

SHELL PROGRAMMING – 2

Aim :

To practice various shell scripting programs

Question 1 :

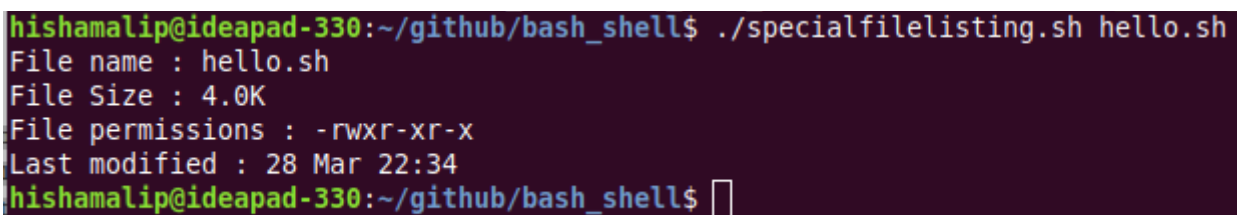
Write a shell script that displays a special listing showing the permissions, size filename and last modification time of filename supplied as arguments. Provide suitable headers using the printf command.

Algorithm :

- 1 Read argument
- 2 Save the permission, modification time, size of a file and file name into different variables.
- 3 Display assigned variables with suitable headers

Program :

```
file=$1
if [ ! -f $file ] ; then
    echo "File is not present"
else
    permissions="$(ls -l $file | awk '{print $1}')"
    size="$(du -h $file | awk '{print $1}')"
    lastmod="$(ls -l $file | awk '{print $7" "$6" "$8}')"
    echo "File name : $file"
    echo "File Size : $size"
    echo "File permissions : $permissions"
    echo "Last modified : $lastmod"
fi
```

Output :

```
hishamalip@ideapad-330:~/github/bash_shell$ ./specialfilelisting.sh hello.sh
File name : hello.sh
File Size : 4.0K
File permissions : -rwxr-xr-x
Last modified : 28 Mar 22:34
hishamalip@ideapad-330:~/github/bash_shell$
```

Question 2 :

Write a script that compares two directories dir1 and dir2(supplied as arguments) and copies to dir1 from dir2 every file that is not present in dir1.

Algorithm :

- 1 Read two arguments
- 2 Save list of files in dir1 and dir2 to two different variables dir1_files and dir2_files
- 3 while read i from dir1_files
- 4 while read j from dir2_files

```

5             if j != i
                then copy file in the variable j to dir1 without overwriting
6             end if
7         end while
8 end while

```

Program :

```

dir1=$1
dir2=$2
if [ $# -ne 2 ] ; then
    echo "invalid number of arguments"
elif [ ! -d $dir1 ] && [ ! -d $dir2 ] ; then
    echo "Directory '$dir1' and '$dir2' is not present"
elif [ ! -d $dir1 ] ; then
    echo "Directory '$dir1' is not present"
elif [ ! -d $dir2 ] ; then
    echo "Directory '$dir2' is not present"
else
    ls $dir1 > dir1_files
    ls $dir2 > dir2_files
    while read i ; do
        while read j ; do
            if [ $j != $i ] ; then
                flag=1
                if [ $flag -eq 1 ] ; then
                    cp -n $dir2/$j $dir1/
                fi
            fi
        done < dir2_files
    done < dir1_files
    echo "Files in $dir2 that is not present in $dir is copied to $dir1"
fi

```

Output :

```

hishamalip@ideapad-330:~/github/bash_shell$ ls a
a b c
hishamalip@ideapad-330:~/github/bash_shell$ ls b
b c d e
hishamalip@ideapad-330:~/github/bash_shell$ ./copyfiles_specially.sh a b
Files in b that is not present in a is copied to a
hishamalip@ideapad-330:~/github/bash_shell$ ls a
a b c d e
hishamalip@ideapad-330:~/github/bash_shell$ ls b
b c d e
hishamalip@ideapad-330:~/github/bash_shell$ █

```

Question 3 :

Write a shell script that accepts two file names as arguments, checks if the permissions for these files are identical and if the permissions are identical, output common permissions and otherwise output each file name followed by its permissions.

