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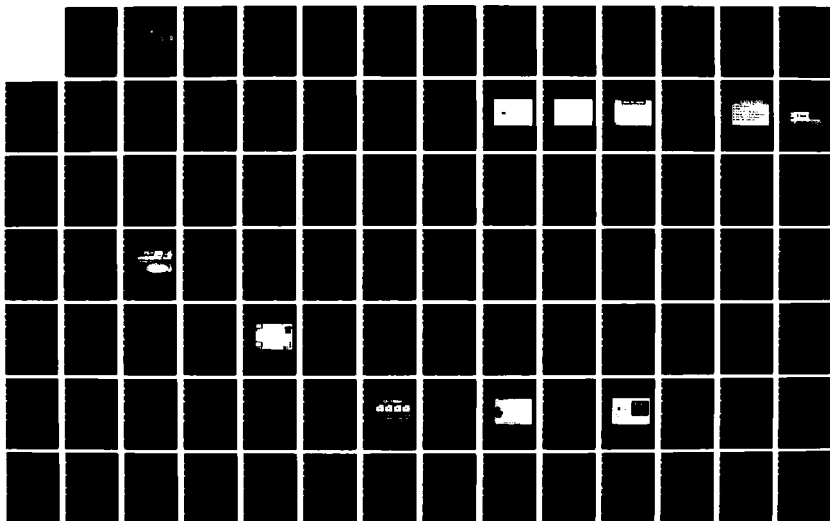
AN ON-LINE TUTORIAL FOR THE ADMINISTRATIVE SCIENCES
PERSONAL COMPUTER LABORATORY(U) NAVAL POSTGRADUATE
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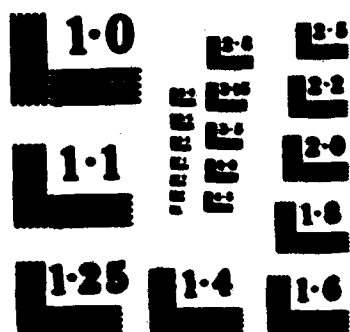
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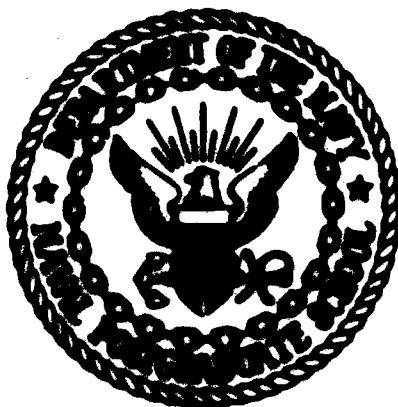
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Monterey, California



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THESIS

AN ON-LINE TUTORIAL FOR THE ADMINISTRATIVE SCIENCES
PERSONAL COMPUTER LABORATORY

by

Karen M. Overall

September 1987

Thesis Advisor:

Barry A. Frew

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This thesis describes the development of an on-line tutorial that shows novice computer users how to use the IBM PCs and network in the Administrative Science Department PC Laboratory. The tutorial is designed in a modular fashion so the user can easily exit the software at a number of logical stopping points. The topics that are covered are: 1) the IBM PC in general, 2) IBM PC-DOS, 3) the network, 4) a list of the software available on the network, and 5) sources available for further details. A copy of the tutorial on a floppy diskette may be obtained by contacting the NPS Administrative Sciences PC Laboratory.					
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An On-line Tutorial
for the Administrative Sciences
Personal Computer Laboratory

by

Karen M. Overall
Lieutenant, United States Navy
B.S., Eastern New Mexico University, 1979

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION SYSTEMS

from the

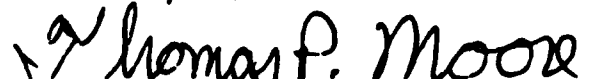
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September 1987

Author:

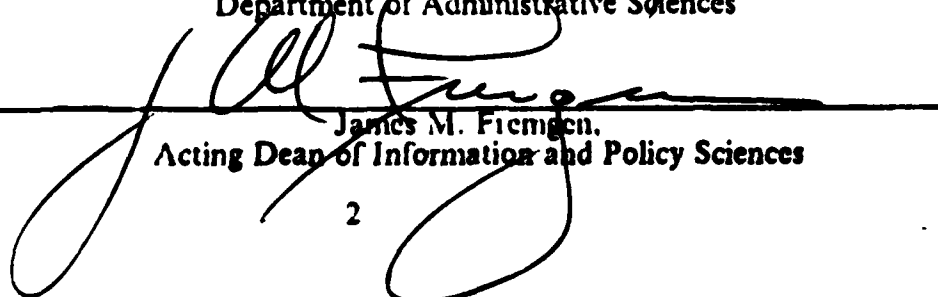

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ABSTRACT

This thesis describes the development of an on-line, self-paced tutorial that shows novice computer users how to use the IBM PCs and network in the Administrative Science Department PC Laboratory. The tutorial is designed in a modular fashion so the user can easily exit the software at a number of logical stopping points. The topics that are covered are: 1) the IBM PC in general, 2) IBM PC-DOS, 3) the network, 4) a list of the software available on the network, and 5) sources available for further details. A copy of the tutorial on a floppy diskette may be obtained by contacting the NPS Administrative Sciences PC Laboratory.

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I. INTRODUCTION AND BACKGROUND

In the spring of 1987, the Administrative Sciences Department of the Naval Postgraduate School opened a personal computer laboratory. The lab is designed for students who will be using microcomputers in their classes. It is equipped with 25 IBM personal computers connected through an IBM PC local area network. Four IBM PC AT computers serve as hosts for the network. One stand-alone IBM PC AT is connected to an overhead projector for instructors' use.

Most curricula taught by the Administrative Sciences Department include at least one course involving the use of computers, either mainframe or microcomputers. Because most Administrative Science students come to NPS with little computer experience, there is a severe need for basic instruction. There are classes available to instruct students in computer usage applicable to their curriculum. However, there is also the need for a "quick and dirty" introduction to get the students started with the microcomputer as soon as possible. This tutorial is designed to meet that need. It contains enough information to help the student become familiar with some basic ideas and terms. It enables the user to prepare a diskette, manipulate files, access software, and learn about the network. And, for those students desiring more information, it includes a list of written reference material that may be obtained at the school, and a glossary of frequently used computer terms. (The end)

II. TOPICS COVERED BY THE TUTORIAL

The on-line tutorial contains five topics. These topics are described in the remainder of this chapter. Each topic area can be reached directly from a main menu which is displayed when the user first starts the tutorial, and again upon completion of each topic area.

A. IBM PC BASICS

The first section of this tutorial is designed to introduce the user to the basic components of a personal computer. It is not intended to explain specifically how a computer works. It familiarizes the student with parts of the personal computer that he may be interacting with in further usage. The basic characteristics of Random Access Memory, Read Only Memory, Disk Drives, Peripherals and the System Unit are discussed.

B. IBM PC-DOS

IBM's personal computer disk operating system (DOS) is explained in this section in a very simplified manner. Specific DOS commands that the user will need are explained, such as how to format a diskette; name, copy and erase files; and display a list of files on the diskette. These commands are described in enough detail for the user to know how to use them as soon as they are finished reading about them.

C. IBM PC LOCAL AREA NETWORK

This section describes the advantages of using a network and the capabilities available on the IBM local area network. Another tutorial is being written as a thesis for the IBM PC local area network (LAN). This second tutorial will cover, in detail, how to use the network. Therefore, only the basics are discussed in this tutorial, followed by a list of functions performed by the LAN.

D. SOFTWARE ON THE NETWORK

The purpose of this section is to inform the new user of the application software packages that are available for their use on the network. This module will need to be updated periodically as software is deleted or added. The Maintenance section of this thesis (Chapter III) contains information on changing this tutorial.

E. FOR MORE INFORMATION

This section of the on-line tutorial lists, by topic, references that are available. Because this tutorial is designed for the novice and covers only the basics in each topic area, it is important that the user know where else to turn for more detailed information. The second portion of this section of the tutorial is a glossary and is designed as a reference tool. It covers most of the terms a new user might encounter when first learning about computers.

III. MAINTENANCE

A. THE SOFTWARE

IBM PC Storyboard is a software package that generates automated presentations on an IBM PC or compatible. It allows creation of screen displays of text, figures, charts, or graphics. Then lets you organize them into stories for presentation with a wide variety of special effects. PC Storyboard consists of the following four programs: [Ref. 1]

1. Picture Maker

Picture Maker allows you to create and modify pictures, graphics, charts, and text displays. It has the capability of "cutting and pasting" portions of pictures that can be added to or deleted from existing screens. It also comes with a library of graphics that can be incorporated with text.

