

Chapter 1: An Introduction to Computers & Visual Basic.NET

- ◆ Introduction to Computers (1.1)
- ◆ Using Windows (1.2)
- ◆ Files and Folders (1.3)
- ◆ An Introduction to Visual Basic.NET (1.4)
- ◆ Biographical History of Computing (1.5)



David I. Schneider, *An Introduction to Programming using Visual Basic.NET, 5th Edition*, Prentice Hall, 2002.

Introduction to Computers (1.1)

- ◆ Personal computer
 - ◆ Generally, a computer that is operated by one person at a time

Introduction to Computers (1.1) (cont.)

- ◆ Computer uses in Society
 - ◆ Banking – customer transactions
 - ◆ Airlines – reservations system
 - ◆ NASA – control satellites
 - ◆ Internet – email, research, shopping

Introduction to Computers (1.1) (cont.)

- ◆ Programs Students Will Create in This Text
 - ◆ Create and manage a list of friends' addresses and phone numbers
 - ◆ Calculate loan payments and amortization
 - ◆ Computations to support other course work

Introduction to Computers (1.1) (cont.)

- ◆ Communicating with the Computer
 - ◆ Machine language – low level, 0 and 1, hard for humans to understand
 - ◆ VB.NET – high level, understood by humans, consists of instructions such as Click, If, Do

Introduction to Computers (1.1) (cont.)

- ◆ Computers and Complicated Tasks
 - ◆ Tasks are broken down into instructions that can be expressed by a computer language
 - ◆ A program is a sequence of instructions
 - ◆ Programs can be only a few instructions or millions of lines of instructions

Introduction to Computers (1.1) (cont.)

◆ Servers

- ◆ A server can be almost any computer
- ◆ A server provides resources to other computers
 - ◆ Files
 - ◆ Internet
 - ◆ Printers

Introduction to Computers (1.1) (cont.)

◆ All Programs Have in Common:

- ◆ Take data and manipulate it to produce a result
- ◆ Input – Process – Output
 - ◆ Input – from files, the keyboard, or other input device
 - ◆ Output – to the monitor, printer, file, or other output device

Introduction to Computers (1.1) (cont.)

◆ Hardware and Software

- ◆ Hardware – the physical components of a computer
 - ◆ Keyboard
 - ◆ Disk drive
 - ◆ Monitor

- ◆ Software – The instructions that tell the computer what to do

Introduction to Computers (1.1) (cont.)

◆ Programmer and User

- ◆ Programmer – the person who solves the problem and writes the instructions for the computer

- ◆ User – any person who uses the program written by the programmer

Introduction to Computers (1.1) (cont.)

◆ Problem Solving

- ◆ Developing the solution to a problem
- ◆ Algorithm – a step by step series of instructions to solve a problem

Introduction to Computers (1.1) (cont.)

◆ Types of Problems in this Text

- ◆ Business computations
- ◆ Managing records
- ◆ Managing lists
- ◆ And more

Introduction to Computers (1.1) (cont.)

◆ VB.NET

- ◆ BASIC developed at Dartmouth in the early 1960's
- ◆ Visual Basic created by Microsoft in 1991
- ◆ VB.NET similar to Visual Basic, but more powerful

Introduction to Computers (1.1) (cont.)

◆ Internet

- ◆ A connection of thousands of networks around the world – each network has
 - ◆ A computer and one or more routers
 - ◆ Router is a device or computer connected to two or more networks
 - ◆ All use TCP/IP

Introduction to Computers (1.1) (cont.)

- ◆ World Wide Web vs. Internet
 - ◆ World Wide Web is a collection of information stored on servers throughout the Internet known as Web servers.
 - ◆ HTTP – HyperText Transfer Protocol enabled researchers to share data – creating a "web" of information
 - ◆ Internet is used to access documents on the World Wide Web

Using Windows (1.2)

- ◆ Mouse Actions
 - ◆ Pointing
 - ◆ Hovering
 - ◆ Clicking
 - ◆ Double-Clicking
 - ◆ Dragging

Using Windows (1.2) (cont.)

