Persistent

Bash Shell Scripting

Shell Scripting Basics – Part II

Persistent University

Contents

Shell Scripting Basics – Part II

At the end of this module , you will be able to understand:

What are Different types of shell meta characters?

Basic Shell Commands

Basic Vi Commands

Shell Metacharacters

- Quoting metacharacters
- Escaping : Backslash (\ )

  -
    ```
    echo "I have \$1200"
    ```
- Grave ascent : backquotes (`)

  -
    ```
    echo '<-$1500.**>; (update?) [y|n]'
    ```
- Partial quoting : double quote (“)

  -
    ```
    echo "$name has \$1200”
    ```
- Full quoting : single quote (‘)

  -
    ```
    DATE=`date`
    ```

  -
    ```
    echo "Current Date: $DATE"
    ```

Shell Metacharacters contd..

- Double quotes take away the special meaning of all characters except the following:
  - $ for parameter substitution
  - Backquotes for command substitution
  - \$ to enable literal dollar signs
  - \` to enable literal backquotes
  - \" to enable embedded double quotes
  - \\ to enable embedded backslashes
  - All other \ characters are literal (not special)

Certain escaped characters ..

- These escape characters are used with **echo** and **sed** (With echo use –e option)
  - \n means newline
  - \r means return
  - \t means tab
  - \b means backspace
  - \a means "alert" (beep or flash)
  - \" gives the quote its literal meaning
  - \$ gives the dollar sign its literal meaning
  - \\ gives the backslash its literal meaning

File Substitution

- * -> match zero or more characters, including null
  - ls m*
  - ls */*.Z
- ? -> match one occurrence of single character
  - echo ??
  - echo ???*
- [abc] -> match one occurrence of characters between brackets
  - ls [am]*
  - ls [am]*[1-5]
- [!abc] -> match any character or characters not between the brackets
  - ls [!d]*

Shell Built-in Variables

- $0 : filename
- $# : number of arguments supplied to a script
- $* : String containing arguments a script receives
- $@ : Array of arguments a script receives
- $? : Exit status of the last command executed
- $$: Process ID number, or PID of current shell
- S! : Process number of last background command

Special Characters contd..

- Example:
  - #!/bin/sh
  - echo "File Name: $0"
  - echo "First Parameter : $1"
  - echo "Second Parameter : $2"
  - echo "Quoted Values: $@"
  - echo "Quoted Values: $*“
  - echo "Total Number of Parameters : $#“
  - echo $?
  - ./test.sh Harry Porter

Basic Shell Commands

- pwd : Print Working Directory displays your location in directory tree
- cd : Change Directory
  - cd ~ Changes to user’s home directory
  - cd .. Moves you one directory up
  - cd - Return to previous working directory
- ls : List Directory contents
  - ls –l Displays directory content in long list format
  - ls –lah Displays all files including hidden with human readable
- date : Shows current date

File names that begin with a period character are hidden

Basic Shell Commands

- cp : Copy a file
  - cp file1 file1.bak
  - cp –r /home/user/pics /home/user2/
  - cp –r –v /home/user/pics /home/user2/
- mv - Move file(s) or rename a file
  - mv file1 file2
  - mv dir1 dir2
  - mv file1 file2 file3 ... directory

Basic Shell Commands

- rm - Delete (remove) files
  - rm file1
  - rm -r dir1
  - rm -rf dir1
- rmdir - Delete a directory if it is empty
  - rmdir dirname
- ps - List processes on system
  - ps -u jss
  - ps -f
  - ps -AF
  - ps -A -l
  - ps -A | grep tcsh

Basic VI Commands

- Modes of operation
  - Command mode
  - Insert mode
- Get Into and Out Of vi
  - vi filename
  - :x<Return>
  - :q!<Return>
  - w<Return>

Basic VI Commands contd..

- Moving the Cursor
  - j or <Return> : move cursor down one line
  - k [or up-arrow] : move cursor up one line
  - h or <Backspace> [or left-arrow] : move cursor left one character
  - l or <Space> [or right-arrow] : move cursor right one character
  - 0 (zero) : move cursor to start of current line
  - $: move cursor to end of current line
- Searching Text
  - /string : Search occurrence forward
  - ?string : Search occurrence backward
  - n : Move to next occurrence of search string

Basic VI Commands contd..

- Adding, Changing, and Deleting Text
  - i : insert text before cursor
  - a : append text after cursor
  - o : open and put text in a new line below current line
  - r : replace single character under cursor (no <Esc> needed)
  - x : delete single character under cursor
  - dd : delete entire current line
  - Ndd or dNd : delete N lines, beginning with the current line
  - E.g: 5dd deletes 5 lines

Quiz

- _____ command is used to know exit status of the last command executed.
- ______ prints process ID number or PID of current Shell.
- _______ command is used to rename or move files.
- The ______ characters match a single, multiple, or range of characters.
- In Vi editor, the cursor moves to bottom of screen whenever _______ is typed.

Quiz Answers

- **$?** command is used to know exit status of the last command executed.
- **$$** prints process ID number or PID of current Shell.
- **mv** command is used to rename or move files.
- The **[ ]** characters match a single, multiple, or range of characters.
- In Vi editor, the cursor moves to bottom of screen whenever **colon (:)** is typed.

Assignments

- Q1: Write a script to list files under user’s home directory that ends with .txt.
- Q2: Write a script to create file abc.txt and directory Test. Rename file to ABC.txt and then move it to Test directory.

Assignment Solutions

- Assignment 1:
  - FILES=$(ls $HOME/*.txt)
  - echo $FILES

Assignment Solution

- Assignment 2:
  - #!/bin/sh
  - # Assignment 4 - Solution
  - touch abc.txt
  - echo "File abc.txt created !!"
  - mkdir Test
  - echo "Directory Test created !!"
  - mv abc.txt ABC.txt
  - echo "File renamed to ABC.txt !!"
  - mv ABC.txt Test/
  - echo "ABC.txt moved under Test directory.."

Summary

- In this module, we have learnt about Shell meta characters and basic vi commands.
- Now, you should be able to answer following questions:
  - What are shell meta characters and how to use them?
  - What are basic commands and how to use them in shell script?
  - How to deal with vi editor?

Reference material

- http://www.freeos.com/guides/lsst/
- http://www.howtogeek.com/67469/the-beginners-guide-to-shell-scripting-the-basics/
- http://www.tutorialspoint.com/unix/unix-what-is-shell.htm

Key contacts

- **Persistent Interactive**

  Bhimashankar Gavkare

  bhimashankar_gavkare@persistent.com

Persistent

Thank You !!!

Persistent University