

APPENDIX C

Glossary

2's complement An internal method that computers use to represent negative values.

absolute value The positive representation of a positive number, zero, or a negative number.

abstraction The name given to an object's details that are hidden from the view or use of other parts of the program that use the object.

accumulator A variable that is updated as a program executes.

ActiveX Prewritten objects that work as controls that you can embed in a web page.

AJAX Asynchronous JavaScript and XML. JavaScript's capability to communicate with a web server without submitting a form or loading a page.

algorithm A common procedure or step-by-step methodology for performing a specific task and producing desired results.

anchor tag A tag that creates a link to another web page location.

animation The movement of graphic images on your screen.

API A set of prewritten routines, which often interact with the operating system, that your programs can call. API is the acronym for *application programming interface*.

applet A small program that travels with a web page and executes on the end user's computer to add interaction to a web page.

appletviewer A program with which you can view an applet without the use of a Web browser.

application A program.

Application Wizard A Visual Basic wizard that generates an initial application according to your specifications.

argument A value passed to a function. Sometimes called a *parameter*, although technically one passes arguments to a function and receives parameters in a function.

arithmetic assignment operators Operators that update the values stored in variables.

array A list of variables that have the same name and data type.

array element An individual variable from an array.

ascending order Items sorted from a low value to a high value.

ASCII American Standard Code for Information Interchange. A system that assigns a unique character to the numbers 0 through 256.

assembly language A language just above the machine language level that assigns codes to machine language instructions to help people read machine language listings a little easier.

Assistant Programmer An entry-level programming position. Also called a *Junior Programmer* or *Programmer I*.

bandwidth The speed and efficiency of an online connection.

BASIC One of the early programming languages written for introductory programmers. BASIC stands for *Beginner's All-purpose Symbolic Instruction Code*.

beta testing The process of testing a program before you release the program to the end user.

binary An on or off state of a computer switch often represented by a 1 (for on) or a 0 (for off).

binary search A search that continually splits a sorted list in the middle until a value is located.

bit A binary value, the smallest data value that a computer can represent.

block A section of code grouped together by braces that sets apart a section of code in a smaller area than a full procedure. A procedure might contain several blocks of code.

Boolean A data type that accepts only a true or false value.

bottom-up design A system design that looks at a system's details first and gradually completes the rest of the system, interlocking the details toward the end.

branching Transferring control from one program location to another.

breakpoints Locations designated during the debugging of a program where the program's execution will halt temporarily.

bubble sort A type of sort that swaps values throughout the sorting process where the low values slowly rise to the top of the sorted list.

bugs Program errors.

built-in functions The routines that come with a programming language or its associated libraries that perform simple tasks.

byte A single character of memory, containing a total of 8 bits that represent any of 256 different possibilities.

bytecode The language that Java programs compile into and that requires a Java Virtual Machine (JVM) emulator to run. If Java compiled into machine language, the virtual machine would not be needed, but the bytecode allows Java to run on any computer as long as that computer has a JVM.

C An efficient, small language that uses a large number of operators, originally designed for writing operating systems.

C++ An OOP-based version of the C programming language.

C# Microsoft's competing language to Java, supported in the .NET environment.

call stack A list of all functions executed so far in a program, used during the debugging of a program.

call-by-value Calling a function and passing only the value of the arguments and not passing the actual arguments themselves.

cascading style sheets See CSS.

CASE An extensive set of programming tools and methods that was to take the user from the design stage to the finished application stage, eventually without the need of a programmer. CASE is an acronym for *Computer-Aided Software Engineering*.

centralized computing A computing environment where one large computer system is the repository of information and programs that users across the network or online connection can use.

certification A means of specifying that a computer worker has a certain skill level.

CGI A programming language that provides interaction between a web page user and the web page server. CGI stands for *common gateway interface*.

character string See *string*.

character string function A function that processes character string data.

chargeback A method where a corporation pays for computer services by transferring department funds directly to the computer department.

check boxes Small, square boxes that provide one or more choices for users. The user clicks a box to indicate a choice, thereby placing an *X* in the box. Another click removes the *X* to deselect the choice.

class A description of an object and its properties.

client The computer that views a web page.

client-server computers An environment where users on networked computers run programs sent to them (or served to them) by a server computer.

CLR Common Language Runtime. A virtual machine for the .NET environment where compilers will be able to produce programs that run on any computer that supports the CLR standard.

code The instructions inside a program.

code module A Visual Basic file that contains only Visual Basic programming language instructions and no graphic elements.

collision detection The ability to detect when one graphic image overlaps another in some way.

COM A standardized list of objects found in a computer's hardware and software, such as the screen, that COM-compatible languages can reference by name. COM is an acronym for *Common Object Model*.

comments See *remarks*.