Algorithm :

- 1 Read two arguments
- 2 Save permission of first file into a variable and second file into another variable
- 3 if check both variables are same , then
 print "identical file permissions"
- 4 else print permissions of both files
- 5 End if

Program :

```
file1=$1
file2=$2
if [ $# -ne 2 ] ; then
    echo "Invalide number of arguments"
elif [ ! -f $file1 ] && [ ! -f $file2 ] ; then
    echo "File '$file1' and '$file2' is not present in the directory"
elif [ ! -f $file1 ] ; then
    echo "File '$file1' is not present in the directory"
elif [ ! -f $file2 ] ; then
    echo "File '$file2' is not present in the directory"
else
    file1_permission="$(ls -l $file1 | awk {'print $1'})"
    file2_permission="$(ls -l $file2 | awk {'print $1'})"
    if [ $file1_permission = $file2_permission ] ; then
        echo "Permissions are identical : $file1_permission"
    else
        echo "File permissions are not identical"
        echo "$file1 : $file1_permission"
        echo "$file2 : $file2_permission"
    fi
fi
```

Output :

```
hishamali@ideapad-330:~/github/bash_shell$ ./identical_permissions.sh calculator.sh rwxFiles.sh
File permissions are not identical
calculator.sh : -rwxrwxr-x
rwxFiles.sh : -rwxr-xr-x
hishamali@ideapad-330:~/github/bash_shell$ ./identical_permissions.sh dir1_files dir2_files
Permissions are identical : -rw-r--r--
hishamali@ideapad-330:~/github/bash_shell$
```

Question 4 :

Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

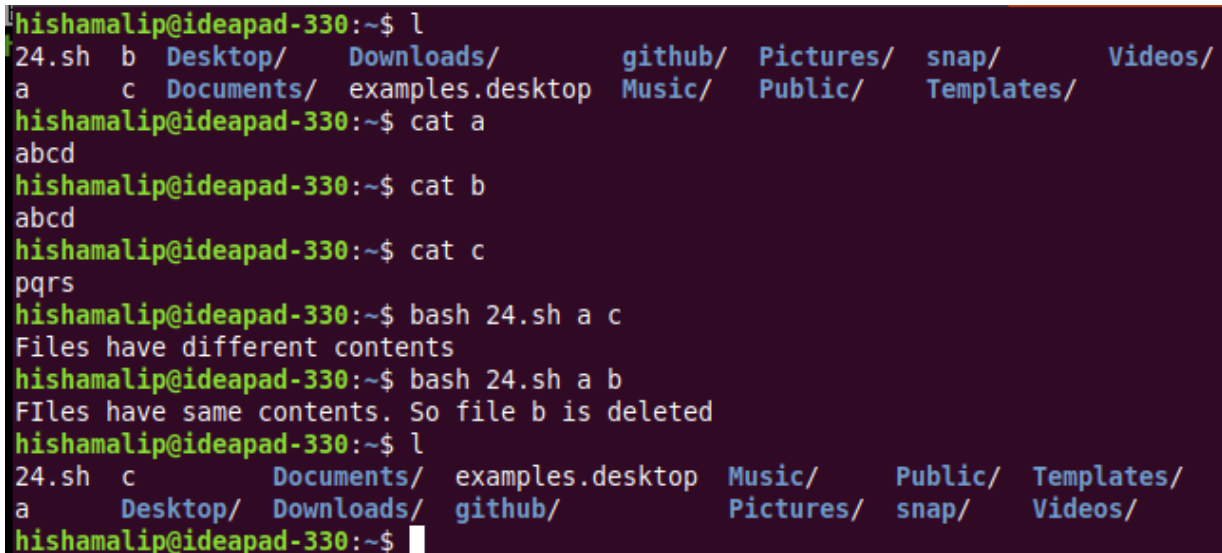
Algorithm :

- 1 Read arguments
- 2 Save the contents of both files into two variables a and b
- 3 if check a = b , then
 delete second file
- 4 else print "different file contents"
- 5 end if

Program :

```
file=$1
file1=$1
file2=$2
if [ $# -ne 2 ] ; then
    echo "Invalide number of arguments"
elif [ ! -f $file1 ] && [ ! -f $file2 ] ; then
    echo "File '$file1' and '$file2' is not present in the directory"
elif [ ! -f $file1 ] ; then
    echo "File '$file1' is not present in the directory"
elif [ ! -f $file2 ] ; then
    echo "File '$file2' is not present in the directory"
else
    file1_cont=$(cat $file1)
    file2_cont=$(cat $file2)
    if [ $file1_cont = $file2_cont ] ; then
        echo "File $file2 is deleted"
        rm $file2
    else
        echo "Files have different contents"
    fi
fi
```