◆ Windows and Its Little Windows

- ◆ Title Bar
- ◆ Active window

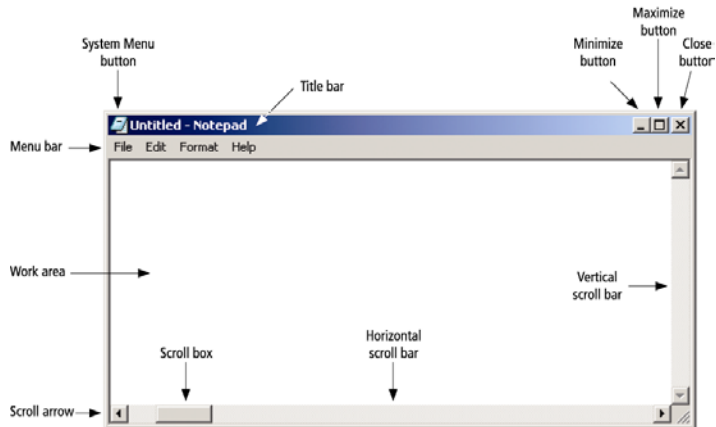
Using Windows (1.2) (cont.)

◆ Using the Notepad

- ◆ Reviewing Notepad to learn more about Windows application
- ◆ Notepad is an item in the Accessories menu
- ◆ Notepad can be used to create simple data files

Using Windows (1.2) (cont.)

◆ Notepad



Using Windows (1.2) (cont.)

◆ Parts of the Window

- ◆ Restore button
- ◆ Vertical scroll bar
- ◆ Horizontal scroll bar
- ◆ Menu bar

Files & Folders (1.3)

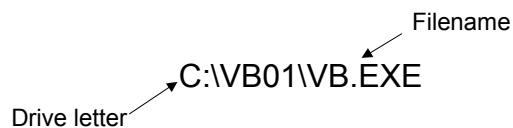
- ◆ Disk is a permanent storage.
- ◆ A disk can store thousands of files.
- ◆ A disk drive is identified by a letter.
- ◆ To organize your files you have to store them in different folders (directories).

Files & Folders (1.3) (cont.)

◆ Key Terms in using Folders

- ◆ Root folder
- ◆ Path Example:

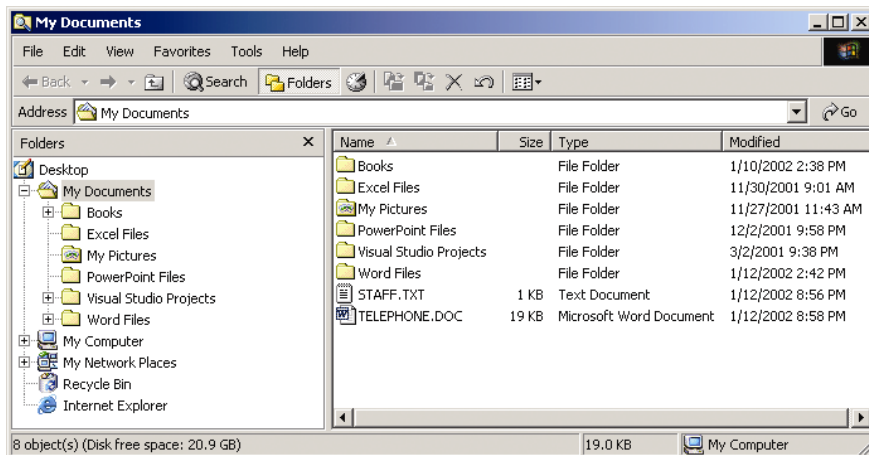
Filename
C:\VB01\VB.EXE
Drive letter



- ◆ File Specification: You should always know where you are saving your files.

Files & Folders (1.3) (cont.)

◆ Explorer window



Files & Folders (1.3) (cont.)

◆ Using Windows Explorer

- ◆ Start | Run | type in Explorer
- ◆ Folder pane on left
- ◆ Detail pane on right

Files & Folders (1.3) (cont.)

◆ To Display File Extensions

- ◆ Alt/T/O
- ◆ Click View
- ◆ Uncheck "Hide file extensions for known file types"
- ◆ Click OK

Files & Folders (1.3) (cont.)

◆ To Create a New Folder

- ◆ Highlight the folder that is to contain the new folder
- ◆ File | New | Folder
- ◆ Type in a name for the new folder and press Enter

Files & Folders (1.3) (cont.)

- ◆ To Rename a Folder or File
 - ◆ Right click on the folder or file
 - ◆ Click on Rename
 - ◆ Type in a new name (or alter the current name) and press Enter

Files & Folders (1.3) (cont.)