2. Picture Taker

Picture Taker is used to capture the images of screens from other PC application programs. When the graphics mode of Picture Taker is used, the captured images can be edited using Picture Maker.

3. Story Editor

Story Editor allows you to organize pictures into presentations. It has several features that help you make the presentations:

- you can select a variety of preprogrammed picture-to-picture transition methods that allow one picture to dissolve into another;
- you can select other variables such as display times, colors, and whether the picture will be developed as a full picture or as a series of partial pictures;
- you can use supplied macros as subroutines to help with the special effects;
- you can run your story in part or in full while using Story Editor so that you can quickly and easily experiment with various presentation techniques.

4. Story Teller

Story Teller allows you to present the stories created with Story Editor. It can be copied onto the same diskette as a story and pictures so that the story can be distributed and run from a single diskette.

B. SPECIAL CONSIDERATIONS

In order for maintenance to be done on this tutorial it will be necessary to get the software and documentation for IBM PC Storyboard. Explaining all the commands that are necessary to operate the program is beyond the scope of this thesis. However, the following problems were encountered and are described here to help with effective maintenance:

- Picture Taker can be used to capture images of an application program screen. (Word Perfect was used to create the text portions of this tutorial.) One advantage of Picture Taker is that you may take a series of pictures under the same filename so that the pictures will automatically be numbered in sequence. However, when using Storyboard on a computer booted up with any version of DOS other than 3.1, this capability is lost.
- The graphics files created by Picture Maker and stored with a ".pic" extension take up a lot of memory. By the time the Storyteller program is copied onto the diskette, along with the autoexec.bat file to automatically run the program, and all the text files, a limited amount of space remains for graphics files. Therefore, the size of the files must be considered when modifying any portion of the tutorial.

IV. TEST AND EVALUATION

A. PARTICIPANTS

A number of NPS students were asked to use the prototype tutorial. Students with a variety of computing skills were desired in order to get a range of comprehensive critiques. Students varied from final quarter Information Systems majors to new students with little or no computer experience. The wide range of participants was desired to check the tutorial for accuracy as well as readability. Participants were volunteers who completed a critique sheet that gave them room to comment on any or all sections of the tutorial as well as give their overall opinion of the program.

B. RESULTS

The results of the critiques gathered from all participants were quite favorable. Constructive comments were received regarding the wording of certain passages. These passages were revised to improve clarity. Because there were no major organization changes to be made in the test tutorial, revision of the program was not necessary. The critiques resulted in mostly favorable comments, so, the modified prototype became the final tutorial.

V. IMPLEMENTATION

A copy of the revised and finalized program is installed on the network in the Administrative Sciences PC Laboratory. This will allow easy access by all students who will be using the Lab. Approximately 10 diskettes are also available for copying. These diskettes have write protect tabs on them to prevent alterations of the files.

There are no copyright restrictions on this program (other than the restrictions on the IBM Storyboard software), so each student may make a copy of the tutorial from the diskettes provided. The process of copying the tutorial also gives the student a chance to practice what he has learned.

The tutorial on the network has its own subdirectory, so all of the files will be in one area and can easily be copied with global commands.

APPENDIX A

TUTORIAL SOURCE CODE

This appendix contains the source code printed from PC Storyboard software.

09-24-87
13:57 42

PC SYNTAX
Story Listing

Page

Story Name: 09000000

Line	Label	Picture Name or Comment	Display picture usage				Out for	Set Color		Area	From the Picture		To Screen Upper 1,1
			Method	Set	Line	Time		Pal	Back		Upper 1,1	Lower 1,1	
1		POWER	STROPE	UP	000	0.00	1.3		BLA	POST	0.0	20, 71	000
2		POWER ON 1-0	CHOP	OUT-0	000								
3		/0	SPLIT	000	000			LOD			132, 72	200, 173	
4		/color 000	FACE	000									
5		/0	EXPLODE	UP	000						0.72	132, 173	
6		POWER 0	EXPLODE	10-0	000	.5	0	LOD	BLA	FULL			
7													
8		RELEASE	POW	000	000	0.00	1.3	LOD	BLA	POST	0.1	20, 00	000
9		/0		LEFT			.5				0.00	20, 00	000
10		/0		0000			1				0.00	20, 127	000
11		/0	CHOP	OUT-0		000					0.125	20, 125	20, 125
12		/0	POW	UP							0.140	20, 125	000
13		POWER 10	00000000	000	000					FULL			
14		/0	FACE		000	0.00	1.3			POST	132, 100	200, 175	000
15		POWER 0	EXPLODE		000	0.00	1.3	LOD	BLA	FULL			
16		00000000	CHOP	UP		.5	0			POST	00, 0	20, 37	000
17		/0	POW	0000		.5					0.0	00, 37	000
18		/0		LEFT							204, 0	20, 37	000
19		/0	STROPE	000		0.00	1				0.37	20, 100	000
20		/0	SPLIT	OUT-0	000		0.00				0.100	20, 100	000
21		POWER 000	CHOP		000				BLA	POST	0.0	70, 23	000
22		POWER 0	EXPLODE	10-0	000	0	0			FULL			
23													
24	00.00	00000000	000		000	0	0	LOD		FULL			
25		POWER 000	EXPLODE	000	000	.7	0			FULL			
26													
27		/0000											
28		/00 1 0000 00	0000	OUT-0		0.00							
29		/00 2 0000 00	SPLIT	10-0									
30		/00 3 0000 00											
31		/00 4 0000 00											
32		/00 5 0000 00											
33		/00 6 0000 00											
34													
35	PC	0000	EXPLODE	000	000	0	0			POST	0.00	20, 40	000
36		00000000					1				0.113	20, 127	0, 100
37		/0000					0.00			POST	100, 100	200, 177	00, 100
38		POWER				0				FULL			
39		POWER 000	CHOP	OUT-0	000	1.3	.5	LOD	000	POST	0.0	20, 40	000
40		/0	STROPE	000						POST	0.40	20, 40	000
41		/0	EXPLODE	000	000						0.00	00, 100	
42		/0									272, 00	20, 100	000
43		/0	SPLIT	10-0	000						00, 00	00, 100	
44		/0	FACE								00, 100	271, 100	
45		/0	EXPLODE	OUT-0	000						100, 00	271, 107	
46		POWER	FACE	000	000	0.00	1.3			POST	100, 107	200, 197	00, 100
47													
48		POWER 000	CHOP		000	0.00	1.3			POST	0.0	70, 23	000
49		/0	CHOP	OUT-0									
50		/0	EXPLODE	OUT-0									

10-14-81
13:57 42

PC STEVENSON
Story Listing

Page 2

Story Name: 3120000

Line	Label	Picture	Name or Command	Display picture name	Bar	Line	Time	Start	End	Color	Area	From the Picture			To Screen
												Upper 1,7	Lower 1,7	Upper 1,7	
51		4		REPLACE	LEFT										
52		5		REPLACE	LEFT										
53		6		REPLACE											
54		7		REPLACE	20-0										
55		8		REPLACE	20-0										
56		9		REPLACE											
57		10		REPLACE	20-0										
58		11		REPLACE											
59		12		REPLACE	20-0										
60		13		REPLACE	20-0										
61		14		REPLACE	20										
62		15		REPLACE	LEFT										
63		16		REPLACE											
64		17	REPLACE	REPLACE				20		BLK	FULL				
65		18		REPLACE	REPLACE	0	0				FULL	0,00	20,00	0,00	
66		19	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
67		20	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
68		21	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
69		22	REPLACE	REPLACE				0			FULL	0,0	20,100	0,0	
70		23	REPLACE	REPLACE	LEFT	10	0			BLK	FULL	0,0	20,100	0,0	
71		24	REPLACE	REPLACE				0			FULL	20,121	40,121	0,0	
72		25	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
73		26	REPLACE	REPLACE				20			FULL	0,0	70,23	0,0	
74		27	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
75		28	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
76		29	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
77		30	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
78		31	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
79		32	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
80		33	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
81		34	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
82		35	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
83		36	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
84		37	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
85		38	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
86		39	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
87		40	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
88		41	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
89		42	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
90		43	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
91		44	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
92		45	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
93		46	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
94		47	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
95		48	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
96		49	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	
97		50	REPLACE	REPLACE				20			FULL	0,0	70,199	0,0	
98		51	REPLACE	REPLACE				2			FULL	0,113	20,137	0,164	
99		52	REPLACE	REPLACE							FULL	0,119	20,169	0,164	
100		53	REPLACE	REPLACE				20			FULL	100,107	200,197	10,100	

