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Linux Shell Script Assignment – 3

1)Write a shell script to display your LOGIN NAME and HOME directory.

```
echo "Login Name: $USER"
echo "Home Directory: $HOME"
~
~
~
~
~
~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_1.sh
sunbeam@sunbeam-HP:~$ bash ass3_1.sh
Login Name: sunbeam
Home Directory: /home/sunbeam
sunbeam@sunbeam-HP:~$
```

2)Write a shell script to display menu like “1. Date, 2. Cal, 3. Ls, 4. Pwd, 5. Exit” and execute the commands depending on user choice.

```
#!/bin/bash

while true; do
    # Display the menu
    echo "Menu:"
    echo "1. Date"
    echo "2. Cal"
    echo "3. Ls"
    echo "4. Pwd"
    echo "5. Exit"

    # Prompt user for choice
    read -p "Enter your choice (1-5): " choice

    # Execute the corresponding command based on user choice
    case $choice in
        1)
            date
            ;;
        2)
            cal
            ;;
        3)
            ls
            ;;
        4)
            pwd
            ;;
        5)
            echo "Exiting the script. Goodbye!"
            exit 0
            ;;
        *)
            echo "Invalid choice. Please enter a number between 1 and 5."
            ;;
    esac
done
```

```
sunbeam@sunbeam-HP:~$ bash ass3_2.sh
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice (1-5): 1
Friday 08 December 2023 06:21:42 PM IST
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice (1-5): 2
   December 2023
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice (1-5): 3
 a,b,c,d              Assignment6          copy.txt               Desktop           Exercise                     LabExam       one             prn             Stamps.txt    zoom_amd64.deb
 ass1_1               Assignment7          cpp                    Documents         GD_BollyWood_Today_KD3.odt   Music         OSC             Public          stamp.txt
 ass3_1.sh            'Assignments 1-5dbt' cpp_80136              Downloads         hack                         mygitdata     package.json    Question2       Stamp.txt
 ass3_2.sh            AssignmentSQL        cpp_80136.zip          Dsa               hello.c                      Name.txt      package-lock.json resumeeeeerutu Study
 Assignment14_Q1      AssSQL               cprogramming_80136     DSA_230940820041  hs_err_pid6793.log           'new token'   PGDAC           rutuDocuments   sunbeamdata
 Assignment2          bookdetails          cprogramming_80136.zip DSAlabTest        Intro                        NodeJS        Photos          Rutu_photo      Templates
 Assignment3_4_5.zip  c                    demo2.sh               DSApractice       java_practicde               node_modules  Pictures        snap            Videos
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice (1-5): 4
/home/sunbeam
Menu:
1. Date
2. Cal
3. Ls
4. Pwd
5. Exit
Enter your choice (1-5): 5
Exiting the script. Goodbye!
sunbeam@sunbeam-HP:~$
```

3)Write a shell script to accept the name from the user and check whether user entered name is file or directory. If name is file display its size and if it is directory display its contents.

```
#!/bin/bash

# Prompt the user for a name
read -p "Enter a file or directory name: " name

# Check if the entered name exists
if [ -e "$name" ]; then
    # Check if it's a file
    if [ -f "$name" ]; then
        echo "$name is a file."
        # Display the size of the file
        size=$(du -h "$name" | cut -f1)
        echo "Size of $name: $size"
    elif [ -d "$name" ]; then
        echo "$name is a directory."
        # Display the contents of the directory
        echo "Contents of $name:"
        ls "$name"
    else
        echo "$name is neither a file nor a directory."
    fi
else
    echo "$name does not exist."
fi
```

```
sunbeam@sunbeam-HP:~$ bash ass3_3.sh
Enter a file or directory name: copy.txt
copy.txt is a file.
Size of copy.txt: 4.0K
sunbeam@sunbeam-HP:~$ bash ass3_3.sh
Enter a file or directory name: OSC
OSC is a directory.
Contents of OSC:
DSA  file08.txt  file0.txt  file1.txt  file2.txt  file3.txt  file9.txt  JAVA  new.txt  PYTHON  rutu2  rutu3  Test.txt
sunbeam@sunbeam-HP:~$
```

