

Advance Unix/Linux and Shell Scripting/Programming

Duration: 36 Hours

Prerequisites

- Knowledge of any Programming Language & Operating System

Course Content

1. Module – I : Basic Unix

- **Fundamentals of UNIX**
 - Overview of Operating System
 - Introduction to Unix Operating System
 - Features of UNIX
 - Flavors of UNIX
 - Unix vs Windows/DOS Operating System
 - File System Layout in Unix
 - Unix System Architecture
 - Unix Directory Structure
 - Relative and Absolute Paths
 - Advantages and Disadvantages of Unix OS
- **Unix Command Usage**
 - What is Command ?
 - Rules of Unix Commands
 - Types of Unix Commands
 - Internal vs External Command
 - Accessing Unix Server through PuTTY tool
 - MS-DOS and Unix equivalent Commands
- **General Purpose Utilities**
 - Login Commands
 - Terminal Commands
 - Online Manual
 - Displaying Message
 - Disk related Commands
 - Unix System details Command
 - Basic Useful Commands
 - Control Terminal Color and Cursor
- **Managing Files and Directories**
 - Files, Directories and Sub-directories
 - File Types
 - Naming convention of Files/Directories
 - Directory related terms
 - Wildcard Character
 - Create and delete Directories
 - Create, display and delete Files
 - Listing Files and Directories
 - Concatenate Files
 - Copy and Move
 - Compress and Archive
 - Linking Files and Directories
 - Files Comparison Commands
 - Essential Commands for File operation

2. Module – II : Advance Unix

- **File Attributes/Permissions**
 - Categories of Permission and Users
 - Changing File Permission and Ownership
 - Super User
 - Change Default Permission
 - **Redirection and Piping**
 - What is Redirection ?
 - Types of Redirection
 - Redirection Operator
 - What is Piping in Unix/Linux ?
 - Re-direction vs Piping
 - Unix Pipe Flow
 - Multiple Command Pipelines
 - **Filter**
 - What is Filter ?
 - Special Filter Commands
 - Splitting File Horizontally
 - Splitting File Vertically
 - Searching Files and Directories
 - Searching Pattern
 - **Networking**
 - Communication within Network
 - Networking related Commands
 - Transfer Files from Local to Server and vice versa via FTP
 - Copy files from Server to Server
 - Connect Database from Unix Network
 - Fetch Database data from Linux Server
 - **Process**
 - What is Process ?
 - Some terms of Process
 - Process related Commands
 - Destroy/Terminate Process
 - Mechanism of Process creation
 - **Job Scheduling**
 - Job Control Command
 - Running jobs in background and foreground
 - One time and Periodically Job Run
 - Assign Priority for Multiple Job Schedule
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3. Module – III : Editor

- **Screen Editor : vi**
 - Different modes of vi editor
 - Screen Control and Navigation
 - Cursor Movement
 - Saving and Exit
 - Insert and Delete operation
 - Forward and Backward Search
 - Replace/Substitute of Pattern/String
 - Joining Lines
 - Copy and Paste
 - Block Copy, Move and Delete
 - Vim and Macro
- **Stream Editor : sed**
 - Working with Sources
 - Working with Flat Files
 - Working with Targets
 - Data Transformation Source and Target
 - Mapping Parameters and Variables
 - Uses of Mapping Wizards
- **Other Useful Editor**
 - Different types of Editors
 - Special features of vim editor
 - gedit : Graphical editor
 - emacs
 - nano
 - ed, ex

4. Module – IV : Shell Script

- **Entering to Shell Script**
 - What is Shell ?
 - Different types of Shell
 - What is Shell Scripting ?
 - Scripting vs Programming Language
 - Batch Scripting vs Shell Scripting
 - Advantages and Disadvantages
 - Writing convention of Shell Program
 - Types of Execution and Debugging
- **Advance Filter uses in Scripting**
 - Translate : tr
 - Argument Convert : xargs
 - Sorting : sort
 - Reverse : rev
- **Shell Variable**
 - What is Variable ?
 - User defined vs System Variables
 - Local and Global Variables
 - Environment Variable and Uses
 - Positional Parameter
 - Shift Operator

- **Shell Arithmetic**

- Escape Mechanism
- Quoting Mechanism
- bc : Basic Calculator
- expr : Expression
- eval : Evaluation
- test : Check Condition
- File Descriptor

- **Shell Script Operators**

- Arithmetic Operators
- Relational Operators
- Boolean Operators
- String Operators
- File Test Operators

- **AWK Utility**

- Introduction to AWK
- Types of AWK
- AWK Working Methodology
- AWK - Generic Uses
- Built-in Variables
- String built-in Functions
- AWK Programs

5. Module – V : Shell Program

- **Arrays**
 - Declaring an Array
 - Assigning values
 - Initializing an Array
 - Print/Display the Array Element
 - Length of Array and Element
 - Extraction by offset
 - Search and Replace Array Element
 - Add and Remove Element in Array
 - Copy and Concatenate
 - **Functions**
 - Creating Functions
 - Pass Parameters to a Function
 - Returning Values from Functions
 - Nested Functions
 - **Conditional Statements**
 - if ... elif ... else ... fi
 - Nested if
 - case ... esac
 - **Loop Statements**
 - while
 - until
 - for
 - select
 - Loop Control flow
 - Nested Loops
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