00-1-0-0
13:40:37

PL SIGNUMMAN
Story Listing

Page 3

Story Name: Inthesis

Line	Label	Picture Name or Command	Display picture usage:				Wait for	Set Color		Area	From the Picture		To Screen
			Method	Dir	Line	Time		Pal	Back		Upper X,Y	Lower X,Y	
101		PRESS	SPLIT	SO-H		1	KEY			PART	100,107	235,197	92,190
102		NETWORK.CAP 1	STRIPES		OWN	.5			LINE		0,0	79,23	SAME
103		2	FADE										
104		3	EXPLODE										
105		4	DIAGONAL										
106		5	CROSS										
107		6	CHECKER										
108		7	EXPLODE										
109		8	FADE										
110		9	STRIPES										
111		10	CROSS										
112		11	DIAGONAL										
113		12	CHECKER										
114		13	STRIPES										
115		14	CROSS										
116		15	EXPLODE										
117		/PRESS BACK								BLK			
118													
119	SOFT	WASH	REPLACE	DOWN	NONE	0	0			PART	0,105	319,125	SAME
120		OUTTINY					3				0,113	319,157	0,164
121		/OUTTINY									0,119	319,160	0,164
122		/PRESS					KEY			PART	100,107	235,197	92,190
123		/CLEAR					0			FULL			
124		SOFTSTART	NONE				.5	LOVY	BLK	FULL			
125		/PRESS WASH	EXPLODE	OUT-H	OWN	.3	0						
126		SOFTSTART	NONE				0	KEY					
127		SOFTWARE.CAP 1	EXPLODE	SO-V	CW	.5	KEY			PART	0,0	79,23	SAME
128		/PRESS BACK								BLK			
129													
130	INFO	WASH	REPLACE	DOWN	NONE	0	1			PART	0,125	319,146	SAME
131		OUTTINY					3				0,113	319,157	0,164
132		/OUTTINY									0,119	319,160	0,164
133		/PRESS	REPLACE	RIGHT			KEY			PART	100,107	235,197	92,190
134		/CLEAR					0			FULL			
135		SOFTSTART	NONE				0	LOVY	BLK	FULL			
136		/PRESS WASH	STRIPES		OWN	FAST	.5			FULL			
137		PRESS	FADE	DOWN		0	KEY			PART	100,107	235,197	0,109
138		TYDPL.CAP 1	CHECKER			.5	KEY			PART	0,0	79,23	SAME
139		GLASS	NONE		NONE		0		BLK	FULL			
140		/PRESS NONE					0						
141		PRESS	WAVE				KEY			PART	100,106	235,197	92,183
142		GLASSARY.CAP 1	CHECKER		OWN					PART	0,0	79,23	SAME
143		2	CROSS										
144		3	DIAGONAL										
145		4	EXPLODE										
146		5	FADE										
147		7	REPLACE										
148		8	STRIPES										
149		9	CHECKER										
150		10	CROSS										

08-24-87
15:48:37

PC STORYBOARD
Story Listing

Page 4

Story Name: brthesis

Line	Label	Picture Name or Command	Display picture using:			Unit	Set Color	Area	From the Picture		To Screen
			Method	Dir	Line	Time	Pal	Back	Upper X,Y	Lower X,Y	Upper X,Y
151		11	DIAGONAL								
152		12	EXPLODE								
153		13	FADE								
154		14	REPLACE								
155		15	STRIPES								
156		16	CHECKER								
157		17	CRUSH								
158		18	DIAGONAL								
159		/GOTO MAIN						BLK			
160											
161	END	MAIN	REPLACE	DOWN	NONE	0 0		PART	0,144	319,167	SAME
162		REMEMBER	STRIPES	LEFT	NONE	.5 1		PART	0,62	319,109	0,164
163		WAVES1	NONE			FAST 0					
164		/GOTO WAVES	CHECKER		NONE	FAST 0	LORY	BLK			
165		/END									
166											
167											
168											
169											
170											
171		/S Supplied MACROS									
172		/S Horizontal Swoops									
173	horz	/d		RIGHT				PART	0,0	319,51	SAME
174		/d		LEFT					0,32	319,103	
175		/d		RIGHT					0,104	319,155	
176		/d		LEFT					0,156	319,199	
177		/return (restores FULL)						FULL			
178											
179		/S Vertical Swoops									
180	vert	/d		DOWN				PART	0,0	63,199	
181		/d		UP					64,0	127,199	
182		/d		DOWN					128,0	191,199	
183		/d		UP					192,0	255,199	
184		/d		DOWN					256,0	319,199	
185		/return (from VERT)						FULL			
186											
187		/S Random Boxes									
188	boxes	/d						PART	160,32	239,104	SAME
189		/d							0,0	79,52	
190		/d							0,104	79,156	
191		/d							80,156	139,199	
192		/d							240,156	319,199	
193		/d							240,0	319,51	
194		/d							240,104	319,155	
195		/d							80,0	139,51	
196		/d							80,104	139,155	
197		/d							0,32	79,103	
198		/d							160,104	239,155	
199		/d							240,32	319,103	
200		/d							80,52	139,103	

00-24-87
15:48:37

PC STORYBOARD
Story Listing

Page 5

Story Name: bithesis

Line	Label	Picture Name or Command	Method	Dir	Display picture usings		Unit	Set	Color	Back	Area	From the Picture		To Screen
					Line	Time		Pal				Upper X,Y	Lower X,Y	Upper X,Y
201		/d										0,136	79,199	
202		/d										160,136	239,199	
203		/d										160,0	239,31	
204		/return (from BOXES)									FULL			
205														
206		/S Around Perimeter												
207	round	/d									PART	0,0	63,31	NONE
208		/d										64,0	127,31	
209		/d										128,0	191,31	
210		/d										192,0	255,31	
211		/d										256,0	319,31	
212		/d										256,32	319,100	
213		/d										256,104	319,135	
214		/d										256,136	319,199	
215		/d										192,136	255,199	
216		/d										128,136	191,199	
217		/d										64,136	127,199	
218		/d										0,136	63,199	
219		/d										0,104	63,135	
220		/d										0,32	63,100	
221		/d										64,32	127,100	
222		/d										128,32	191,100	
223		/d										192,32	255,100	
224		/d										192,104	255,135	
225		/d										128,104	191,135	
226		/d										64,104	127,135	
227		/return (from ROUND)									FULL			
228														
229	NINE	/D	REPLACE	RIGHT	OWN	.5	0				PART	0,0	319,6	NONE
230		/D		DOWN								316,0	319,199	
231		/D		LEFT								0,193	319,199	
232		/D		UP								0,0	3,199	
233		/D	SPLIT	OUT-H		1	1					164,24	309,133	
234		/D	FADE	DOWN	NINE	1	.5				FULL	0,6	163,199	
235		/RETURN									FULL			
236														
237	waves	WAVES1 (Run 8 cycles)	CHECKER	UP	BACK	2	0	LCRD			FULL	48,30	191,175	130,0
238		/goonb wave4												
239		/Sgoonb wave4												
240		/return												
241	wave4	/goonb xl												
242		/goonb xl												
243		/goonb xl												
244		/goonb xl												
245		/return												
246	xl	WAVES2 Load animation	REPLACE	RIGHT	NINE	0	0				PART	12,149	56,175	48,30
247		/d changes and										0,0	319,7	0,100
248		/d display each										144,147	211,100	100,7
249		/d quickly enough										0,0	319,13	0,100
250		/d to give										88,131	131,177	48,30

