

Chapter 1: Quick Introduction to Linux

- What Is Linux?
- Who created Linux?
- Where can I download Linux?
- How do I Install Linux?
- Linux usage in everyday life
- What is Linux Kernel?
- What is Linux Shell?
- Unix philosophy
- But how do you use the shell?
- What is a Shell Script or shell scripting?
- Why shell scripting?
- Chapter 1 Challenges

Chapter 2: Getting Started With Shell Programming

- The bash shell
- Shell commands
- The role of shells in the Linux environment
- Other standard shells
- Write a simple shell script - "Hello World!"
 - Starting a script with Shebang line (#!)
 - Comments in a script
 - Setting up permissions on a script
 - Execute a script
 - Debug a script
- Chapter 2 Challenges

Chapter 3: The Shell Variables and Environment

- Variables in shell
 - Assign values to shell variables
 - Default shell variables value
 - Rules for Naming variable name
 - Display the value of shell variables
 - Quoting
 - The export statement

- Unset shell and environment variables
- Getting User Input Via Keyboard
- Perform arithmetic operations
 - Create an integer variable
 - Create the constants variable
- Bash variable existence check
- Customize the bash shell environments
 - Recalling command history
 - Path name expansion
 - Create and use aliases
 - The tilde expansion
 - Startup scripts
 - Using aliases
 - Changing bash prompt
 - Setting shell options
 - Setting system wide shell options
- Chapter 3 Challenges

Chapter 4: Conditionals Execution (Decision Making)

- Bash structured language constructs
- Test command
- if structures to execute code based on a condition
- If..else..fi
- Nested ifs
- Multilevel if-then-else
- The exit status of a command
- Conditional execution
- Logical AND &&
- Logical OR ||
- Logical Not !
- Conditional expression using [(portable version)
- Conditional expression using [[
- Numeric comparison
- String comparison
- File attributes comparisons
- Shell command line parameters

- How to use positional parameters
- Parameters Set by the Shell
- Create usage messages
- Exit command
- The case statement
 - Dealing with case sensitive pattern
- Chapter 4 Challenges

Chapter 5: Bash Loops

- The for loop statement
- Nested for loop statement
- The while loop statement
 - Use of : to set infinite while loop
- The until loop statement
- The select loop statement
 - Exit the select loop statement
- Using the break statement
- Using the continue statement
- Command substitution
- Chapter 5 Challenges

Chapter 6: Shell Redirection

- Input and Output
- Standard input
- Standard output
- Standard error
- Empty file creation
- /dev/null discards unwanted output
- here documents
- here strings
- Redirection of standard error
- Redirection of standard output
- Appending redirected output
- Redirection of both standard error and output
- Writing output to files
- Assigns the file descriptor (fd) to file for output
- Assigns the file descriptor (fd) to file for input

- Closes the file descriptor (fd)
- Opening the file descriptors for reading and writing
- Reads from the file descriptor (fd)
- Executes commands and send output to the file descriptor (fd)
- Chapter 6 Challenges

Chapter 7: Pipes and Filters

- Linking Commands
- Multiple commands
- Putting jobs in background
- Pipes
 - How to use pipes to connect programs
 - Input redirection in pipes
 - Output redirection in pipes
 - Why use pipes
- Filters
- Chapter 7 Challenges

Chapter 8: Traps

- Signals
 - What is a Process?
 - How to view Processes
 - Sending signal to Processes
 - Terminating Processes
 - Shell signal values
- The trap statement
- How to clear trap
- Include trap statements in a script
- Use the trap statement to catch signals and handle errors
- What is a Subshell?
 - Compound command
 - exec command
- Chapter 8 Challenges

Chapter 9: Functions

- Writing your first shell function

- Displaying functions
- Removing functions
- Defining functions
- Writing functions
- Calling functions
- Pass arguments into a function
 - local variable
- Returning from a function
- Shell functions library
 - Source command
- Recursive function
- Putting functions in background
- Chapter 9 Challenges

Chapter 10: Interactive Scripts

- Menu driven scripts
 - Getting information about your system
- Bash display dialog boxes
 - dialog customization with configuration file
 - A yes/no dialog box
 - An input dialog box
 - A password box
 - A menu box
 - A progress bar (gauge box)
 - The file selection box
 - The form dialog for input
- Console management
 - Get the name of the current terminal
 - Fixing the display with reset
 - Get screen width and height with tput
 - Moving the cursor with tput
 - Display centered text in the screen in reverse video
 - Set the keyboard leds
 - Turn on or off NumLock leds
 - Turn on or off CapsLock leds

- Turn on or off ScrollLock leds
- Set terminal attributes
- Display KDE / GTK+ GUI dialog
 - zenity: Shell Scripting with Gnome
 - Shell script create a calendar GUI dialog box
 - Shell script create a file selection GUI dialog box
 - Shell script to send notification to the Gnome notification area
 - Shell script create a list GUI dialog box
 - Shell script create an error message GUI dialog box
 - Shell script create an information message GUI dialog box
 - Shell script create a question message GUI dialog box
 - Shell script create a warning message GUI dialog box
 - kdialog: Shell scripting with KDE