Output :



```
hishamalip@ideapad-330:~$ l
24.sh  b  Desktop/      Downloads/      github/  Pictures/  snap/      Videos/
a      c  Documents/  examples.desktop  Music/    Public/    Templates/
hishamalip@ideapad-330:~$ cat a
abcd
hishamalip@ideapad-330:~$ cat b
abcd
hishamalip@ideapad-330:~$ cat c
pqrs
hishamalip@ideapad-330:~$ bash 24.sh a c
Files have different contents
hishamalip@ideapad-330:~$ bash 24.sh a b
Files have same contents. So file b is deleted
hishamalip@ideapad-330:~$ l
24.sh  c      Documents/  examples.desktop  Music/    Public/  Templates/
a      Desktop/  Downloads/  github/          Pictures/  snap/    Videos/
hishamalip@ideapad-330:~$
```

Question 5 :

Write a shell script that, given a file name as the argument will count vowels, blank spaces, characters, number of line and symbols.

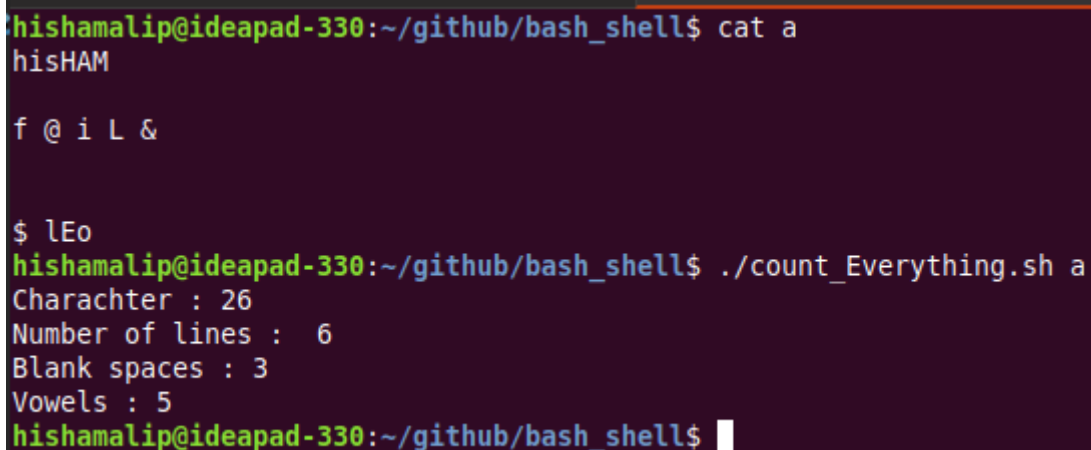
Algorithm :

- 1 Read argument
- 2 Read file and calculate number of vowels, characters, lines, blank spaces and symbols
- 3 Save results into variables
- 4 Display number of vowels, characters, lines, blank spaces and symbols with suitable headers.

Program :

```
if [ $# -eq 0 ] ; then
    echo "Give a file name as argument"
elif [ $# -gt 1 ] ; then
    echo "Invalid, give only one argument"
elif [ ! -f $1 ] ; then
    echo "File '$1' not found"
else
    blank_space=$(grep -c '^$' $1)
    vowels=$(grep -i -o "[aeiou]" $1 | wc -l)
    symbols=$(grep -i -o "[!@#\$%^&*()+-<>]" $1 | wc -l)
    chars=$(cat $1 | wc -c)
    lines=$(cat $1 | wc -l)
    echo "Charachter : $chars"
    echo "Number of lines : $lines"
    echo "Blank spaces : $blank_space"
    echo "Vowels : $vowels"
fi
```

Output :



```
hishamalip@ideapad-330:~/github/bash_shell$ cat a
hisHAM

f @ i L &

$ lEo
hishamalip@ideapad-330:~/github/bash_shell$ ./count_Everything.sh a
Charachter : 26
Number of lines : 6
Blank spaces : 3
Vowels : 5
hishamalip@ideapad-330:~/github/bash_shell$
```

Result :

Practiced various shell scripting programs and output is verified.