08-24-87
15:08:37

PC STORYBOARD
Story Listing

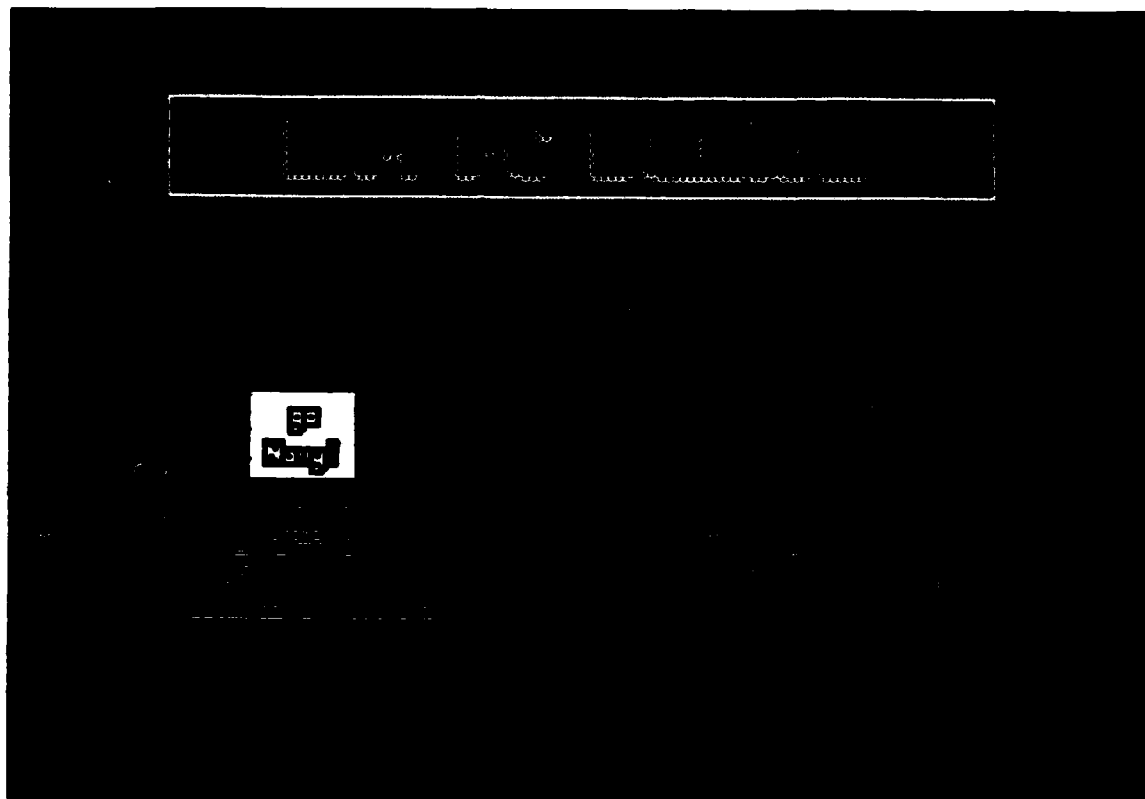
Page 6

Story Name: b:thesis

Line	Label	Picture Name or Command	Method	Dir	Display picture using:		Wait for	Set Color		Area	From the Picture		To Screen Upper X,Y
					Line	Time		Pal	Back		Upper X,Y	Lower X,Y	
251	/d	appearance of									0,16	219,23	0,100
252	/d	motion.									144,175	211,196	100,7
253	/d										0,24	219,31	0,100
254	/d										20,132	63,170	0,100
255	/d										0,32	219,39	0,100
256	/d										228,147	295,160	100,7
257	/d										0,40	219,47	0,100
258	/d										96,136	129,182	0,100
259	/d										0,48	219,55	0,100
260	/d										228,175	295,196	100,7
261	/d										0,56	219,63	0,100
262	/d										0,64	219,71	0,100
263	/d										0,72	219,79	0,100
264	/d										92,133	125,179	0,100
265	/d										0,80	219,87	0,100
266	/d										0,88	219,95	0,100
267	/d										0,96	219,103	0,100
268	/d										0,104	219,111	0,100
269	/d										98,130	131,176	0,100
270	/d										0,112	219,119	0,100
271	/d										0,120	219,127	0,100
272	/d										0,128	219,135	0,100
273	/d										0,136	219,143	0,100
274	/return	(1 cycle done)											

APPENDIX B THE TUTORIAL

This appendix contains the actual screen printout of each "page" of the tutorial.



WELCOME

to the

Administrative Sciences Personal Computer Lab.

The computers in this lab are for your use. Their purpose is to help you, but you have to know how to communicate with them; how to

"speak their language".

This tutorial is one of many aids available to help you get started.

About this Tutorial

Press any key to continue

The main topics discussed in the modules of this tutorial are:

- 1) IBM PC BASICS - this module defines the basic components of the computer and how you will use them.
- 2) DOS - this module explains what an operating system does, how to make it work for you, and describes some commands that you may find useful.
- 3) THE PC LOCAL AREA NETWORK - this module describes the basics of a computer network and how to access the local area network in the Administrative Sciences Lab.
- 4) SOFTWARE ON THE NETWORK - this module categorizes the software available on the network and lists all of the software packages by name.
- 5) FOR MORE INFORMATION - this module lists the available documents that cover all of the above areas in greater detail. Also includes a glossary of computer terms.
- 6) QUIT - gets you out of the tutorial and back to DOS.

press SPACE bar to continue

(page 1 of 1)

MAIN MENU

- 1. IBM PC Basics
- 2. DOS
- 3. Local Area Network
- 4. Software on the Network
- 5. For More Information
- Q. Quit the tutorial

IBM PC Basics

Drives

System
Unit

Peripherals

R
O
M

1) RAM

RAM stands for random-access memory. It is also called read/write memory. RAM is the memory internal to the central processing circuitry where program instructions (software) and program results are temporarily stored. The contents of a memory location in RAM can be changed by the software. RAM is used to store programs and information only while the computer is operating. The user's software can add to and change anything stored in RAM, but when power is turned off, RAM is erased.

SPACE=next page ESC=quit /MAIN=go to main menu (page 1 of 16)

2) ROM

ROM stands for read-only memory. It consists of integrated circuit chips which are electronically pre-programmed and contain information to start and run the computer. The information in these chips cannot be altered by the computer or the user.

SPACE=next page ESC=quit /MAIN=go to main menu (page 2 of 16)

3) DISK DRIVES

Disk Drives are mechanisms that read and write information to and from magnetizable plastic disks. Most computers have one or two drives that read flat, flexible disks called floppy disks. Some computers have hard drives that work with a cylindrical hard disk (see the section on Peripherals for more information on disks and diskettes). The drive which is being automatically accessed is called the "default" or "current" drive. When you refer to a file name without specifying a drive label, the computer assumes the file can be found on the default drive (see filenames in the DOS section).

SPACE=exit page REC=quit /MAIN=go to main menu (page 3 of 16)

In order to remind you which drive is the default drive, the operating system uses a "prompt."

The prompt for the IBM PC is the letter of the default drive followed by a greater than sign: A> for example (see prompts in the DOS section). There are normal conventions for naming drives:

- the first floppy drive is the A drive;
- if there is a second floppy, it is the B drive;
- a hard disk is normally labelled the C drive.

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The computers in the Administrative Sciences lab use other letters to refer to drives on the network and network server computers (see The Local Area Network section).

In order to change default drives just type in the letter of the drive you want (either upper or lower case letters) followed by a colon. The prompt will change to show the new default drive.

Example:

prompt shown:	type in:	result:
A>, B>, or C>	<u>C: <CR></u>	<u>C></u>
	<u>B: <CR></u>	<u>B></u>

SPACE=next page ESC=quit /MAIN=go to main menu (page 5 of 16)

4) SYSTEM UNIT

The system unit consists of an internal circuit board connected through other circuit boards containing input/output ports to components such as:

The Central Processing Unit (CPU) - the heart of the computer. Every instruction must be examined and acted on by the CPU before it can be carried out.

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Input/Output Devices - used to get the necessary information into and out of the computer. Examples of input devices include the keyboard, mouse, voice input devices, and disk drives; output devices include cathode-ray tubes (CRT), disk drives, plotters, and printers. In the lab, most input will be via the keyboard and disk drives; most output will be via printers and the CRT.

Clock - a device, usually based on a quartz crystal, that emits regular pulses used to coordinate the computer's operations.

SPACE=next page ESC=quit /MAIN=go to main menu (page 7 of 16)

Power Supply - a device for converting external alternating current into the direct-current voltages needed to run the computer's electronic circuits.

Dip Switches - a series of toggle switches inside the system unit that are used to tell the CPU various kinds of information, such as the amount of memory or the type of monitor that is in use with that particular computer system.

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5) PERIPHERALS

The Cathode-Ray Tube (CRT)

In order to see what is being entered into the computer, a device is needed to show what you have typed. Some machines use printers for this purpose, but the most common device is a cathode-ray tube, or CRT. The CRT (or monitor) simply displays what information is going into or coming from the computer.

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Disks and Diskettes

Floppy disks (diskettes) are warehouses that the PC uses to store programs and data for future use. Diskettes are inexpensive and hold large amounts of data that the PC can access rapidly. Unfortunately, they have one major problem: they are easily damaged. Keeping extra copies of information on more than one diskette is important. This is called backing up your diskettes. This is a good habit to develop to save yourself time and frustration if one of your diskettes is damaged.

