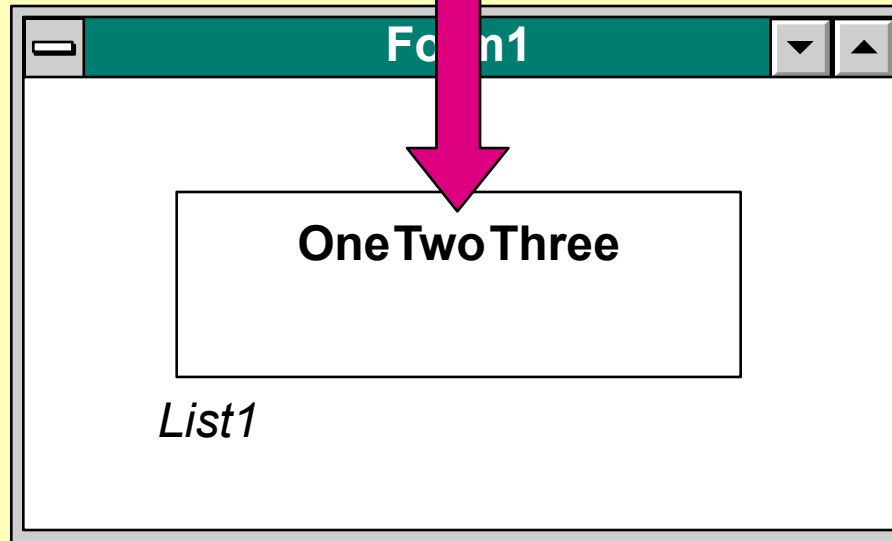
Passing Strings - Have Enough Space



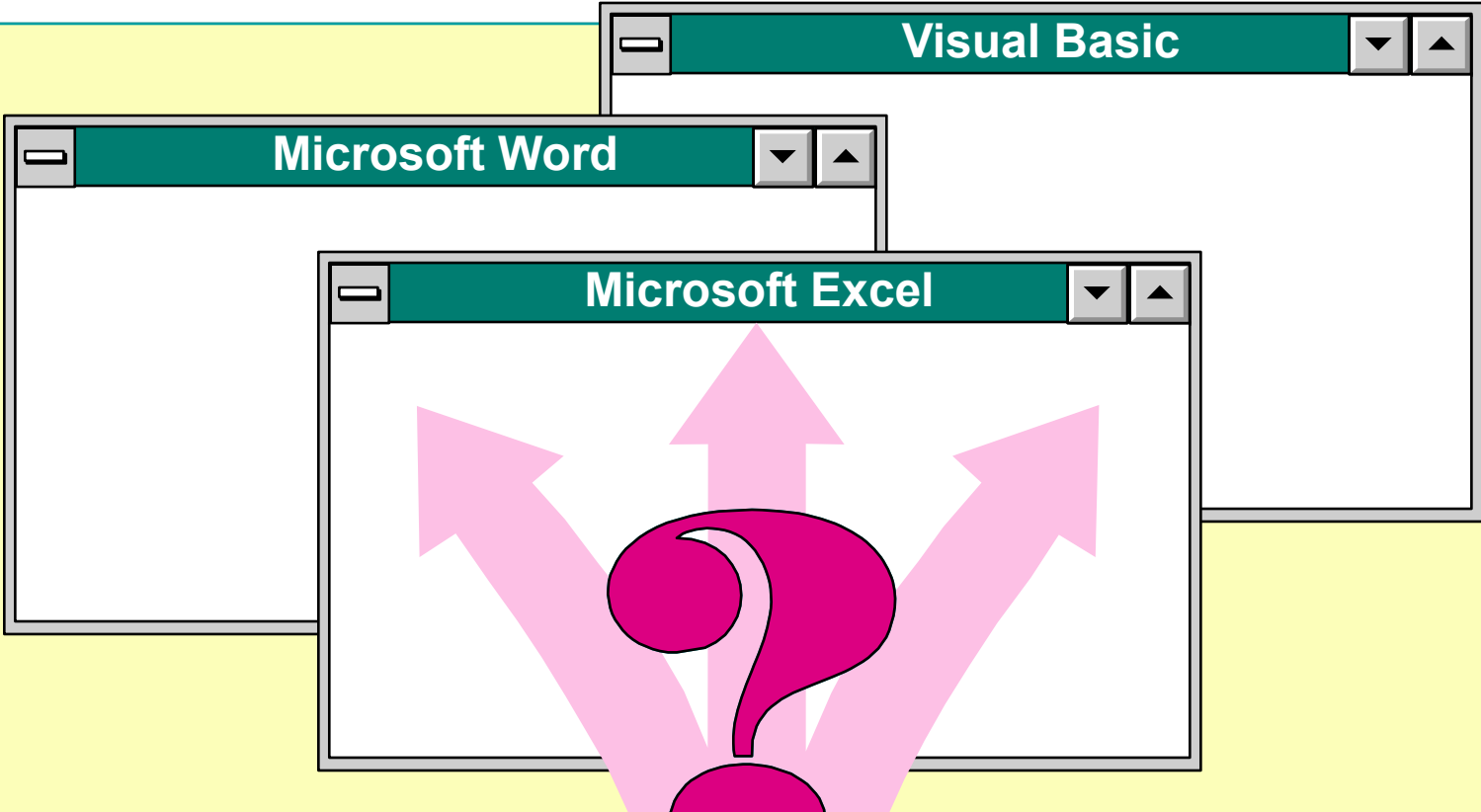
```
Dim FilePath As String *255  
GetWindowsDirectory (Filepath$...)
```