4)Write a shell script to determine whether a given number is prime or not.

```
#!/bin/bash
echo -e "Enter Number : \c"
read n
for((i=2; i<=$n/2; i++))
do
  ans=$(( n%i ))
  if [ $ans -eq 0 ]
  then
    echo "$n is not a prime number."
    exit 0
  fi
done
echo "$n is a prime number."
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_04.sh
sunbeam@sunbeam-HP:~$ bash ass3_04.sh
Enter Number : 7
7 is a prime number.
sunbeam@sunbeam-HP:~$ bash ass3_04.sh
Enter Number : 6
6 is not a prime number.
sunbeam@sunbeam-HP:~$
```

5)Write a Program to find the greatest of three numbers.

```
echo "Enter Num1"
read num1
echo "Enter Num2"
read num2
echo "Enter Num3"
read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]
then
    echo $num1
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ]
then
    echo $num2
else
    echo $num3
fi
~
```

```
sunbeam@sunbeam-HP:~$ bash ass3_5.sh
Enter Num1
34
Enter Num2
67
Enter Num3
23
67
```

6)Write a Program to find whether a given year is a leap year or not.

```
#!/bin/bash

echo "Enter a year:"
read year

# Check if the year is evenly divisible by 4
if [ $((year % 4)) -eq 0 ]; then
    # Check if the year is not divisible by 100 or if it is divisible by 400
    if [ $((year % 100)) -ne 0 ] || [ $((year % 400)) -eq 0 ]; then
        echo "$year is a leap year."
    else
        echo "$year is not a leap year."
    fi
else
    echo "$year is not a leap year."
fi
~
~
~
~
~
~
```

```
sunbeam@sunbeam-HP:~$ bash ass3_06.sh
Enter a year:
2000
2000 is a leap year.
sunbeam@sunbeam-HP:~$ bash ass3_06.sh
Enter a year:
1999
1999 is not a leap year.
sunbeam@sunbeam-HP:~$
```

7)Write a Program to find whether a given number is positive or negative.

```bash
#!/bin/bash

echo "Enter a number:"
read number

# Check if the number is greater than zero
if [ $number -gt 0 ]; then
    echo "$number is positive."
elif [ $number -eq 0 ]; then
    echo "$number is zero."
else
    echo "$number is negative."
fi
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_07.sh
sunbeam@sunbeam-HP:~$ bash ass3_07.sh
Enter a number:
4
4 is positive.
sunbeam@sunbeam-HP:~$ bash ass3_07.sh
Enter a number:
0
0 is zero.
sunbeam@sunbeam-HP:~$ bash ass3_07.sh
Enter a number:
-2
-2 is negative.
sunbeam@sunbeam-HP:~$
```

8)Write a program to print the table of a given number.

sunbeam@sunbeam-HP: ~

```bash
#!/bin/bash

echo "Enter a Number:"
read num

echo "Table of $num:"

for((i=1; i<=10; i++)); do
        result=$((num * i))
        echo "$num x $i =$result"
done
~
~
~
~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_8.sh
sunbeam@sunbeam-HP:~$ bash ass3_8.sh
Enter a Number:
2
Table of 2:
2 x 1 =2
2 x 2 =4
2 x 3 =6
2 x 4 =8
2 x 5 =10
2 x 6 =12
2 x 7 =14
2 x 8 =16
2 x 9 =18
2 x 10 =20
sunbeam@sunbeam-HP:~$
```

9)Write a program to find the factorial of given number.

```
#!/bin/bash

echo "Enter a number:"
read num

factorial=1

if [ $num -lt 0 ]; then
    echo "Factorial is not defined for negative numbers."
elif [ $num -eq 0 ]; then
    echo "Factorial of 0 is 1."
else
    for ((i=1; i<=num; i++)); do
        factorial=$((factorial * i))
    done
    echo "Factorial of $num is $factorial."
fi

~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_09.sh
sunbeam@sunbeam-HP:~$ bash ass3_09.sh
Enter a number:
5
Factorial of 5 is 120.
sunbeam@sunbeam-HP:~$
```

10)Write a program to find given number of terms in the Fibonacci series.

```
#!/bin/bash

echo "Enter the number of terms in the Fibonacci series:"
read num_terms

# Check if the number of terms is less than or equal to 0
if [ $num_terms -le 0 ]; then
    echo "Please enter a positive integer greater than 0."
else
    # Initialize the first two terms of the series
    a=0
    b=1

    echo "Fibonacci series with $num_terms terms:"

    # Print the first two terms
    echo -n "$a $b"

    # Loop to generate the remaining terms
    for ((i=3; i<=num_terms; i++)); do
        c=$((a + b))
        echo -n " $c"
        a=$b
        b=$c
    done

    echo   # Print a new line at the end
fi

~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_10.sh
sunbeam@sunbeam-HP:~$ bash ass3_10.sh
Enter the number of terms in the Fibonacci series:
8
Fibonacci series with 8 terms:
0 1 1 2 3 5 8 13
sunbeam@sunbeam-HP:~$
```