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Hard disks hold information just like floppy diskettes. Unlike diskettes, however, they are not removable. They are also called Winchester disks. They consist of hard platters that hold much more information than a diskette. They can also access information much faster, since they physically spin faster than diskette drives.

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Modem

Modem is short for modulator/demodulator. It is a device that enables data to be transmitted between computers, generally over telephone lines, but sometimes using fiber-optic cables or radio frequencies. Another way to transmit data is to directly connect the computers together with wire. This is how the computers in the Administrative Sciences Lab are connected. (See the section on the local area network).

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The Keyboard

This is the primary way we communicate with the computer.
The most often used keys are described below:

Alphanumeric keys - the regular typewriter keyboard and number keys above the letters.

Numeric keypad - the set of keys to the right of the keyboard that can be used to enter numbers when the "Num Lock" key is depressed, or to direct the cursor (see arrow keys).

Function Keys (labelled F1-F10) - programmed to do certain functions, depending on the software being used.

SPACE=next page ESC=quit /MAIN=go to main menu (page 13 of 16)

Esc - can be used to "escape" from the current activity. This key is dependent on the software being used.

Alt - used with other keys to perform a certain function (for instance pressing Ctrl, Alt and Del simultaneously will reset the computer).

Ctrl - the control key is also used with other keys to perform certain functions.

Note: both the Alt and Ctrl keys work like the Shift key in that they are used in conjunction with other keys and must be held down while the other key is pressed.

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PrtSc - can be used with the Shift key to send the information on the screen to the printer.

Backspace - backs the cursor up one space. Sometimes this will delete the last character typed, sometimes it will back up without deleting the character. This depends on the software.

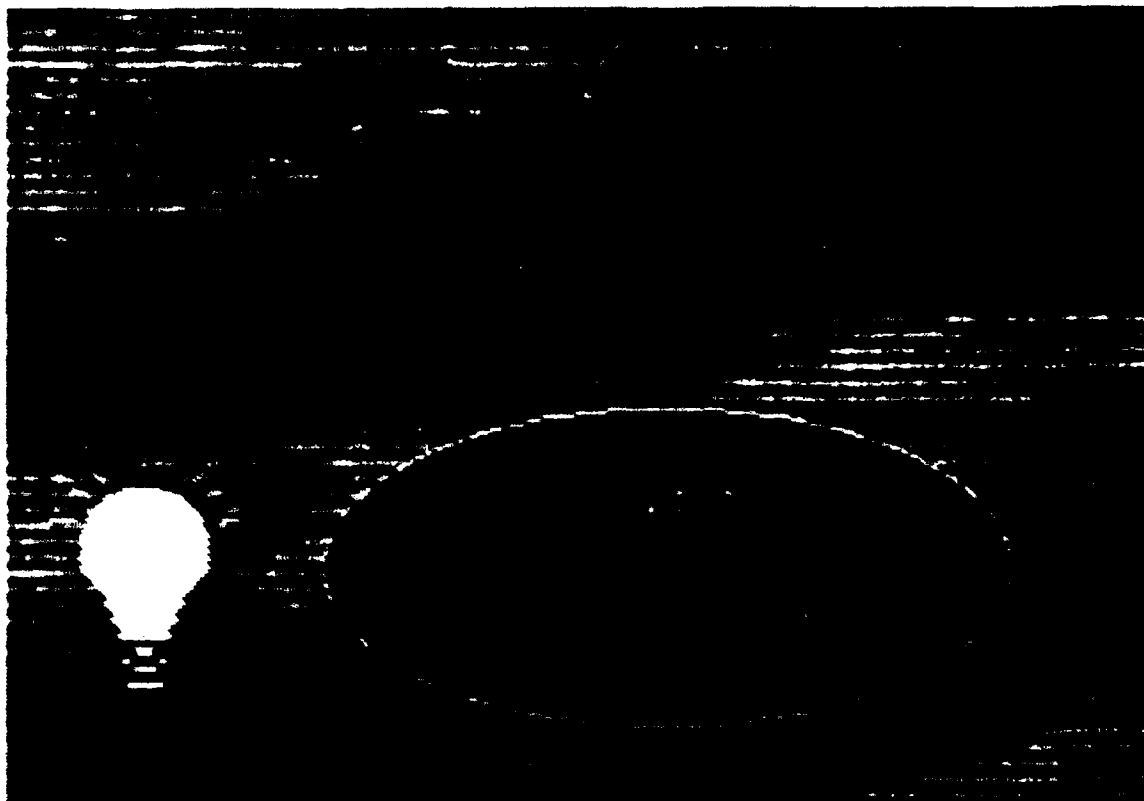
Arrow keys - called "cursor control keys," these 4 keys move the cursor one space or one line in the direction indicated. They are only operational when the Num Lock key is not on.

SPACE=next page ESC=quit /MAIN=go to main menu (page 15 of 16)

Enter/Carriage Return - works like a return key on the typewriter--moves the cursor to the left-most position, one line down from where you were when you hit it.

Caps Lock - locks all letters typed into capital mode. Does not have any affect on the top row of number keys and the symbols above them. The Shift key must still be used to access these symbols.

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THE OPERATING SYSTEM

An Operating System is a program which acts as an interface between a user of a computer and the computer hardware. The purpose of an operating system is to provide an environment in which a user may execute programs. The primary goal of an operating system is thus to make the computer system convenient to use. A secondary goal is to use the computer hardware in an efficient manner. It provides an environment within which other programs can do useful work.

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IBM PC-DOS is the name of the operating system that controls the IBM Personal computer. It is IBM's version of MS-DOS, created by MicroSoft (thus the "MS").

Other operating systems you may have heard of include: VM/CMS (on the IBM 3033 here at NPS), AppleDOS, C/PM, Unix, and Z-DOS.

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FILENAMES

All files residing on disks and diskettes must have unique filenames. There are conventions that must be followed when naming these files.

An example of a complete filename is:

"a:memo.txt"

where a: is the drive specifier,
 memo is the filename, and
 .txt is the extension.

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The first part of a filename is the drive specifier. This tells DOS which drive the file resides on. If the default drive (the drive that is currently being accessed) is the drive you want, this can be omitted.

The filename must be from 1 to 8 characters long, with no spaces. Normally the name describes the contents of the file.

The extension must be from 0 to 3 characters long. Normally the extension describes the type of file it is.

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Both the filename and extension can consist of any of the letters of the alphabet, the numbers 0 through 9 or the following characters:

() ! @ # \$ % ^ & () -

You may not use these characters in a filename or extension:

: . / *

because they have a special meaning to DOS.

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The file extension is optional, but is very useful for indicating what type of data is contained in the file. The following are extensions that have a particular meaning to DOS and may be used to describe that type of file:

<u>.bak</u> - a BACKUP of another file	<u>.lib</u> - a LIBRARY file
<u>.bas</u> - a BASIC program	<u>.lad</u> - a LIST file
<u>.bat</u> - a BATCH file	<u>.obj</u> - an OBJECT file
<u>.com</u> - an external COMMAND file	<u>.\$\$\$</u> - DOS-provided extension
<u>.exe</u> - an EXECUTABLE file	for files which
<u>.hex</u> - a HEXADECIMAL file	encounter problems

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PROMPTS

In order for DOS to let you know it is ready to accept input from the keyboard, it displays a system "prompt". This prompt is a letter with a greater than sign following it (for example, "A>"). The letter specifies which drive is the "default" drive. This means that you are currently able to access the files on that particular drive. You may change drives by typing a new letter followed by a colon and then a carriage return. (See Drives in the section titled "IBM PC Basics".)

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DOS COMMANDS

Specific words that are typed at the system prompt to tell the computer what to do are called "commands". Some of these are "internal" which means they are always available when at the system prompt (regardless of which drive is current). Other commands that are "external" to the system reside on a DOS diskette, or on the hard drive. You must specify the drive on which the command's file resides unless the file is on the default drive. A few useful commands (some external, some internal) are described ahead. You can learn about the others by referring to one of the references discussed in "For More Information".

SPACE=next page ESC=quit /MAIN=go to main menu (page 8 of 15)

Directory (DIR)

Typing DIR will give you a list of the files residing on the current drive. DIR followed by another drive letter and a colon (DIR B:) will list the files on that drive. If the list is longer than the length of the screen, DOS will automatically scroll to the end of the list. In order to see 25 files at a time, you may type "DIR/P" to "pause" between pages (and then type any key to continue the list). Or, you may get a "wide" list by typing "DIR /W", which lines up the files in columns across the screen.

