

The

F r e s h m a n

COMPUTER SKILLS

M a n u a l

Connecting to the World & the Web
Math and Engineering Applications
Working With Data
Conventional & Graphical Computer Programming

A Self-Instruction, Workbook-Style Manual
For Use With Modern Personal Computers

Copyright Law - Questions & Answers

It is not Okay to copy your colleague's software. Software is protected by copyright law, which says that you can't make copies without the permission of the copyright holder. Copyright law is written this way to protect the investment of computer software companies in software development. These companies devote large portions of their earnings to the creation of new software products, and they deserve a fair return on their investment. The creative teams who develop the software - programmers, writers, graphic artists and others - also deserve fair compensation for their efforts. Without the protection given by our copyright laws, they would be unable to produce the valuable programs that have become so important in our daily lives: educational software that teaches us much needed skills; business software that allows us to save time, effort and money; and entertainment and personal productivity software that enhances leisure time.

Q That makes sense, but what do I get out of purchasing my own software?

A When you purchase authorized copies of software programs, you receive user guides and tutorials, quick reference cards, the opportunity to purchase upgrades, and technical support from the software companies.

Q What exactly does the law say about copying software?

A The law says that it is illegal to make or distribute copies of copyrighted material, including software, without authorization. If you pirate software, you may face not only a civil suit, but also fines of up to \$100,000 and jail terms of up to 5 years.

Q So, I'm never allowed to copy software for any reason?

A No, you are allowed to make one backup copy if one wasn't included in the box. Copyright law prohibits you from making additional copies of the software for any other reason without the permission of the software company.

Q What happens when I receive an upgrade? Can I give my old version to someone else to use?

A The answer to this question is generally "no". The upgrade is an improvement to the original software and not a new copy.

Q At my company, we pass disks around all the time. We all assume that this must be okay since it was the company that purchased the software in the first place.

A Many employees don't realize that corporations are bound by the copyright laws, just like everyone else. More and more corporations have written policies against "shoplifting". Employees may face disciplinary action if they make extra copies of the company's software for use at home or on additional computers within the office. A good rule to remember is that there must be one authorized copy of a software product for every computer upon which it is run.

Q Do the same rules apply to bulletin boards and user groups? I always thought that the reason that they got together was to share software.

A Many bulletin boards and user groups offer participants shareware or public domain software, which is perfectly acceptable practice. Some software companies also offer bulletin boards and user groups special demonstration versions of their products, which in some instances may be copied. In any event, it is the responsibility of the bulletin board operator or user group to respect copyright law and to encourage participants to do the same.

Q What about schools and professional training organizations?

A The same copyright responsibilities that apply to individuals and corporations apply to schools and professional training organizations. No one is exempt from the copyright law.

The Freshman

Computer Skills Manual

Prof. Martin A. Patt

University of Massachusetts - Lowell

Student: _____ Last 4 digits: _____

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Ninth Edition

Contents

Getting Connected

1. Getting Connected at UMASS Lowell

The purpose of this first chapter is to show you how to get an e-mail account at UMASS Lowell, and to list the locations of a few of the school's many PC labs.

4. A Directed Exploration of the Web

You will customize your next PC and tour a few websites that may prove useful to you in your engineering studies.

5. The Hypertext Markup Language - HTML

By embedding a few HTML codes in your Web page, you can provide links to other pages, while giving your own page a nice professional look.

Getting Started with your PC

7. Getting Started with WINDOWS

You have probably been using WINDOWS 95/98/2000/NT for some time, clicking on icons to start-up some of your favorite software applications. This chapter is intended to make you more versatile in the use of the WINDOWS operating systems.

8. Your DOS Operating System

There may be times when you will want to issue commands verbally from your keyboard. DOS is the "command language" of most modern PCs.

Arrays, Matrix Algebra, & Complex Numbers

13. Introduction to Arrays and Matrices

Arrays and matrices are multidimensional forms which are commonly used by engineers, scientists, and mathematicians to represent data in a structured way.

14. Working With Complex Numbers

You will review a few of the fundamentals of the algebra of complex numbers. In many scientific and engineering disciplines, complex numbers are used to represent data.

15. Getting Started with MATLAB

MATLAB is a tool that allows you to make computations involving matrices, differential equations, arrays of data, plots, and graphs. With this tool, you can solve a wide variety of numeric problems and plot the results in a fraction of the time that it would take you to write a computer program for that purpose.

16. Graphical Plots and Histograms

MATLAB will become your favorite tool for plotting data. You can supply labels for your axes and a title for your graph. A number of curves, in a variety of colors and styles, can be placed on a single graph.