11)Write a program to calculate gross salary if the DA is 40%, HRA is 20% of basic salary.Accept basic salary form user and display gross salary (Result can be floating point value).

```
#!/bin/bash

echo "Enter the basic salary:"
read basic_salary

# Calculate DA (40% of basic salary)
da=$(echo "scale=2; $basic_salary * 0.4" | bc)

# Calculate HRA (20% of basic salary)
hra=$(echo "scale=2; $basic_salary * 0.2" | bc)

# Calculate gross salary
gross_salary=$(echo "scale=2; $basic_salary + $da + $hra" | bc)

echo "Basic Salary: $basic_salary"
echo "DA (40%): $da"
echo "HRA (20%): $hra"
echo "Gross Salary: $gross_salary"

~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_11.sh
sunbeam@sunbeam-HP:~$ bash ass3_11.sh
Enter the basic salary:
1000
Basic Salary: 1000
DA (40%): 400.0
HRA (20%): 200.0
Gross Salary: 1600.0
sunbeam@sunbeam-HP:~$
```

12)Write a shell script to accept a filename as argument and displays the last modification time if the file exists and a suitable message if it doesn’t exist.

```
#!/bin/bash

# Check if a filename is provided as an argument
if [ $# -eq 0 ]; then
    echo "Usage: $0 <filename>"
    exit 1
fi

filename=$1

# Check if the file exists
if [ -e "$filename" ]; then
    # Display the last modification time of the file
    last_modified=$(stat -c "%y" "$filename")
    echo "Last Modification Time of $filename: $last_modified"
else
    echo "File $filename does not exist."
fi
```

```
sunbeam@sunbeam-HP:~$ vim ass3_12.sh
sunbeam@sunbeam-HP:~$ bash ass3_12.sh
Usage: ass3_12.sh <filename>
sunbeam@sunbeam-HP:~$
```

13)Write a shell script to display only hidden file of current directory.

```
#!/bin/bash

echo "Hidden files in the current directory:"
for file in .*; do
    if [ -f "$file" ] && [ "${file:0:1}" = "." ]; then
        echo "$file"
    fi
done
```

```
sunbeam@sunbeam-HP:~$ vim ass3_13.sh
sunbeam@sunbeam-HP:~$ bash ass3_13.sh
Hidden files in the current directory:
.bash_history
.bash_logout
.bashrc
.demo1.sh.swp
.gitconfig
.lesshst
.my.cnf
.mysql_history
.profile
.sudo_as_admin_successful
.swo
.swp
.viminfo
.wget-hsts
sunbeam@sunbeam-HP:~$
```

14)Write a shell script to display only executable files of current directory.

```
#!/bin/bash

echo "Executable files in the current directory:"
for file in *; do
    if [ -x "$file" ] && [ -f "$file" ]; then
        echo "$file"
    fi
done

~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_14.sh
sunbeam@sunbeam-HP:~$ bash ass3_14.sh
Executable files in the current directory:
sunbeam@sunbeam-HP:~$
```

15)Accept the two file names from user and append the contents in reverse case of first file into second file.

```
#!/bin/bash

echo "Enter the name of the first file:"
read file1

echo "Enter the name of the second file:"
read file2

# Check if the first file exists
if [ ! -f "$file1" ]; then
    echo "File $file1 does not exist."
    exit 1
fi

# Read the contents of the first file and convert to reverse case
contents=$(cat "$file1" | tr 'a-zA-Z' 'A-Za-z')

# Append the reversed contents to the second file
echo "$contents" >> "$file2"

echo "Contents of $file1 appended in reverse case to $file2."

~
~
~
~
~
~
~
~
~
```

```
sunbeam@sunbeam-HP:~$ bash ass3_0015.sh
Enter the name of the first file:
copy.txt
Enter the name of the second file:
Test,txt
Contents of copy.txt appended in reverse case to Test,txt.
sunbeam@sunbeam-HP:~$
```