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Copy (COPY)

The copy command is used to copy files from one disk to another or onto the same diskette under a different name. For example, at the prompt type:

copy oldfilename newfilename

(to copy the file onto the same disk but with a different name)

copy filename b:

(to copy the file from the current drive onto B: (same name))

copy b: filename

(to copy a file from B: onto the current drive (same name))

SPACE=next page ESC=quit /MAIN=go to main menu (page 10 of 15)

Erase/Delete

You may erase a file residing on one of the drives simply by typing "ERASE" or "DEL" (for delete) and the name of the file. If the file you want to delete is on a drive other than the current drive, simply precede the file name by the drive letter and a colon.

Examples:

```
A>erase filename.ext or
A>erase b:filename.ext or
B>del filename.ext.
```

SPACE=next page ESC=quit /MAIN=go to main menu (page 11 of 15)

Note:

You can use global or wildcard characters (* and ? respectively) when using the previously discussed commands. This is helpful if you don't remember the exact filename, or you want to do something to all files of one type.

* Represents a variable character string.

? Represents a variable character in a specific location.

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Examples:

copy *.* b: will copy all files on the current
drive to drive B:

delete *.bak will delete all files on the current drive
with the .bak extension. (See file names
for more information on extensions.)

dir memo??.* will list all files on the current
drive that start with the 4 letters "memo"
and have the .bak extension, regardless of
what is in the 7th and 8th position of the
filename.

SPACE=next page ESC=quit /MAIN=go to main menu (page 13 of 15)

FORMAT

In order for a disk to be recognized by the operating system, it must be formatted. Generally, the only time you will need to format disks is when you have new, blank diskettes. Formatting performs the following functions:

- initializes the directory
- allows you to assign a volume label
- checks for defective tracks
- erases any data currently existing on the disk

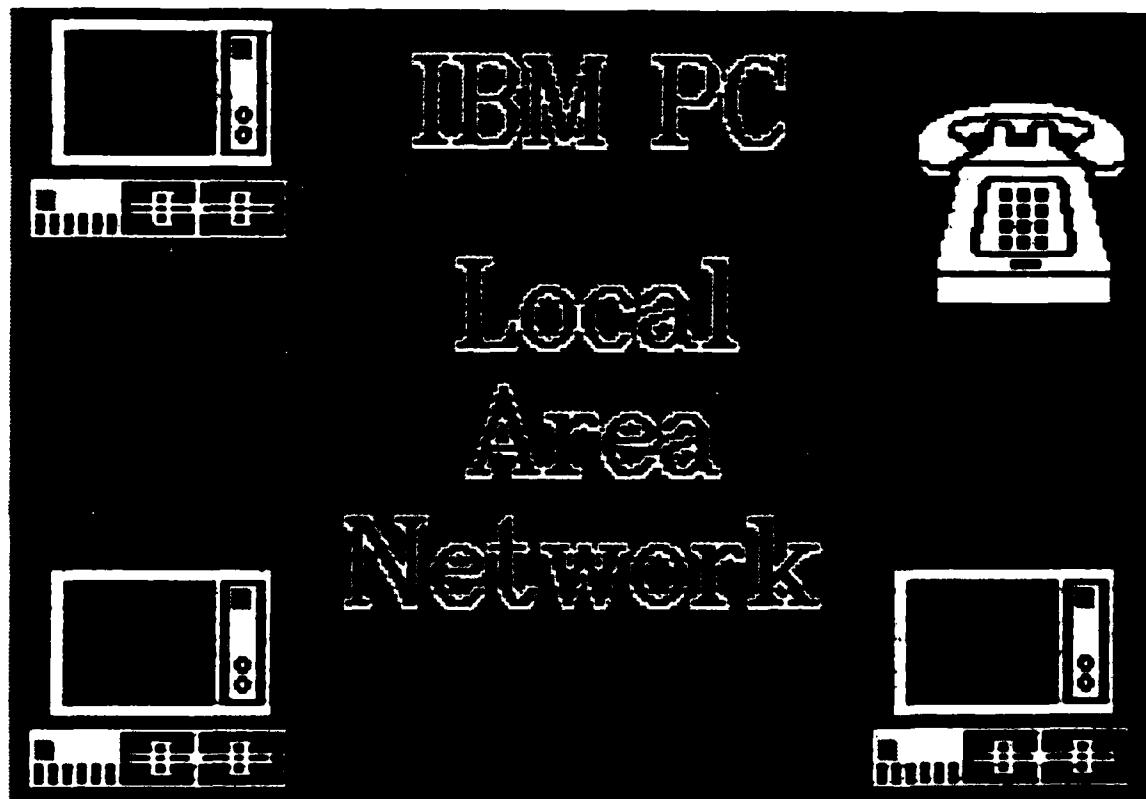
SPACE=next page ESC=quit /MAIN=go to main menu (page 14 of 15)

The basic format command is:

`format a:`

This command will give you a double-sided, 9 sector non-system disk. If you want to be able to "boot" up the system with this disk in the A drive, then you add the parameter `"/s"` (`format a:/s`) after the drive letter to install the operating system on the disk. Remember, a disk that has not been formatted will not be recognized by the PC, so be sure to format all disks before you try to save any files on them.

SPACE-next page ESC-quit /MAIN-go to main menu (page 15 of 15)



THE NETWORK

The PCs in this lab are all "connected" to each other by cable and can "talk" via the IBM PC Local Area Network (LAN) program and hardware. The network consists of hardware (computers, translator units, circuit boards, modems, etc.) and software (DOS 3.2, PC LAN Program) that, when operating together, allow all the computers to communicate with each other.

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By accessing the network you can have the following capabilities:

- share files and software stored on the hard disk of the server
- transfer files between PCs
- send and receive messages
- use the network printers
- share devices and directories with other computers
- interrupt the application program you are using to access the network's functions and then easily return to what you were doing
- check the print queue on a network printer

SPACE=next page ESC=quit /MAIN=go to main menu (page 2 of 15)

1) Terms that are used when referring to networks

Network - A group of computers connected through adapters and cables.

Local Area Network (LAN) - A network of computers located within the same general area.

Server - The main computer of a LAN (an IBM PC-AT in this Lab) that contains the control unit and usually stores all the accessible software on its hard drive.

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Data files - Files containing an individual's information. As opposed to keeping each person's data on the server's hard drive with the software, people should keep their own diskettes with their individual files on them.

Application directory - A subdirectory on the server that contains a listing of the applications software available to all computers on the network.

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Device Names - Each computer and printer on the network must have a name that the network recognizes. When sending files to a printer or sending messages to another computer these names must be used to direct the information.

Printer Queue - The waiting line for items to be serviced. Files are sent to the printer and wait in the queue before it is their turn to be printed out. (This is necessary because the CPU can process data faster than the printer can print it.)

SPACE=next page ESC=quit /MAIN=go to main menu (page 5 of 15)

2) TO ACCESS THE NETWORK

In order to start the system with the network, place the diskette you will find on the top of the desk where the user computer is located in the A: drive and turn on the computer. This will start the system from that diskette which has the Network Program on it. Now you may use the computer as you wish and the Network Program will be accessible.

To access the PC LAN Program menu, press the CTRL-ALT-BREAK keys simultaneously. This will give you the LAN's Main Menu for Task Selection. Press the number of the task you want to access and then hit enter. Here is a brief description of what each task will do:

SPACE=next page ESC=quit /MAIN=go to main menu (page 6 of 15)

1. Message Tasks

- send and receive messages
- save messages
- forward messages to another computer
- receive forwarded messages from another computer
- receive messages for another name
- view the names of the computers from which you can receive messages

SPACE=next page ESC=quit /MAIN=go to main menu (page 7 of 15)

2. Printer Tasks

- access the network printer
- print a file (send a file to the print queue and/or check the queue)
- display the list of devices you can access

3. Disk or Directory Tasks

- use the network disk or directory
- display the list of devices you can access

SPACE=next page ESC=quit /MAIN=go to main menu (page 8 of 15)

4. Network Status Tasks

- check the print queues
- display network devices
- display name of your computer

5. Pause and Continue Tasks

- temporarily stop using a printer, disk, or directory
- temporarily stop receiving messages
- start any of the above again

(these tasks apply to the server computer only, not to the user computers)

SPACE=next page ESC=quit /MAIN=go to main menu (page 9 of 15)

6. Save and Cancel Network Setup

- change the configuration of the Network (to be done by the staff only)

7. Help

- Press the F1 key to get the help menu.