Common Language Runtime See *CLR*.

compiler A program that converts source code into machine language.

concatenate To combine one data value to another.

conditional operators Operators that compare one value to another, also called *relational operators*.

construct A programming language's way of performing a certain kind of task.

constructor Methods that initialize a new object.

contract programmer A programmer who works temporarily for a company for a fixed charge or rate.

control An element with which you control the operating of a Windows program, such as a command button or text box.

conversion characters Characters used in C I/O functions such as `printf()` that format output.

coordinates Measurements that represent the number of pixels from the left edge (the *x*-coordinate) and the top edge (the *y*-coordinate) of a screen or window.

counter A variable that tracks how many times a process has occurred.

CSS A stylesheet language that enables you to create named styles that define the way part of your web page looks, such as a headline area. CSS is an acronym for *cascading style sheets*.

data Facts and figures used in computer programs.

data entry clerk A person who works in the Data Entry Department.

Data Entry Department The department in a large organization that enters data into the computer.

data hiding The ability of an object to hide its members from other parts of a program to protect those members from accidental change.

data member See *member*.

data processing (DP) The act of turning raw data into meaningful output, generally associated with computers.

debugging The process of removing the bugs from a computer program.

decision symbol A diamond on a flowchart that represents a decision being made in the logic.

decrementing Subtracting from a value.

default A value that appears or that is assumed if the user does not change the value.

default text Text that appears inside a text box that the user can keep or change.

deprecated A language feature phased out of newer versions of the language, but still supported in order to ensure support of legacy code.

descending order Items sorted from a high value to a low value.

desk checking The process of checking all paths of a computer program to test the program's accuracy.

destructor Methods that erase a new object and free the memory that was used.

device context A representation of a device, to which Windows writes, that might represent your screen, a window, or a printer.

dimension Reserve storage for elements in an array.

distributed computing A computing environment where computers are not close together but work together across a network or through an online connection.

document object model See *DOM*.

document type definition See *DTD*.

DOM A classification that assigns names to elements on a web page and to the browser's controls. DOM is an acronym for *document object model*.

DP See *data processing*.

DTD A set of XML definitions and what each represents. DTD is an acronym for *document type definition*.

dynamic HTML HTML that supports the use of JavaScript and other special effects.

EBCDIC Extended Binary Coded Decimal Interchange Code. A character representation, similar to ASCII, used on mainframe computers.

editor A text processor programmers use to type program instructions and save those instructions in a source code file.

electronic signatures The legal ability to agree to documents online as though you had physically signed the documents in person.

empty string A string that contains no characters.

end user See *user*.

escape sequence A character literal that represents another character or that performs an action such as a newline character.

executable content A Java-enabled program applet embedded in a web page.

Explorer-style A style of displaying data in a tree structure similar to the way Windows Explorer displays a disk's folder structure.

extraction operator C++ operator, `>>`, that fills a variable with input.

field A place where a user can enter data, such as a text box on a form.

final class A class that contains absolutely no code that an inherited class can use.

floating-point value A number that includes a decimal point and an optional fractional portion.

flowchart A pictorial representation of the flow of logic.

flowchart template A plastic outline of common flowchart symbols that helps you draw better-looking flowcharts.

Forte for Java A Java development system that contains an editor and a compiler.

free-form You can start program instructions in any column and place blank lines throughout the code.

friendly class A class that makes its members and methods available to any inheriting object.

function A routine that processes data inside a program.

global variable A variable that is available to all routines inside a program.

graphical user interface (GUI) An operating environment, such as Windows, where objects and controls appear on the screen graphically.

graphics box control A region on your screen, appearing inside a window, where graphics may appear.

GUI See *graphical user interface*.

handle A pointer to a device that Windows can access.

hot spot See *links*.

Hotmail A Microsoft-based free, online email service.

HTML The formatting and hyperlinking language that forms Web pages. HTML stands for *HyperText Markup Language*.

hypertext link See *links*.

I/O Acronym for input and output.

incrementing Adding to a value.

information Usable, processed data, typically output from a computer program.

inheritance The ability of one data object to gain characteristics from another object.

input The data that goes into a computer program. The source of the data might be a keyboard, disk file, or online connection.

input verification The checking of a user's input for validity.

insertion operator A C++ operator, <<, that outputs a value from a variable to an output stream such as the screen.

installation script A set of specifications that determines how an application is to be installed on a computer.

integer A whole number.

iteration The cycle that repeats inside a loop.

J2EE Sun Microsystem's competition to Microsoft's .NET initiative. J2EE is an acronym for *Java 2 Platform, Enterprise Edition*.

Java An object-oriented programming (OOP) language used in web applets and standalone applications.

Java Virtual Machine (JVM) A computer-within-a-computer that interprets Java code into machine-executable language.

