

Move files from one folder to the respective folders.

E.g current folder have files abc.txt, def.txt, ghi.txt, jkl.txt

You have to move these files to the folder like abc.txt => abc/ , def.txt => def/ ...

Expected outcome -

abc/abc.txt  
def/def.txt  
ghi/ghi.txt  
jkl/jkl.txt

- Create files in current directory or any temporary directory - abc.txt, def.txt, ghi.txt, jkl.txt
- Print list of files to move.
- Segregate basename and extension of a file.
- Create folder using basename.
- Move file to newly created folder.
- Iterate above steps for all files.

```
MINGW64 ~/Users/Ajinkya/BridgetLabz/1
ajinkya@BridgetLabz:~/BridgetLabz$ nano move.sh
ajinkya@BridgetLabz:~/BridgetLabz$ sh move.sh
cat: nano: move.sh
ls: cannot access 'ls': No such file or directory
for file in $(ls *.txt);
do
    foldername=$(echo $file |awk -F. '{print $1}');
    mkdir $foldername;
    mv $file $foldername;
done
ajinkya@BridgetLabz:~/BridgetLabz$ touch abc.txt def.txt ghi.txt jkl.txt
ajinkya@BridgetLabz:~/BridgetLabz$ sh move.sh
ajinkya@BridgetLabz:~/BridgetLabz$ cd abc
ajinkya@BridgetLabz:~/BridgetLabz/abc$ ls
abc.txt
ajinkya@BridgetLabz:~/BridgetLabz/abc$ cd ../
ajinkya@BridgetLabz:~/BridgetLabz$ cd def
ajinkya@BridgetLabz:~/BridgetLabz/def$ ls
def.txt
ajinkya@BridgetLabz:~/BridgetLabz/def$ cd ../
ajinkya@BridgetLabz:~/BridgetLabz$ cd ghi
ajinkya@BridgetLabz:~/BridgetLabz/ghi$ ls
ghi.txt
ajinkya@BridgetLabz:~/BridgetLabz/ghi$ cd jkl
bash: cd: jkl: No such file or directory
ajinkya@BridgetLabz:~/BridgetLabz/ghi$ ls
ghi.txt
ajinkya@BridgetLabz:~/BridgetLabz/ghi$ cd ../
ajinkya@BridgetLabz:~/BridgetLabz$ cd jkl
ajinkya@BridgetLabz:~/BridgetLabz/jkl$ ls
jkl.txt
ajinkya@BridgetLabz:~/BridgetLabz/jkl$ |
```

Append current date to all log files name which has extension .log.1 from a folder

E.g original file - access.log.1

New updated file name - access-20102019.log

- a) Create files with name abc.log.1, def.log.1 , ghi.log.1, jkl.log.1, mno.log.1
- b) Print list of files to rename.
- c) Segregate basename and extension of a file
- d) Print Date Command to show in ddmmYY
- e) Append Date to the log file name
- f) Iterate above steps for all files which has extension .log.1

```
MINGW64/c:/Users/Ajinkya/BridgeLabz
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ nano name.sh
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ cat name.sh
for file in `ls *.log.1`
do
    filename=`echo $file | awk -F "." '{print $1}'`;
    today=$(date +%Y-%m-%d)
    files="${filename}${today}.log";
    cp $file $files;
    echo $files;
done
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ touch access.log.1
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ sh name.sh
abc2020-05-05.log
access2020-05-05.log
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ |
```

Print last 4 frequently access urls count in sorted order from /var/log/httpd/access.log

- a) View /var/log/httpd/access.log
- b) Print field which has urls data.
- c) Sort extracted urls and count it
- d) Print 4 unique urls

Expect sample output -

```
3458 /index.html
300 /api/swagger-ui.html
100 /favi.ico
20 /robots.txt
```

```
MINGW64/c:/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ tail -4 access.log | awk '{print $7}' | sort -n | uniq -c
  1 /ads.txt
  2 /robots.txt
  1 /wp-login.php
Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ |
```

Print list of last 4 frequently access unique urls at particular hours from /var/log/httpd/access.log

- View access.log without opening it using editor.
- Print urls which has given timestamp.
- Sort extracted urls and count it
- Print 4 unique urls