To go back to what you were doing outside the PC LAN Program, type CTRL and BREAK simultaneously or, keep hitting ESC to go back to the main menu, then hit ESC one more time, and then Enter to confirm.

SPACE=next page ESC=quit /MAIN=go to main menu (page 10 of 15)

1) USING A NETWORK PRINTER

One of the ways to print a file is to use a printer attached to the server that you are connected to. If someone else has already sent a file to be printed, your file will be sent to the queue. Files sent to the network printer need an end-of-file (EOF) indicator before the printer will recognize that it should start printing. Press Ctrl-Alt-PrtSc all at the same time to give the printer the EOF indicator.

SPACE=next page ESC=quit /MAIN=go to main menu (page 11 of 15)

To see if your file has successfully been sent to the printer, you can check the print queue. If your file is not listed in the queue, you must re-send the file. After the file has been sent, type Ctrl-Alt-PrtSc again to indicate to the printer that your file is ready for printing.

SPACE=next page ESC=quit /MAIN=go to main menu (page 12 of 15)

4) TO ACCESS SOFTWARE FROM THE NETWORK

From the "1DIR" menu, at the E> prompt, type L:" to change to the L drive. Press Enter to confirm, as instructed. Now you have the directory of files and subdirectories on the L: drive (which is from the server that was accessed by your PC LAN diskette when you booted up your computer). If you want to access DOS commands in the DOS subdirectory, move the select cursor (with the arrow keys) to DOS and press ENTER (and ENTER again a second time to confirm). You are now in the DOS subdirectory and have access to all DOS commands. To get back to the L: directory, place the select cursor at "Previous Dir" and hit ENTER twice.

SPACE-next page ESC-quit /MAIN-go to main menu (page 13 of 15)

To access Word Processing packages, hit the down arrow key until Select points to WRD_PROC and press ENTER twice. You now have access to the word processing subdirectories. Choose whichever word processor you like in the same manner as you choose WRD_PROC. (See the section titled Software on the Network for a list of all software packages available).

SPACE=next page ESC=quit /MAIN=go to main menu (page 14 of 15)

5) TO USE THE PC AS A STAND-ALONE COMPUTER

Put the diskette you want to use in Drive A:. At the E> prompt on the "1DIR" menu, type A: to change to drive A. The "1DIR" menu will now list all the files on the diskette in Drive A. You simply move the Select cursor to the file you want to access and press ENTER twice.

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SOFTWARE



**The following software packages
are available for your use
on the network**

Press any key to continue

Type:

Name:

Word Processing:

WordPerfect

Database Management:

dBase II and III+

Spread Sheet/Electronic Calculator:

SuperCalc

Artificial Intelligence/DSS:

EXSYS and M1

Statistics Packages:

SPSS and Minitab

Programming Languages:

PASCAL and BASIC

press SPACE bar to continue

(page 1 of 1)



The following written or computer based references are available here at NPS (ask your instructor where they are kept):

IBM Personal Computer -

Learning About the IBM PC (a diskette)

DOS -

PC-DOS Manual for the IBM PC

Software Packages -

Software Documentation for each package

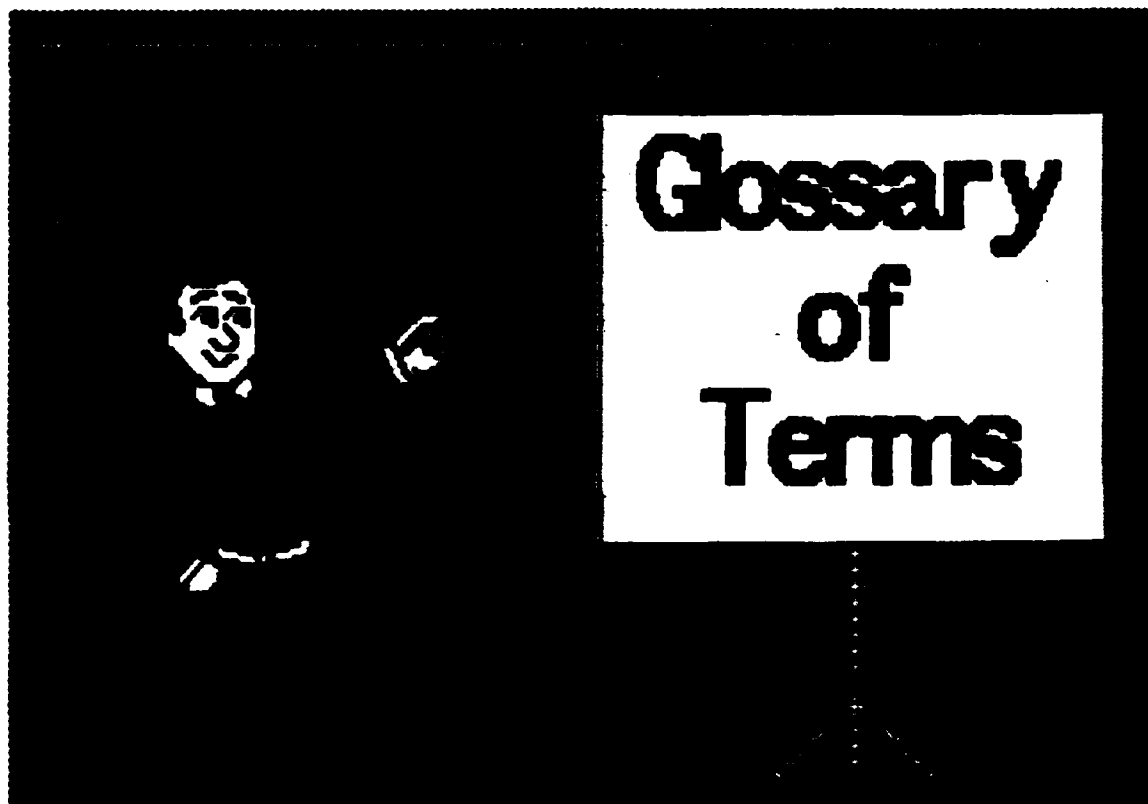
Network -

IBM PC Local Area Network Program Documentation

Hardcopy tutorial for the network and help screens

press SPACE bar to continue

(page 1 of 1)



Glossary of Terms

Application Program: A program written for a specific use (application), such as an accounting package.

Artificial Intelligence: The study of computer techniques to supplement the intellectual capabilities of humans. The research and study in methods of developing a machine that can improve its own operations or can perform functions normally associated with human intelligence such as reasoning, adapting, or learning.

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ASCII: The acronym for American Standard Code for Information Interchange. This is the standard 8-bit information code used with most computers.

Boot: To automatically take a program from a disk or diskette, load it into memory and run it. The program is almost always the operating system.

Compiled: A program that has been permanently converted into machine code. Machine code is composed entirely of 1's and 0's and is the only code a computer can read by itself.

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Copy Protected: A program or diskette that has been modified so that it cannot be copied. Copy protection is usually used as a means of preventing unauthorized copying and/or sales of application programs.

Cursor: A visual marker that tells you where you are on the video screen. The cursor is used extensively in application packages such as word processing. It can be moved around on the screen by using the arrow keys, and various other keys, depending on the program being run.

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CRT: Cathode-Ray Tube. The monitor (also called screen, display, or terminal) attached to a computer.

Data processing: The execution of systematic operations performed on data using sets of defined rules and procedures. Data processing has evolved as a general term for using computers in business and other applications.

Default Drive: The drive presently under control of the operating system. Also referred to as the logged or current drive.

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DOS: The acronym for Disk Operating System. The set of programs on a diskette or hard drive made up especially for a particular system and that provides the system with its operating capabilities.

DIR: The DOS command that indicates you want to see the directory of files on the drive specified.

Disk: A piece of metal or plastic to which a magnetizable coating has been applied and is capable of storing bits of data accessed by a computer.

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File: A collection of records in a computer system where data is stored.

File Name: A tag used to identify a file. It often describes the file's contents.

Fixed Disk: Also called a hard drive or Winchester Drive. Non-removable disks used in microcomputers as well as minicomputers and mainframes. They have generally faster access to data and hold more of it than a floppy disk.

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Floppy Disk: Also called a diskette. Usually refers to magnetic storage medium that uses a 5 and 1/4" flexible disk to provide random access storage for 300,000 or more bytes. The removable disk is mostly used in mini and microcomputers.

Format: A means by which parts, dimensional data, type of system, number of digits, and other functions for a particular application can be denoted.

Global Characters: Characters (* and ?) used to represent a group, or string of filename characters.

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Hardware: The physical components of a computer system, including all electronic and electromechanical devices and connections.