Set Tab Stops in a List Box - SendMessage

```
...LB_SETTABSTOPS, 3, tabs(1)
```



Check Whether an Application Is Running



Visual Basic

Microsoft Word

Microsoft Excel

```
FindWindow(ByVal "Microsoft Word")  
GetModuleHandle("WINWORD.EXE")
```

8

Determining When a Process Has Finished

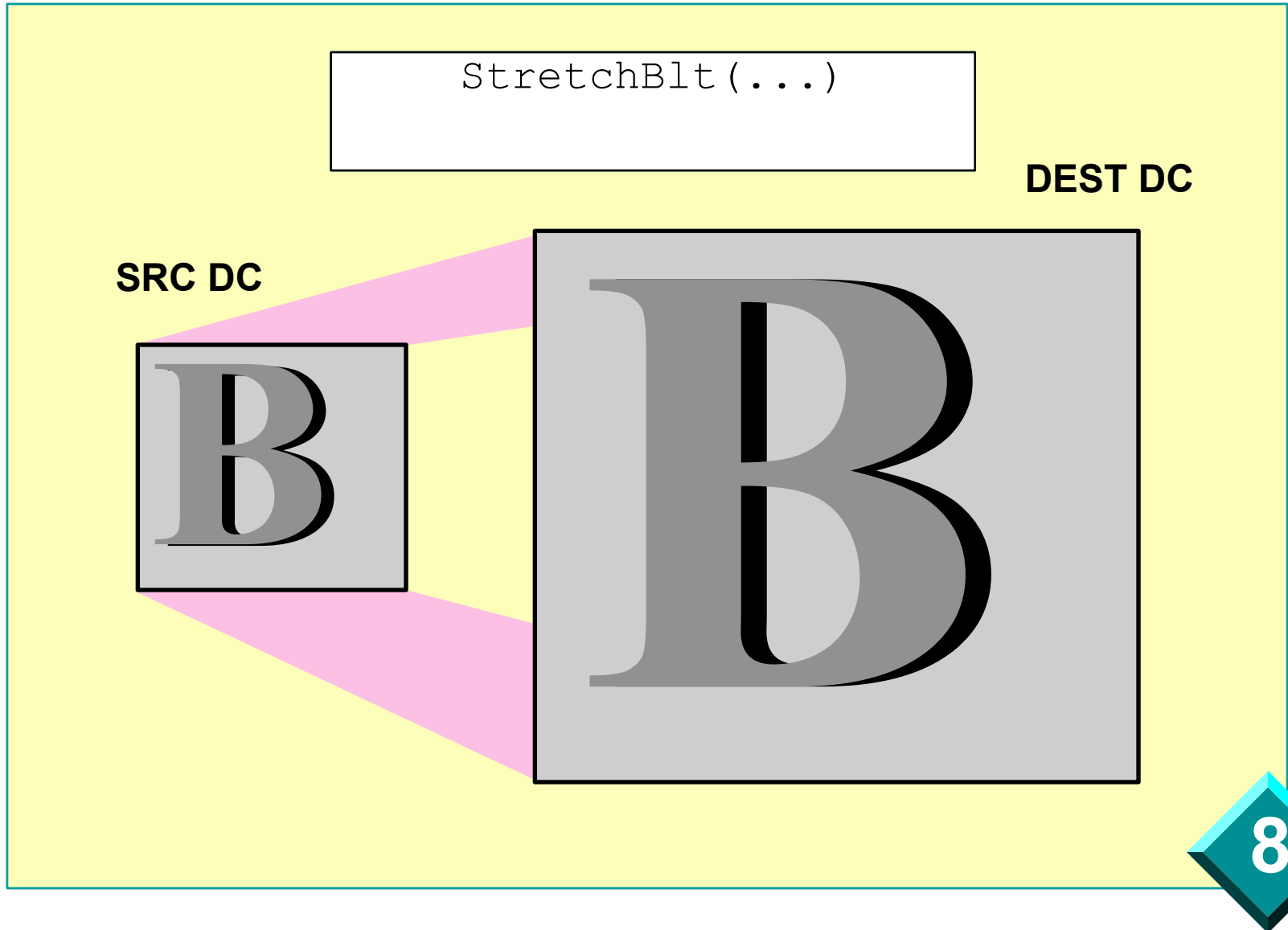
Start a Process Using the **Shell** Function