JavaScript A scripting language that enables users to place active elements such as menus and rollover buttons on a web page.

label A named location in a program that one can branch to.

LAN See *local area network*.

leading blanks Blank spaces that appear before character data to pad the data value with extra positions.

links Locations found inside HTML-based documents, such as web pages, that trigger an action, such as the display of a different web page, when the user clicks the link. Also called *hypertext links* and *hot spots*.

literal Fixed data that does not change.

local area network (LAN) A small network that links two or more computers together within a short distance of each other.

local variable A variable available only to the block or routine in which it's declared.

logic error An error in the logic used in a program. Often, a program continues running because logic errors, unlike syntax errors, do not cause the program to quit.

logical operator An operator that tests whether a statement is true or false.

loop Program instructions that are repeated during a program's execution.

looping The process of repeating statements in a program.

machine language Compiled, computer-readable instructions that are compacted into nonhuman terms that only the computer can understand.

mainframe computers Large computers used by organizations to handle many hundreds of users and to house much online and offline storage.

maintainability The ease of maintenance that a program's author puts into the program by writing clear code.

maintenance The process of changing and updating a program's code with new features and bug fixes.

MDI See *multiple document interface*.

member An object's data value.

member functions An object's functions.

message A command that acts upon a specific object.

metatags Special HTML code placed inside web pages that the user does not see but that search engines can locate to link to the site.

methods Procedures embedded in an object.

MIS A term used primarily in the 1970s to describe the projected, central, repository of data that organizations thought would transpire. Distributed computing, thanks primarily to the proliferation of the PC, all but destroyed the MIS concept. MIS is an acronym for *Management Information System*.

MSN Messenger Microsoft's instant chat service whereby two or more users can type real-time messages to each other over a network or online connection.

multiple document interface (MDI) An application scheme whereby more than one window with data can be open at the same time.

.NET Microsoft's architecture for defining the way that information and programs interact in an online world.

.NET Framework The overall environment of the .NET system.

newline A carriage return and line feed combination that effectively moves the cursor to the start of the next line on a screen or printer.

nonprinting characters Characters that cause an action, such as a line feed or a computer beep, but that do not display on a printer or screen.

null A value that represents nothing when stored in a variable to indicate that the variable has not yet been initialized.

null string See *empty string*.

object An active data value that has characteristics and properties.

object-oriented design (OOD) The process of designing a computer application that utilizes OOP concepts in the design to show active objects that are to be developed.

object-oriented programming (OOP) Programming that utilizes objects and supports inheritance and data hiding.

OOD Acronym for *object-oriented design*.

OOP Acronym for *object-oriented programming*.

open-source software Programs that are distributed with their source code along with the executable files. Users are encouraged to alter the code and improve the program, as long as they share their code changes with the community.

operator A symbol or word, such as a plus sign, that manipulates numbers or strings in some way.

operator overloading The ability to give an operator different meanings, depending on what the operator is working with at the time.

operator precedence The order in which a language executes multiple operators that appear in the same expression.

option buttons Small, round buttons that provide mutually exclusive choices for users. When the user clicks a circle to indicate a choice, a dot is placed in the circle. If a dot was already placed in another choice, that other dot is removed. Also called *radio buttons*.

output The information produced from a program and sent to the printer, screen, an online connection, or a disk file.

output definition The specification of all of a program's output.

overhead A method of paying for a company's computer services through a general company overhead expense account instead of each department transferring department funds to the computer department as is the case with the chargeback method.

overloading The ability to write multiple abilities for the same function or operator.

parameter A value received by a function. Sometimes called an *argument*, although technically one passes arguments to a function and receives parameters in a function.

parallel testing Testing a new program, or a new version of a program, while still using the old system to verify results.

people-years The amount of time it takes, in years, for a person to complete a computer program.

peer-to-peer computing Users loosely connected through online connections that enable them to share data and programs.

PHP A server-side scripting language. Acronym for *PHP: Hypertext Preprocessor*

picture element See *pixel*.

pixel A dot on the screen that represents the smallest area you can draw. From the words *picture element*.

polymorphism Literally, from the Greek for *many forms*, and refers to the ability of different objects to respond differently to the same commands.

portable The ability of a language or program to work across a wide range of computer hardware.

private class A class that hides its members and methods available from all parts of the program.

private key A key that deciphers an encrypted code known only to the sending and receiving party.

preprocessor directive A command that the compiler performs before the compiler compiles the source code into machine language.

procedures Routines, such as subroutines and functions you write, that perform a task within a program.

profiler A software-based tool that analyzes a program and determines if inefficiencies exist.

project A collection of files that comprise a Windows application.

program Detailed instructions that tell the computer what to do.

program editor See *editor*.

programmer A person who authors computer programs.

programmer analyst An advanced programmer who begins to learn to design systems as well as programs. Also called a *senior programmer*.

protocol The way in which two computers transfer data between each other.

prototype A model.

prototype screen A representation of what a program's screen will look like.

pseudocode A written description of the flow of program logic. Sometimes called *structured English*.

public class A class that makes its members and methods available to any part of the program that declares objects of that class.

public key A key that deciphers an encrypted code available to anyone who might be viewing a website.

