Table of Contents

ı.		Getting started	1	
	1.1.	What is an Operating System?		1
	1.2.	Entering the system		3
	1.3.	Leaving the system		5
	1.4.	Editing and running commands		5
	1.5.	Obtaining help		7
	1.6.	Using files		9
	1.7.	Directories		11
	1.8.	Files and data		14
	1.9.	Permissions		15
	1.10.	1.10. Writing a C program in Plan 91.11. The Operating System and your programs		17
	1.11.			19
	1.12.	Where are the files?		20
	1.13.	The Shell, commands, binaries, and system call	S	21
	1.14.	The Operating System and the hardware		22
2.		Programs and Processes	24	
	2.1.	Processes		24
	2.2.	Loaded programs		26
	2.3.	Birth and death		29
	2.4.	Errors		31
	2.5.	Environment		33
	2.6.	Process names and states		35
	2.7.	Debugging		37
	2.8.	Everything is a file!		40
3.	Files		44	
	3.1.	Input/Output		44
	3.2.	Write games		48
	3.3.	Read games		52
	3.4.	Creating and removing files		53
	3.5.	Directory entries		55
	3.6.	Listing files in the shell		60
4.		Parent and Child	64	
	4.1.	Running a new program		64
	4.2.	Process creation		65
	4.3.	Shared or not?		69
	4.4.	Race conditions		72
	4.5.	Executing another program		72
	4.6.	Using both calls		74
	4.7.	Waiting for children		75
	4.8.	Interpreted programs		78
5.	Comunicating Processes		81	
	5.1.	Input/Output redirection		81
	5.2.	Conventions		86
	5.3.	Other redirections		86
	5.4.	Pipes		87
	5.5.	Using pipes		92
	5.6.	Notes and process groups		95
	5.7.	A robust read		99

	7 .0	7771 6"1 1 1 1 1 1 1 1 1	00
	5.8.	The file descriptor bulletin board	99
6.		Network communication	103
	6.1.	Network connections	103
	6.2.	Names	107
	6.3.	Making calls	109
	6.4.	Providing services	112
	6.5.	System services	118
	6.6.	Distributed computing	119
7.		Resources, Files, and Names	120
	7.1.	Resource fork	120
	7.2.	Protecting from notes	122
	7.3.	Environment in shell scripts	124
	7.4.	Independent children	125
	7.5.	Name spaces	126
	7.6.	Device files	130
	7.7.	Unions	132
	7.8.	Changing the name space	133
	7.9.	Using names	135
	7.10.	Sandboxing	136
	7.11.	Distributed computing revisited	138
8.		Using the Shell	142
	8.1.	Programs are tools	142
	8.2.	Lists	143
	8.3.	Simple things	146
	8.4.	Real programs	149
	8.5.	Conditions	153
	8.6.	Editing text	155
	8.7.	Moving files around	159
9.		More tools	162
	9.1.	Regular expressions	162
	9.2.	Searching	165
	9.3.	AWK	166
	9.4.	More complex things	166
9.		Pending	166
	9.1.	Security	166
	9.2.	Concurrent programming	167
	9.3.	User Interfaces	167
	9.4.	Misc	167