Expect sample output -

```
3458 /index.html
300 /api/swagger-ui.html
100 /favi.ico
20 /robots.txt
```

```
MINGW64/C:/Users/Ajinkya/bridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat access.log | awk '{print $11}' | sort -n | uniq -ic | sort -nr
1475 "https://fundoopush-dev.bridgelabz.com/login"
1141 "https://fundoopush-dev.bridgelabz.com/dashboard/article"
377 "-"
176 "https://fundoopush-dev.bridgelabz.com/add-post"
28 "https://fundoopush-dev.bridgelabz.com/"
5 "https://fundoopush-dev.bridgelabz.com/dashboard/jobs"
4 "http://fundoopush-dev.bridgelabz.com/wp-login.php"
2 "http://fundoopush-dev.bridgelabz.com/.well-known/acme-challenge/4xM-Y1899BrBIJ76P5Er2sj2VhEtyi_DFvFo6xiMXXw"
1 "https://fundoopush-dev.bridgelabz.com/dashboard/hashtags/animals"
1 "https://fundoopush-dev.bridgelabz.com/dashboard/archive"
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$
```

Print list of web response code count in the unique sorted order at specific hours

- a) View access.log without opening it using editor.
- b) Print web response code field which has given timestamp
- c) Sort extracted response code and count it
- d) Print 4 unique response code count

Expected sample output -  
1000 200  
100 304

```
MINGW64/c:/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz/linux-content (master)
$ awk '{print $9}' access.log | sort | uniq -c
  3176 200
     8 206
    26 304

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz/linux-content (master)
$ |
```

Print list of last 10 unique sorted client IP from /var/log/httpd/access.log

- a) View access.log without opening it using editor.
- b) Print client ip field from access log
- c) Sort extracted client IP and count it
- d) Print 4 unique client IPs

Expect sample output -

```
3635 107.181.177.135
423 27.62.203.44
45 157.44.195.138
4 157.39.158.225
```

```
MINGW64/c:/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz/linux-content (master)
$ tail -10 access.log | awk '{print $16}' | sort -n | uniq -c
  1 "209.17.96.138"
  4 "66.249.79.45"
  4 "66.249.79.48"
  1 x86_64;

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz/linux-content (master)
$ |
```

Check if a folder exists or not. If it's not present, create it

- a) Test if particular folder exists in current directory or not
- b) If it doesn't exist then create it else print "folder already exists.."

```
MINGW64/c/Users/Ajinkya/BridgeLabz
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ nano exists.sh
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ cat exists.sh
for file in `ls *.txt`
do
    foldername=`echo $file | awk -F. '{print $1}'`;
    if [ -d $foldername ]
    then
        rm -r $foldername;
        echo "folder already exists..";
    else
        mkdir $foldername;
    fi
done
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ sh exists.sh
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ touch q.txt
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ sh exists.sh
folder already exists..
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$
```

Execute command "hello" and "ls" and check its execution status and print whether command executed successful or not.

- a) Execute "hello" command at command prompt
- b) Check execution status of "hello" command
- c) Execute "ls" command at command prompt
- d) Check execution status of "ls" command

```
MINGW64/c/Users/Ajinkya/BridgeLabz
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo hello
hello

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $?
0

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ ls
abc/          def/          move/          primerange.sh*
abc.log.1     Editor/       move.sh        ps/
abc2020-05-05.log employee.sh*  name.sh       random.sh*
abcd.pdf      evenodd.sh*  Nano/         steps.sh*
access.log.1  exists.sh    original/     temp/
access2020-05-05.log for.sh*      original-backup/ updated/
add.sh*       ghi/         original-file.sh updated-file.sh
add1.sh*      hj.txt       prime.sh*     while.sh*
copyfile.sh   jkl/        Primen.sh*
copyfiles.sh* linux-content/ primeno.sh*
```

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz  
\$ echo \$?  
0

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz  
\$ |



Create process list table displays process id, parent process id, command name, % of memory consumption, % of cpu utilization