RAD See *rapid application development*.

radio buttons See *option buttons*.

radius The distance from the center to the edge of a circle.

rapid application development (RAD) A software development methodology that is designed to enable programmers to design and build a complete application quickly.

relational operator An operator that compares data values.

remarks Comments placed inside a program's source code to provide information to other programmers. Also called *comments*.

resolution The density of dots on your screen; the higher the resolution, the better your screen graphics and text will look.

resource editor A programming tool that helps a programmer build and test Windows resources such as icons, menus, dialog boxes, or text strings.

reuse The ability of an object to be used by several procedures and even separate programs without recoding.

rollover effect The ability of a command button or other screen element to change shape, size, or color when the user points to the item with the mouse.

runtime error An error that occurs during the execution of a program.

scriptlet A JavaScript program.

selection Making a decision in logic.

senior programmer A programmer who has passed the entry-level stage by maintaining programs, writing new routines, and who has shown an understanding of programming concepts needed.

sequence The execution of a program, one statement after another.

sequential search Looking through a list of items one value at a time.

server The computer that sends a web page to a client computer.

single document interface An application scheme whereby only one window with data can be open at any one time.

single-stepping The process of executing one line of a program at a time, slowly, to see the results of each statement.

site certificate An electronic statement that your web browser sometimes checks to ensure that a web page is secure.

SOAP An Internet and communications protocol that defines the way computers talk to each other and share information. SOAP is an acronym for *Simple Object Access Protocol*.

software Programs that run on computers.

software license The right to run a program.

source code The program instructions that a programmer writes.

spaghetti code An unstructured program that branches often, back and forth, in an unclear, difficult-to-follow manner.

sprite animation Animation that you can program to make objects move and respond when collision detection occurs.

statements Instructions inside a computer program.

static text Onscreen text that the user cannot change.

stream A flow of data, usually input or output, to or from a C or C-based language's program.

string Textual data that you cannot calculate with.

structured English See *pseudocode*.

structured programming A system of writing computer programs so they are clear, easy to follow, and simple to maintain.

structured walkthrough A team review of a programmer's work.

subroutine A section of code that you can call from another part of code one or more times.

subscript A numbered value that represents an array element.

Swing A Java add-on that most modern Java compilers support that provides Windows-like controls for Java applets and applications.

syntax The grammar rules of a programming language.

syntax error An error in the spelling or grammar of a computer language.

systems analysis and design The process of creating a complete computer application from its early design stages to a finished product.

systems analyst An employee who designs systems that will be computerized.

tag commands HTML commands, surrounded by angled brackets < and >, that determine how a web page is formatted. Also called *tag references*.

TCP/IP The communications protocol used by the Internet.

temporary variable A variable that you store a value in for a short time.

tertiary operator An operator that has three parts, a conditional test and two possible values. The operator returns one of two values depending on whether the conditional is true.

top-down design A system design that looks at the overall picture first and gradually refines the details.

twip A screen measurement that equals approximately 1/20th of a point of type, typically used as the smallest addressable screen measurement for placement of text and graphics.

UML Specifies a uniform method for defining the requirements of a program. UML is an acronym for *Unified Modeling Language*.

user The person who uses the programs that programmers write.

user-defined functions Functions that you write as opposed to built-in functions supplied by a programming language.

variable A named storage location for data in a program.

VBScript Microsoft's scripting language that's similar in function to JavaScript.

version controller Tracks and maintains version numbers of programs so an organization can keep track of which programs are in use and which should be discarded.

virtual machine An imaginary computer that runs compiled Java programs. Your computer or web browser must emulate a virtual machine to run a Java applet or application.

Visual Basic A development system that enables you to use a BASIC-like language to create Windows applications.

XML Extensible Markup Language. A language that works inside HTML and that is similar in form to HTML whereby the user can create unique tag elements that describe data on the web page.

WAN See *wide area network*.

watch variables Variables whose values appear in a window during the debugging of a computer program.

web forms A set of defined standards for creating forms on .NET-based web pages and applications.

whitespace Extra blank lines and spaces inside programs to make the code more readable.

wide area network (WAN) Two or more computers networked together over a long distance, often through fiber or satellite communications.

Win32 The general name for operating systems based on a 32-bit memory location such as Windows 95, Windows 98, Windows ME, Windows 2000, and Windows XP.

wizard A step-by-step routine that walks you through a process such as the creation of a program.