Memory: An area the computer uses to store data and/or the program it is using. A computer copies a program from a hard drive or diskette and loads it into its memory.

Modem: A device that allows one computer to communicate with another computer via telephone lines.

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Network: An interconnected combination of computers, printers, and other devices used to provide a communications path between two or more points. An assemblage of components usually containing many similar elements and devoted to a common function.

Non-system Disk: (Non-bootable) Floppy disks which do not contain the hidden files needed to boot up the computer. They are entirely dependent on the operating system already being loaded into the computer.

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Off-the-Shelf: Pertains to the hardware or software that can be purchased in ready-to-use form from a dealer.

Operating System: A set of instructions/programs designed to manage the resources of a system and serve as an intermediary between the user and the hardware.

Peripheral: Any device connected to the computer and dependent on the computer for operational instructions, such as a printer or a modem.

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Pixel (Picture Element): One of the tiny dots that makes up the characters or graphics displayed on the monitor screen. The more pixels there are per character, the finer the detail (higher resolution).

Program: A set of instructions that perform a task or tasks.

Prompt: A symbol that says the system is awaiting operator's entry or response.

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Reboot: To restart the computer when it is already turned on. This is done by pressing the Ctrl key, the Alt key and the Del keys.

RAM: The acronym for Random Access Memory. This is temporary internal memory that can be both read from and written to. As soon as the system is rebooted or turned off, the data that was in RAM is gone.

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ROM: Acronym for Read Only Memory. This is permanently stored memory inside a computer that contains instructions on how to access the drives, video screen, ports, etc. It is not erased when the power is turned off. ROM cannot be written to, only read from.

Scrolling: Advancing the display on the video screen so that new lines constantly come into view and old ones disappear. You can scroll toward the bottom of a file (so that you can read the file in a normal top to bottom manner), or you can scroll backwards toward the top of a file.

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Sector: The smallest area of a disk which can be read or written by DOS. Depending on the operating system, there are generally 8 or 9 sectors per track on an MS-DOS disk. (See Track).

Spreadsheet program: A "super calculator" program, that provides you with a giant electronic grid that functions analogously to the traditional spreadsheet. When you change the values of numbers in one of the cells, the program automatically calculates what effect, if any, there is on all the other numbers.

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Software: Instructions that are read and used by the system, enabling it to perform desired functions. The programs, routines, languages, and procedures used in a computer system. Software items include assemblers, generators, subroutines, compilers, and operating systems.

Syntax: A model to indicate required and optional characters needed to enter a command instruction from the keyboard.

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Text editor: The software that provides the user with a source text generation system. The text editor permits the stored text statements to be altered at any time. The user can insert, delete, or replace lines of text. Some systems also allow editing on a word or character basis (as opposed to line basis).

Track: A ring (or cylinder) on a disk containing a preset number of sectors. An MS-DOS diskette has 40 tracks per side.

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Utility Programs: Programs that perform system-related rather than data-related functions (e.g., copy and format programs, input/output configuration programs, etc.).

Word Processing: Operations that include information retrieval, management of information, text editing, typesetting, etc.

Working Storage: Also called memory, that area of the computer set aside for fast access of data.

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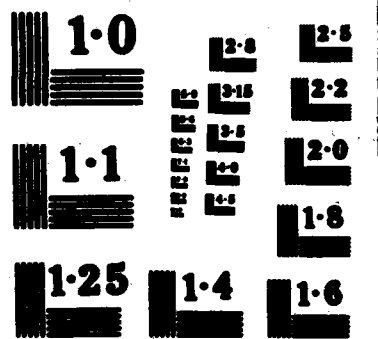
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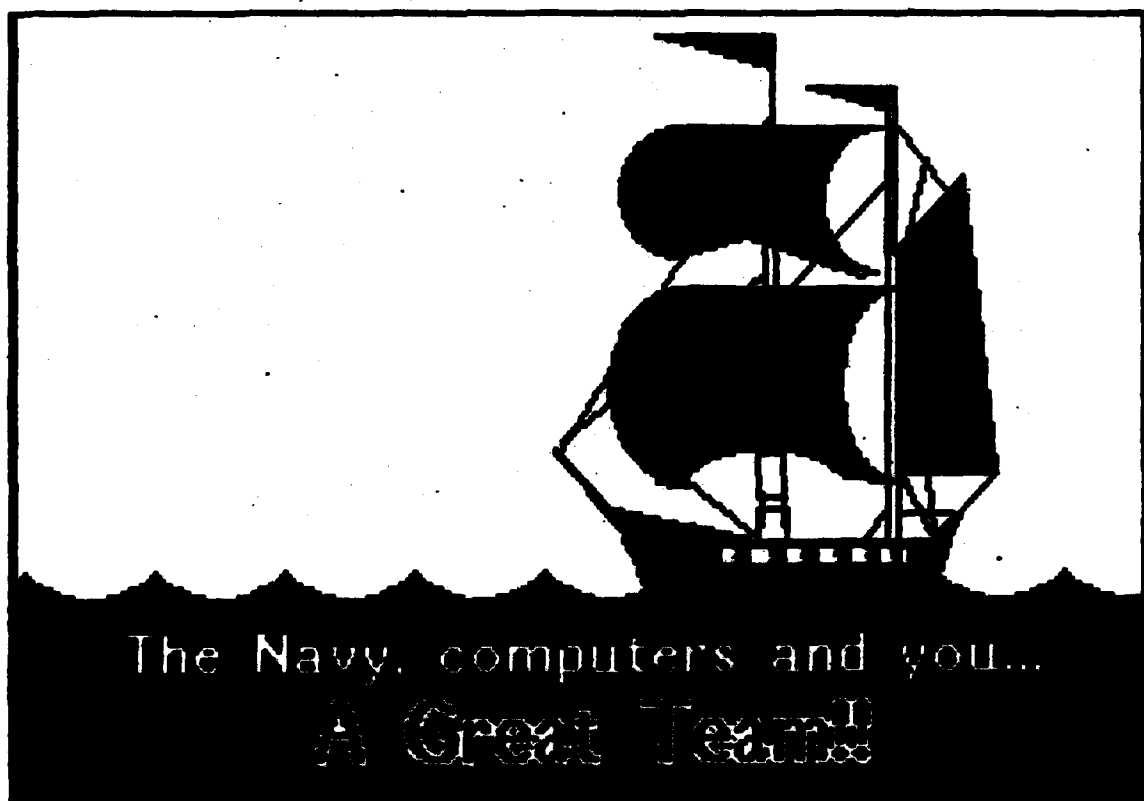
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APPENDIX C

FILES ON THE TUTORIAL DISK

The following is a list of the files that are used to run the tutorial, and an explanation of each:

PICTURE FILES CREATED WITH PICTURE MAKER

ABOUT1.PIC tells what the tutorial is about
DOSTART1.PIC starts the DOS section
DOSTART2.PIC is the blinking "DOS" used with DOSTART1.PIC
FYISTART.PIC starts the For More Information section
GLOSS.PIC starts the Glossary
MAIN1.PIC is the overlay when section 1 is selected
MAIN2.PIC is the overlay when section 2 is selected
MAIN3.PIC is the overlay when section 3 is selected
MAIN4.PIC is the overlay when section 4 is selected
MAIN5.PIC is the overlay when section 5 is selected
MAINMENU.PIC is the Main Menu
MAINQ.PIC is the overlay when Quit is selected
NETSTART.PIC is the start of the Network section
PCOVER.PIC is the Title page
PCSTART.PIC starts the IBM PC section
PRESS.PIC is the overlay for Press any key to continue
QUITINST.PIC is the overlay to tell how to quit
REMEMBER.PIC is the overlay at end of tutorial
SOFTSTAR.PIC starts the Software section
WAVES1.PIC is the final picture of the ship
WAVES2.PIC is parts of WAVES1.PIC repeated
WELCOME.PIC is an introduction screen

TEXT FILES CAPTURED WITH PICTURE TAKER

FYINFO.CAP is the text of For More Information
GLOSSARY.CAP is the text of the Glossary
NETWORK.CAP is the text of the Network section

PCBASICS.CAP is the text of IBM PC Basics
PCDOS.CAP is the text of the DOS section
SOFTWARE.CAP is the text of the Software section
TOPICS.CAP is the text of the Topics covered

OTHER FILES

AUTOEXEC.BAT starts the tutorial automatically
COMMAND.COM is used to boot up the computer
ST.EXE is the Storyteller Program
TUTOR.SH is the file that **ST.EXE** runs

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