KOENIG solutions · COURSE OUTLINE

AIX Korn Shell Programming (Advanced)

Learn to write and debug Korn shell scripts on AIX, from variables and loops to functions, sed and AWK text processing.

22	88	24
MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course reviews core Unix commands before moving into shell script creation, variables, integer arithmetic and run-time data handling. It covers conditional execution, loop constructs, multi-branch decisions, functions, interrupt handling and additional Korn, Bash and POSIX syntax features such as arrays and here documents. It then addresses file backup and compression utilities, job scheduling with cron and at, file comparison and splitting commands, and character translation. The final sessions cover regular expression notation, the sed stream editor, and AWK programming including control structures and built-in functions.

WHO THIS COURSE IS FOR

- **Unix System Administrators**
- **Shell Script Developers**
- **AIX Administrators**
- **Systems Programmers**
- **Automation Engineers**

LEARNING OBJECTIVES

- Apply basic Unix commands for file and directory handling
- Develop shell scripts using variables and integer arithmetic
- Implement conditional execution with if and test commands
- Apply loop constructs including while, until and for
- Implement multi-branch decisions using the case statement
- Build reusable functions and trap interrupt signals
- Apply backup, compression and job scheduling utilities
- Develop text processing scripts using sed and AWK

COURSE SYLLABUS

22 Modules, 88 Topics

01

Session 1: Unix Command Review

TOPICS

Basic Unix commands · General commands · File and directory handling commands · Filename generation characters · I/O Redirection features · Other commands

02

Exercise

Session 2: Getting Started

TOPICS

What is a shell script? · Development guidelines · Creating and editing shell scripts · Naming and storing shell scripts · Executing shell scripts

03

Exercise

Session 3: Using Variables

TOPICS

Environment variables · Local variables · Assigning values to variables · Assessing variable values · Using quotes · Delimiting variable names · Echo control sequences

04

Exercise

Session 4: Integer Arithmetic

TOPICS

Using the expr command · Using the (( )) notation

05

2 Exercises

Session 5: Handling Run Time Data

TOPICS

The read command · Command line arguments

06

Exercise

Session 6: Conditional Execution

TOPICS

The if statement · The test command

07

Exercise

Session 7: Additional Korn, Bash & POSIX Syntax

TOPICS

Other test notations · Default and substitute variables · Exit status codes

08

3 Exercises

Session 8: Loop Constructs

TOPICS

The while loop · The until loop · The for loop · The while true and until false loops · Loop control commands

09

Exercise

Session 9: Multi-Branch Decisions

TOPICS

The case statement · Menu driven applications

10

Exercise

Session 10: Functions

TOPICS

What is a function? · Syntax · Examples · Creating a Function Library

11

Exercise

Session 11: Interrupt Handling

TOPICS

Interrupt signals · Trapping interrupts

12

Exercise

Session 12: Additional Features and Facilities

TOPICS

The exec commands · The includes notation · More about loops · Arrays · Here Documents

13

Exercise Exercise

Session 13: Backup and Restore Utilities

TOPICS

- Backing-up and restoring files
- Basic and advanced use of tar
- Compression utilities gzip, bzip2, zip and compress

14

Exercise

Session 14: Background Job Scheduling

TOPICS

Scheduling jobs with the cron command · Scheduling jobs with the at command

15

Exercise

Session 15: Commands for Comparing Files

TOPICS

- Compare two files with the cmp command
- Compare two files with the comm command
- Compare two files with the diff and sdiff commands
- Compare large files with the bdiff command

16

Exercise

Session 16: Splitting Files

TOPICS

The split and csplit commands

17

Exercise

Session 17: Identifying and Translating Characters

TOPICS

- od - octal dump
- Use cat to display non-printing characters
- The expand and unexpand commands to convert between tab and space characters
- The tr command for character translation

18

Session 18: Regular Expression Notation Review

TOPICS

Standard regular expressions · Extended regular expressions

19

Exercise

Session 19: The Stream Editor Sed

TOPICS

sed command line syntax · sed script files · sed command processing · sed addresses and simple instructions · sed pattern space and hold space · Grouping sed commands · Hold and get functions · Advanced flow control

20

Exercise

Session 20: Fundamentals of AWK

TOPICS

- Basic AWK usage
- AWK program-files
- AWK scripts
- AWK variables
- Pattern matching with AWK
- AWK extended patterns
- AWK operators
- AWK arithmetic operations
- AWK output
- Formatting output with printf

21

Exercise

Session 21: AWK Program Control Structures

TOPICS

The BEGIN and END functions · The AWK if construct · The AWK else if construct · The AWK while construct · Other program control statements · The AWK break, continue and exit statements · User defined functions

22

Exercise

Session 22: AWK Functions

TOPICS

- AWK string functions
- AWK length, tolower, toupper, index, sub, gsub, match, substr, split, sprintf, system and getline functions

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
02	**Session 2: Getting Started**	**Exercise:** Write a simple shell script
03	**Session 3: Using Variables**	**Exercise:** Add variables to a script
04	**Session 4: Integer Arithmetic**	**Exercises:** Add integer arithmetic to a shell script
05	**Session 5: Handling Run Time Data**	EXERCISE - Writing a generic shell script - Writing an interactive shell script
06	**Session 6: Conditional Execution**	**Exercise:** Adding validation to previous scripts
07	**Session 7: Additional Korn, Bash & POSIX Syntax**	**Exercise:** Exercise
08	**Session 8: Loop Constructs**	EXERCISE - Enhancing the previously written scripts - Writing a script to copy files using a 'for' loop - Writing a script to generate numbers with the 'while' loop
09	**Session 9: Multi-Branch Decisions**	**Exercise:** Developing and writing a menu system
10	**Session 10: Functions**	**Exercise:** Add a function to a script
11	**Session 11: Interrupt Handling**	**Exercise:** Adding traps to the menu script
12	**Session 12: Additional Features and Facilities**	**Exercise:** Create a here script
13	**Session 13: Backup and Restore Utilities**	**Exercise:** Backing up and restoring files using tar **Exercises:** Compressing files
14	**Session 14: Background Job Scheduling**	**Exercises:** Running background jobs

#	MODULE	ACTIVITY
15	**Session 15: Commands for Comparing Files**	**Exercises:** Identifying file differences
16	**Session 16: Splitting Files**	**Exercises:** Splitting files
17	**Session 17: Identifying and Translating Characters**	**Exercises:** Translating characters with tr
19	**Session 19: The Stream Editor Sed**	**Exercises:** Text processing with sed
20	**Session 20: Fundamentals of AWK**	**Exercises:** Create awk scripts to extract selected data from a file and generate reports
21	**Session 21: AWK Program Control Structures**	**Exercises:** Create AWK scripts and program-files utilising program control structures
22	**Session 22: AWK Functions**	**Exercises:** Generate AWK scripts and program-files to extract and format data using AWK functions

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

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