# Unix Shell Scripting

## Technical Learning Services

## Unix Shell script Assignment Day1

Concept: Shell Scripting

Objective: At the end of the assignment, participants will be able to understand and implement:

- Shell fundamentals
- Shell Scripting constructs

1. Accept the first name, middle name, and last name of a person in variables fname, mname and lname respectively. Greet the person (take his full name) using appropriate message.
2. Add some Employee records in the "emp.dat" file manually. The fields to be considered are "EMPID", "EName", "Marks_JAVA", "Marks_J2EE", "Marks_UNIX".
   Write a script which does the following
   a. Ask user to enter empid, if the EMPID already exists, then store the record with following message "EMPID exists" in a log file "log1".
   b. If the marks in the subjects is not in the range of 1 – 99 then store such a record followed by a message "marks out of range" in "log1"
   c. If the data is valid, the calculate total, percentage and display on the terminal

3. Write a menu based script which displays the following options :
   Accept roll number, name, and marks in sub1, sub2 and sub3. Calculate total, percentage & grade and enter the record in a file "student". The marks are out of 100 in each subject. Allow the user to enter any number of records.

   Grade is found out as follows:

| Percentage | Grade |
|---|---|
| < 35 | Fail |
| >= 35 & < 50 | Third |
| >= 50 & < 60 | Second |
| >= 60 & < 75 | First |
| >= 75 | Distinction |

4. Accept roll number from the user. Search it in the "student" file. If it is present, then display name, percentage and grade of the student. If the roll number is not present, then display a message "not found".
5. Accept the roll number from the user. Search it in the file. If it is present, then delete the respective record from the "student" file. Get the confirmation from the user before deleting the record from the file. If the roll number is not present, then display suitable error message.
6. Write a menu based script which displays the following options :
   1. Make a file.
   2. Display contents
   3. Copy the file
   4. Rename the file
   5. Delete the file
   6. Exit

Enter your option:

If the user selects option 1, accept a file name from the user. If the file exists, then display an error message pass the control to the menu. If the file does not exist, then allow the user to enter some data. Pressing ^d would save the contents and display the menu.

If the user selects option 2, then accept a file name from the user. If the file exists, then display the contents of the file. If the file does not exist, then display suitable error message. After this process, display the menu to accept another option.

Selecting Option 3 allows the user to accept the source file and target file. If the source file exists and is readable, then accept the target file name. If the source file does not exist, then display suitable error message. If the target file does not exist, then copy the contents of the source file to the target file. If the target file exists, then display suitable message and go back to the menu.

Option 4 is similar to option 3 but rename the file instead of copying.

Selecting option 5 allows the user to enter a file name. If the file exists, then check to see if it is writable. If so, then delete the file with confirmation from the user. If the file does not exist, then display suitable error message.

7. Write a menu based shell script which will perform arithmetic operations on two numbers which are inputted by user. Menu should display following operations

Menu

---

1: Addition

2: Substraction

3: Multiplication

4: Division

5: Exit

8. Write a shell script which will read the file name from user, if it is ordinary file then check whether it is having write permission. If write permission is not provided, assign it and then display permission. If file does not exists then display error message that “File does not exists”

# Unix Shell script Assignment Day2

Concept: Shell Scripting

Objective: At the end of the assignment, participants will be able to

- Write Shell Scripts of moderate complexity

1. Write a menu based shell script main.sh to do the following operation for Network Inventory.

INVENTORY SYSTEM

==========

1. Add Network Element
2. Request Network Element
3. Exit

A) Add Network Element:

It will allow the user to add new Network Element details like Network Element *Id, Element Name, Vendor, NumberOfUnits, and UnitCost* from the keyboard.

Store the Network Element details into a file named “Network.dat” with fields separated by a delimiter “:”.

Validations:

a. Network Element Id should be unique and a positive number and start with NE followed by 3 digit number.
b. *Element Name*, *Vendor* should not be null.
c. UnitCost should be a positive number.
d. NumberOfUnits should be positive number

Example:-

NE001:Router:CISCO:10:20000

NE002:Router:CISCO:20:40000

NE003:Switch:ALCATEL:5:40000

NE004:Switch:ALCATEL:5:60000

B) Request Network Element:

This module should accept the Network Element Id from the user and check for its existence in the file named "Network.dat".

If it exists, display the complete Network Element details.

Prompt the user to enter the Units Requested for provisioning. Units Requested must be less than or equal to NumberOfUnits otherwise display error message.

2. Write a shell script which will take empid, ename and basic salary from **command line**. Script will pass basic salary to Calculate function. Calculate function will do calculation of Total salary based on below formula.

   Total salary=Basic salary+DA+HRA

   Function will return Total salary to shell script.

   Employee information empid, ename, Basic salary, HRA,DA,Total salary should be stored in salary.txt file.

   Assumption: DA is 10% of Basic salary and HRA is 20% of basic salary.

3. Create a data file "master" and enter some records manually. The record comprises of batch code, faculty name and number of students. Keep number of students as 0 initially.

   Write a script that accepts the batch code and searches it "master" file.
   If it is present, then allow the user to enter any number of records in a file with the name same as the batch code itself.
   These records should have the fields RollNo, Name and Marks in JAVA, J2EE

and UNIX.
Keep updating the number of students field in “master” file.

4. Create the file **CDR.dat** having pipe ( | ) separated fields

   Source number|Destination number|call duration in min|date

   8834567890|9922153160|10|10-10-2015

   8833567891|9922154161|13|11-10-2015

   8835567892|9922155162|15|11-10-2015

   8834567894|9922156163|16|12-10-2015

   8834567894|9922157160|10|12-10-2015

   a. Sort the CDR.dat file in the ascending order of call duration.
   b. Display only source number and call duration on the console.
   c. Calculate bill amount for particular source number assuming call charges of 2/- min and store Source number, date, call duration and bill amount in the bill.dat file.
   d. Store the all the information in **MYSQL database** after processing information.

      Source number, Destination number, call duration, date, bill amount.

5. Create a library of shell functions to do the followings:
   Function to concatenate 2 strings. Pass 2 strings as parameters to function.

   Function to find out the length of a given string, Pass string as a parameter to function.

   Function to compare the two strings. Pass 2 strings as parameters to function.

   Function to check if string is palindrome or not. Pass string as a parameter to function.

   Function to print given string in reverse order. Pass string as a parameter to function.

6. Write a shell script to create the file **emp.dat** having colon (: ) separated fields

   Empid: Name: Sal: Dept

   1001:John:50000:Sales

   1002:Mary:60000:Marketing

   1003:Robert:70000:Marketing

   10010:Sam:40000:HR

   100100:Julie:50000:HR

   10020: Sally:10010:Sales

   a. Write a shell script which will be able to search details about specific employees from emp.dat file.

      Validate following

      i. If user enters nothing/empty, your script should be able to handle with appropriate message.
      ii. Display details about employee whose empid is 1001.

      (Only numeric value should be accepted)

   b. Update the salary field of specific employee.(use sed command)
   c. Update name field of specific employee. (use sed command)
   d. Delete particular employee details from emp.dat file. (use sed command)
   e. Display information about Employees who are from HR dept.

## Version History:

| Version No | Author | Date Created | Reviewed by |
|---|---|---|---|
| 1.0 | Amol Joshi | 27/08/2015 | Dipti Joshi |
| 1.1 | Suhas Shirbavikar | 20/06/2016 | Amol Joshi |
| 1.2 | Suhas Shirbavikar | 06/09/2016 | Amol Joshi |