16)Write a shell script to display welcome message to the user along with contents of his home directory. Ensure that shell script will execute automatically when user login to the shell. (Make entry of your shell script into .bashrc file into your home directory).

```
#!/bin/bash

# Welcome message
echo "Welcome to the Shell Script!"

# Display contents of the home directory
echo "Contents of your home directory:"
ls -l "$HOME"

~
~
~
~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_16.sh
sunbeam@sunbeam-HP:~$ bash ass3_16.sh
Welcome to the Shell Script!
Contents of your home directory:
total 183964
-rw-rw-r--   1 sunbeam sunbeam         0 Dec  8 16:55  a,b,c,d
-rw-rw-r--   1 sunbeam sunbeam      1456 Sep 24 16:20  ass1_1
-rw-rw-r--   1 sunbeam sunbeam       492 Dec  9 15:46  ass3_0015.sh
-rw-rw-r--   1 sunbeam sunbeam       161 Dec  9 15:39  ass3_015.sh
-rw-rw-r--   1 sunbeam sunbeam       207 Dec  8 18:45  ass3_04.sh
-rw-rw-r--   1 sunbeam sunbeam       408 Dec  9 14:18  ass3_06.sh
-rw-rw-r--   1 sunbeam sunbeam       249 Dec  9 14:34  ass3_07.sh
-rw-rw-r--   1 sunbeam sunbeam       331 Dec  9 14:58  ass3_09.sh
-rw-rw-r--   1 sunbeam sunbeam       622 Dec  9 15:08  ass3_10.sh
-rw-rw-r--   1 sunbeam sunbeam       440 Dec  9 15:21  ass3_11.sh
-rw-rw-r--   1 sunbeam sunbeam       412 Dec  9 15:29  ass3_12.sh
-rw-rw-r--   1 sunbeam sunbeam       167 Dec  9 15:36  ass3_13.sh
-rw-rw-r--   1 sunbeam sunbeam       161 Dec  9 15:38  ass3_14.sh
-rw-rw-r--   1 sunbeam sunbeam       107 Dec  9 15:39  ass3_15.sh
-rw-rw-r--   1 sunbeam sunbeam       164 Dec  9 15:46  ass3_16.sh
-rw-rw-r--   1 sunbeam sunbeam        54 Dec  8 18:19  ass3_1.sh
-rw-rw-r--   1 sunbeam sunbeam       698 Dec  8 18:27  ass3_2.sh
-rw-rw-r--   1 sunbeam sunbeam       634 Dec  8 18:33  ass3_3.sh
-rw-rw-r--   1 sunbeam sunbeam      1045 Dec  8 18:40  ass3_4.sh
-rw-rw-r--   1 sunbeam sunbeam       243 Dec  8 18:48  ass3_5.sh
-rw-rw-r--   1 sunbeam sunbeam       251 Dec  9 14:13  ass3_6.sh
-rw-rw-r--   1 sunbeam sunbeam       191 Dec  9 14:27  ass3_7.sh
-rw-rw-r--   1 sunbeam sunbeam       149 Dec  9 14:43  ass3_8.sh
-rw-rw-r--   1 sunbeam sunbeam       307 Dec  9 14:52  ass3_9.sh
drwxr-xr-x   5 sunbeam sunbeam      4096 Oct 22 18:01  Assignment14_Q1
drwxr-xr-x   5 sunbeam sunbeam      4096 Oct  7 16:07  Assignment2
-rw-r--r--   1 sunbeam sunbeam     82305 Nov  4 18:57  Assignment3_4_5.zip
drwxrwxr-x   5 sunbeam sunbeam      4096 Oct 12 23:53  Assignment6
drwxrwxr-x   5 sunbeam sunbeam      4096 Oct 15 17:26  Assignment7
drwxr-xr-x   3 sunbeam sunbeam      4096 Sep 10 21:57 'Assignments 1-5dbt'
drwxrwxr-x   2 sunbeam sunbeam      4096 Sep 10 17:25  AssignmentSQL
```

17)Print the following pattern.

```
*
* *
* * *
* * * *
* * * * *
```

```
#!/bin/bash

rows=5

for ((i=1; i<=rows; i++)); do
    for ((j=1; j<=i; j++)); do
        echo -n "* "
    done
    echo
done
~
~
~
```

```
sunbeam@sunbeam-HP:~$ vim ass3_17.sh
sunbeam@sunbeam-HP:~$ bash ass3_17.sh
*
* *
* * *
* * * *
* * * * *
sunbeam@sunbeam-HP:~$
```