- ◆ To Delete a Folder or File
 - ◆ Right click on the folder
 - ◆ Click on Delete
 - ◆ Click on Yes

Files & Folders (1.3) (cont.)

◆ To Copy a Folder or File

- ◆ Right click on the folder file
- ◆ Click on copy
- ◆ Open the folder where the copy is to be placed
- ◆ Right click on the second folder
- ◆ Click on Paste

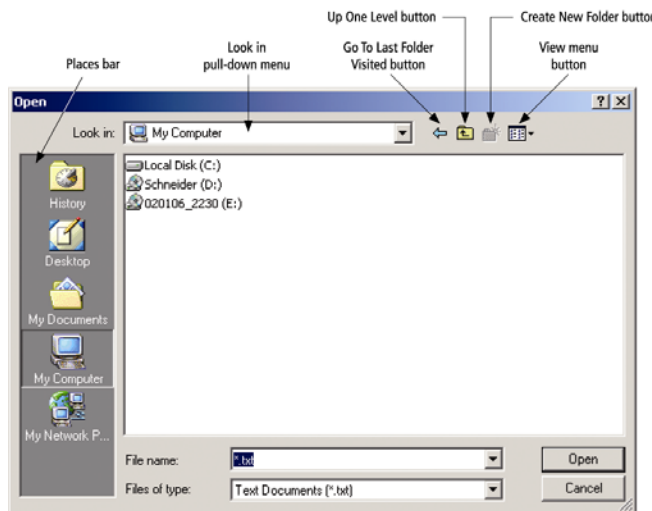
Files & Folders (1.3) (cont.)

◆ To Move a Folder or File

- ◆ Right click on the folder or file
- ◆ Click on Cut
- ◆ Open the folder where the copy is to be moved
- ◆ Click on the second folder with the right mouse button
- ◆ Click on Paste

Files & Folders (1.3) (cont.)

◆ Using the Open and Save As Dialog Boxes



Files & Folders (1.3) (cont.)

◆ Read-Only Attribute

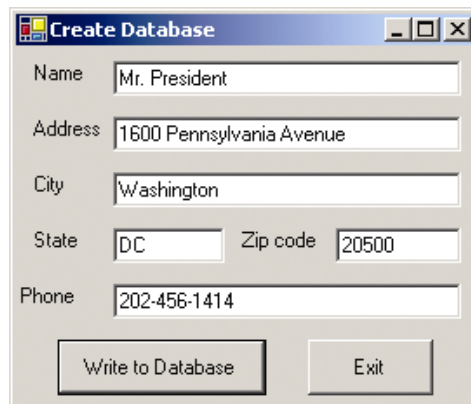
- ◆ Folders and files copied from a CD or DVD onto a hard disk are read-only
- ◆ To turn off the read-only
 - ◆ Right click on the file or folder
 - ◆ Click on Properties
 - ◆ Click on the General tab
 - ◆ In the Attributes section, uncheck read-only
 - ◆ Click OK button

Intro. To VB.NET (1.4)

- ◆ Language used to create Windows application.
- ◆ Provides a Graphical User Interface or GUI.
- ◆ The sequence of instructions executed in the program is controlled by events.

Intro. To VB.NET (1.3) (cont.)

- ◆ Sample Input Screen



The screenshot shows a Windows-style application window titled "Create Database". It contains a form with the following fields and controls:

- Name:
- Address:
- City:
- State: Zip code:
- Phone:
- Buttons: "Write to Database" and "Exit"

Intro. To VB.NET (1.3) (cont.)

◆ How to Develop a VB.NET Application

- ◆ Design the Interface for the user.
- ◆
- ◆ Determine which events the controls on the window should recognize.

- ◆ Write the event procedures for those events.

Intro. To VB.NET (1.3) (cont.)

◆ Different Versions of Visual Basic

- ◆ Version 1.0 – 1991
- ◆ Version 2.0 – 1992
- ◆ Version 3.0 – 1993
- ◆ Version 4.0 – 1995
- ◆ Version 5.0 – 1997
- ◆ Version 6.0 – 1998
- ◆ VB.NET – 2002 – NOT BACKWARD
COMPATIBLE WITH EARLIER VERSIONS OF
VISUAL BASIC

Biographical History of Computing (1.5)

◆ 1800s

- ◆ George Boole – devised Boolean algebra
- ◆ Charles Babbage – created "analytical engine"
- ◆ Augusta Ada Byron – first computer programmer
- ◆ Herman Hollerith – founder of company that would become IBM

Biographical History of Computing (1.5) (cont.)

