Bash Shell Scripting

1- The Linux Environment
- The Origin of Linux
- Files and File Systems
- Directories
- Inodes and Links
- Pipe and Socket Files
- Device Files
- Lab Session

2- Basics of Linux
- Command Basics
- Command-Line Editing
- Multiple Commands
- Multiline Commands
- Command History
- Directory Commands
- Basic file permissions
- Lab Session

3- Working with files and users
- Listing Files
- Getting Help
- Fixing the Display
- Working with Files
- Working with People
- Lab Session

4- Working with Shell
- What is a shell?
- Types of shell
- Shell features
- Shell Aliases
- Customizing Your Prompt
- Built-In Versus Linux Commands
- The Bash Hash Table
- The Set and Shopt Commands
- Key Binding
- Lab Session

5- Script Basics
- Which shell?
- Recommended shell
- Pseudo code before writing shell script

- Creating a Script
- Magic Sha−Bang
- How to execute a script
- Exit status
- Shell Debugging Features
- Lab Session

6- Variables
- Introduction to Variables
- Variable Assignment
- Displaying and using variables
- Variable Attributes
- Quoting Variables
- Escape Characters
- The eval Command
- Concatenation and sub-strings
- Lab Session

7- Array variables
- Creating array Variable
- Substituting and counting
- Using integer variables as element numbers
- Lab Session

8- User Input
- Reading user input
- Positional parameters
- Creating positional parameters
- Lab Session

9- Designing Program Output
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- Terminal echo
- I/O Redirection
- Pipe and tee
- Lab Session

10- Managing input and output
- File descriptors
- Reading / writing using file descriptors
- Redirecting, parameter lists and 'here' documents
- Creating parameter lists from input lines
- Lab Session

11- Shell arithmetic
- Creating Integer Variables
- Using arithmetic operators and data
- Lab Session

12- Branching and logic testing
- Logic testing
- Conditional operators
- Multi-way branching and the 'case' statement
- Lab Session

13- Shell patterns
- Basic expressions
- Regular expressions
- Meta-characters
- Pattern combinations
- Using Character Classes
- The grep and egrep command
- Lab Session

14- Looping
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- The 'until' loop
- The 'for' loop
- Breaking out of a loop and continuing
- The 'select' loop
- Lab Session

15- The 'getopts' Command
- Processing arguments
- The getopts and OPTARG variable
- The OPTIND variable
- Lab Session

16- Functions
- Displaying current shell functions
- Declaring and using functions
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- Function recursion
- Lab Session

17- Traps, Signals and Script Control
- Common signals
- Running Scripts in Background Mode
- Scheduling your script
- Starting the Script at Boot Time

- The trap commands
- Lab Session

18- Introduction to 'awk'
- Record processing
- Pattern matching and relational expressions
- Command line arguments
- Lab Session

19- Introduction to 'sed'
- Substituting text
- Deleting and printing lines
- Reading and writing files
- Multiple 'sed' editor functions
- Lab Session

20- Writing Utility Scripts
- Creating Graphical Script
- User Management Script
- Directory Monitoring Script
- User Login Monitoring Script
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