17. MATLAB Scripts & Functions (M-files)

A script file is a text file containing several Matlab commands which can be issued as a group by simply typing the script-file name. The file name always has an extension *M*. Function files, which are also *M-files*, allow passing arguments as well.

Working With Data

52. Getting Started with Excel

Microsoft Excel is a sophisticated spreadsheet-oriented database utility with powerful graphics capabilities. In this chapter you will learn how to create a worksheet, how to use a database within a worksheet, and how to create charts from your worksheet data.

FORTRAN Units

F1. Unformatted I/O with five FORTRAN data types

Arithmetic expressions and assignment statements with integer, real, complex, logical, and character data types. Both keyboard-entry and assignment statements are used to provide initial values.

F2. Unformatted I/O with arrays of various data types

Arithmetic expressions and assignment statements with arrays of integer, real, complex, logical, and character data types. "Dimension" is used to declare arrays, and implied DO-loops are used for I/O looping.

F3. Data Initialization

Initial values are assigned to variables of various data types via the REAL, COMPLEX, LOGICAL, and CHARACTER declarations.

F4. Operations and Intrinsic Functions

A variety of operations and intrinsic functions are tried with the various data types. MAX and MIN are tested with both Integer & Real variables. Trigonometric functions are introduced and then used in Geometry and Vector-Algebra applications. IF-THEN-ELSE IF and DO LOOP structures are incorporated into some of the later programs of this exciting chapter.

Visual Basic Units

VB1. Getting Started - Command Buttons and Text Boxes

You will learn how to create a user-friendly applications program which allows you to use your mouse to click on buttons to initiate action. You will also have an opportunity to experiment with the *properties* of the objects on your screen.

VB2. Putting Visual Basic Code Behind The Buttons

In this chapter, you will build a Complex Algebra calculator. Once it's working, you will never again have to make these complex computations by hand.

VB3. Putting A Nice Front End On An Old FORTRAN Program

Historically, FORTRAN had been the engineering programming language of choice for many years. Much of the FORTRAN software which is still being used could be enhanced by hiding it behind an elegant Visual Basic graphical user interface.

Lab Experiments

Lab 01. Building a Web Page with HTML

Lab 02. Operating System - Windows & DOS

Lab 03. Spreadsheets with EXCEL

Lab 04. Spreadsheet Application - Maclaurin Series Approximations

Lab 05. Quiz on Matrix Algebra & Complex Numbers

Lab 06. Matlab Algebraic Applications

Lab 07. Matlab Graphical Applications

Lab 08. Matlab Scripts and Functions

Lab 09. FORTRAN Program Application

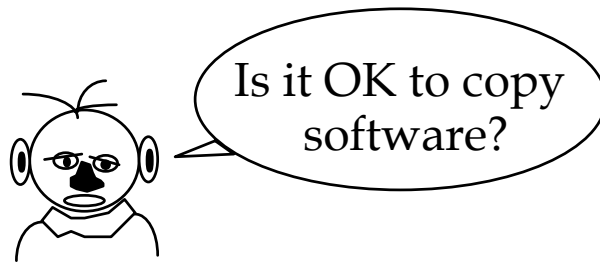
Lab 10. FORTRAN Program Application

Lab 11. Visual Basic Program Applications

Lab 12. Visual Basic GUI for a FORTRAN Program Application

A San Francisco Rhyme

I stood on top
Of Russian Hill
And then walked down
To China Town
Otherwise,
I'd be there, still.



No, it's not okay,. Even though you are a student, you are not supposed to make copies without the permission of the copyright holder. It's not smart to cheat the software companies out of their profits. I say this to you as your professor, one who really cares about you and your professional development.

I don't know. I know a lot of professionals who do it, and they don't get caught. Why shouldn't I do it, too?



I'll answer that one! First of all, you cheat yourself. Every time you take something to which you are not entitled, you change inside just a little bit. It becomes easier to do it again the next time. After a while , taking things becomes part of your character. I wouldn't call those people 'professionals'.



I like to offer an analogy from the point of view of a copyright holder. Suppose that you were a farmer, and that you grew tomatoes in a field not far from the University. Every season, just before you harvest your tomatoes, students from the University sneak into your field at night and pick them. They are basically good kids, and you don't want to prosecute them. Do you know what would you do? I'll tell you. You would stop growing tomatoes

You know, you hurt yourself and your friends in other ways, too. Just as the farmer stops growing tomatoes, many talented software developers stop 'growing' software. Next time you ask yourself why 'they' don't make computers that you can talk to, like in the movies, think of all the talent that has left the field of software development. Without those people, the computers of the future will be a long time coming.