◆ 1930s

- ◆ Alan Turing – deciphered German code in WWII; father of artificial intelligence
- ◆ John V. Atanasoff – inventor of first electronic digital special purpose computer

Biographical History of Computing (1.5) (cont.)

◆ 1940s

- ◆ Howard Aiken – built large scale digital computer, Mark I
- ◆ Grace M. Hopper – originated term "debugging"; pioneered development and use of COBOL
- ◆ John Mauchley and J. Presper Eckert – built first large scale general purpose computer, ENIAC

Biographical History of Computing (1.5) (cont.)

◆ 1940s continued

- ◆ John von Neumann – developed stored program concept
- ◆ Maurice V. Wilkes – built EDSAC, first computer to use stored program concept
- ◆ John Bardeen, Walter Brattain, and William Shockley – developed transistor that replaced vacuum tubes

Biographical History of Computing (1.5) (cont.)

◆ 1950s

- ◆ John Backus – created Fortran; early user of interpreters and compilers
- ◆ Reynold B. Johnson – invented the disk drive
- ◆ Donald L. Shell – developed efficient sorting algorithm

Biographical History of Computing (1.5) (cont.)

◆ 1960s

- ◆ John G. Kemeny and Thomas E. Kurtz – invented BASIC
- ◆ Corrado Bohm and Guiseppe Jacopini – proved that any program can be written with only 3 structures: sequence, decision, and loops
- ◆ Edsger W. Dijkstra – stimulated move to structured programming by declaring "GOTO" harmful

Biographical History of Computing (1.5) (cont.)

- ◆ 1960s continued
 - ◆ Harlan B. Mills – advocated use of structured programming
 - ◆ Donald E. Knuth – wrote definitive work on algorithms
 - ◆ Ted Hoff, Stan Mazer, Robert Noyce, and Frederico Faggin – developed first microprocessor

Biographical History of Computing (1.5) (cont.)

- ◆ 1960s continued
 - ◆ Douglas Engelbart – invented computer mouse

Biographical History of Computing (1.5) (cont.)

◆ 1970s

- ◆ Ted Codd - software architect; laid the groundwork for relational databases
- ◆ Paul Allen and Bill Gates - cofounders of Microsoft Corporation
- ◆ Stephen Wozniak and Stephen Jobs - cofounders of Apple Computer Inc.
- ◆ Dan Bricklin and Dan Fylstra - wrote VisiCalc, the first electronic spreadsheet program

Biographical History of Computing (1.5) (cont.)

◆ 1970s continued

- ◆ Dennis Ritchie - creator of the C programming language.
- ◆ Ken Thompson - created the Unix operating system
- ◆ Alan Kay – developer of Smalltalk, a pure object-oriented language
- ◆ Don Chamberlain - created a database programming language, later known as SQL

Biographical History of Computing (1.5) (cont.)

◆ 1980s

- ◆ Phillip “Don” Estridge - at IBM directly responsible for the success of the personal computer.
- ◆ Mitchell D. Kapor - cofounder of Lotus Corporation
- ◆ Tom Button - group product manager for applications programmability at Microsoft; headed the team that developed QuickBasic, QBasic, and Visual Basic.

Biographical History of Computing (1.5) (cont.)

◆ 1980s continued

- ◆ Alan Cooper - considered the father of Visual Basic.
- ◆ Tim Berners-Lee - father of the World Wide Web.
- ◆ Charles Simonyi - the “father of Word.”
- ◆ Bjarne Stroustrup - creator of the C++ programming language.
- ◆ Richard M. Stallman - founded Free Software Foundation

Biographical History of Computing (1.5) (cont.)

◆ 1990s

- ◆ Marc Andreessen - inventor of the Web browser.
- ◆ James Gosling – creator of Java.
- ◆ Linus Torvalds - developed the popular Linux operating system.

Biographical History of Computing (1.5) (cont.)

◆ 1990s continued

- ◆ Brian Behlendorf, Rob McCool, and Roy Fielding - developers of the Apache HTTP server, an open-source Web server that can scale up quickly to handle high volumes of traffic.