Call **GetActiveWindow**

Call **IsWindow** in a Loop

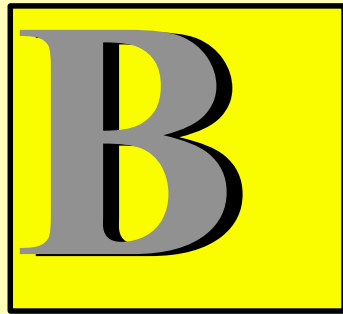
Include **DoEvents** Statement to Yield CPU

StretchBlt Sizes a Bitmap



Using BitBlt to Copy a Picture

SRC DC



DEST DC

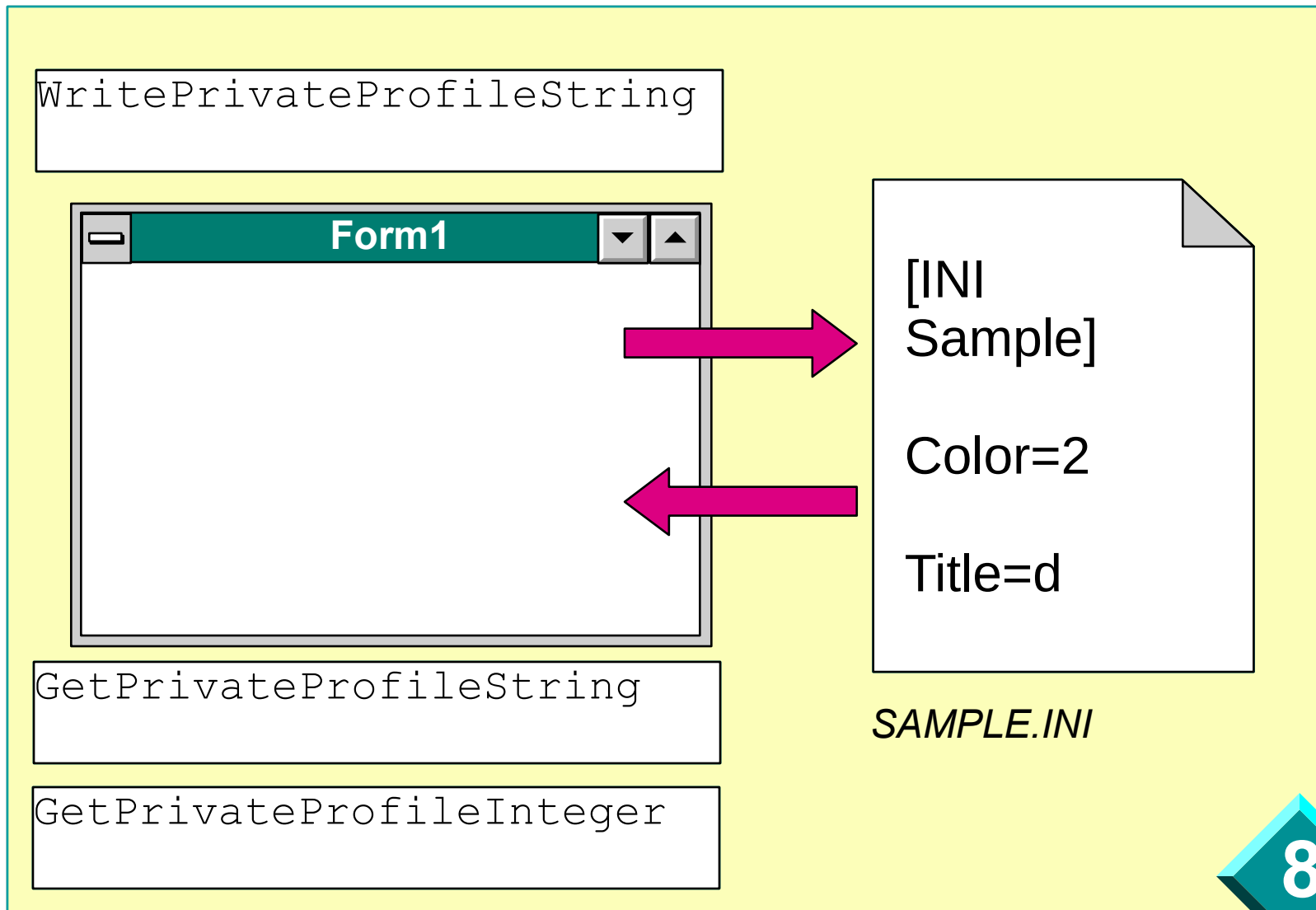


BitBlt

dwRop Parameter Determines Type of Copy
Direct, Inverted, XOr, And, Or, etc.

dwRop = SRCINVERT

Creating an APP.INI File



Summary

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