PID	PPID	CMD	%MEM	%CPU
760	1	/usr/bin/dockerd -H unix://	3.5	0.0
776	1	/usr/bin/containerd	0.7	0.1
7266	757	sshd: root@pts/0	0.6	0.0
759	1	/usr/sbin/rsyslogd -n	0.5	0.0
347	1	/usr/lib/systemd/systemd-journal	0.3	0.0
484	1	/usr/sbin/NetworkManager	0.3	0.0
1	0	/usr/lib/systemd/systemd	0.2	0.0
7268	7266	-bash	0.2	0.0
758	1	/usr/bin/python -Es /usr/sbin	0.1	0.0

```
MINGW64/c/Users/Ajinkya
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~
$ ps
  PID   PPID   PGID   WINPID   TTY      UID     STIME  COMMAND
  395    352    395    12800    pty0     197609  20:50:20 /usr/bin/ps
  352    351    352    5144     pty0     197609  20:49:26 /usr/bin/bash
  351     1     351    16636    ?        197609  20:49:26 /usr/bin/mintty

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~
$ |
```

Set environment `usersecret="dH34xJaa23"` if its already not set

- a) Check whether environment variable `usersecret` assigned any value or not
- b) Print error if `usersecret` already set
- c) Set environment variable `usersecret` to given value.

```
MINGW64/c/Users/Ajinkya/BridgeLabz
SIG may be a signal name like 'PIPE', or a signal number like '13'.
Without SIG, all known signals are included. Multiple signals can be
comma-separated.

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation <https://www.gnu.org/software/coreutils/env>
or available locally via: info '(coreutils) env invocation'

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $USERNAME
Ajinkya

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $username

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $USERSECRET

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $USERDOMAIN
LAPTOP-MFHMGLHD

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ export usersecret=dH34xJaa23

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ echo $usersecret
dH34xJaa23

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz
$ |
```

Find a word "systemd" from all log files in the folder /var/log and print number of occurrence more than 0 against each file.

a) Use linux command to search word and print occurrence

```
MINGW64/c/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ find / -name systemd*
/usr/share/vim/vim82/ftplugin/systemd.vim
/usr/share/vim/vim82/indent/systemd.vim
/usr/share/vim/vim82/syntax/systemd.vim

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$
```

## Data analysis / manipulation (Awk)

Id	Employee Name	Job Title	Base Pay	Overtime Pay	Other Pay	Total Pay	TotalPayBenefits
1	NATHANIEL	GM	167411	0	400184	567595	567595
2	GARY	CAPTAIN	155966	245131	137811	538909	538909
3	ALBERT	CAPTAIN	212739	106088	16452	335279	335279
4	CHRISTOPHER	MECHANIC	77916	56120	198306	332343	332343
5	PATRICK	DEPUTY CHIEF	134401	9737	182234	326373	326373
6	DAVID	ASST DEPUTY	118602	8601	189082	316285	316285
7	ALSON	BATTALION CHIEF	92492	89062	134426	315981	315981
8	DAVID	DEPUTY DIRECTOR	256576	0	51322	307899	307899
10	JOANNE	CHIEF	285262	0	17115	302377	302377
12	PATRICIA	CAPTAIN	99722	87082	110804	297608	297608
13	EDWARD	EXECUTIVE	294580	0	0	294580	294580

i) Print EmployeeName and TotalPay who has BasePay greater than 10000

- Read data file 'data.csv' from command line and extract rows which have BasePay > 10000
- Print only EmployeeName and TotalPay

ii) What is the aggregate TotalPay of employees whose jobtitle is 'CAPTAIN'

- Read data file 'data.csv' from command line and extract rows which have 'CAPTAIN' in the column 'jobtitle'
- Extract TotalPay and calculate sum. Print the result on terminal.

iii) Print JobTitle and Overtimepay who has Overtimepay is between 7000 and 10000

- Read data file 'data.csv' from command line and extract jobtitle and overtimepay for column value range between 7000-10000
- Print the result on terminal.

iv) Print average BasePay

- Read data file 'data.csv' from command line and extract BasePay values and calculate its average
- Print the result on terminal.

i)

```

MINGW64~/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-NFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv
Id EmployeeName JobTitle BasePay OvertimePay OtherPay TotalPay TotalPayBenefits
1 NATHANIEL GM 167411 0 400184 567595 567595
2 GARY CAPTAIN 155966 245131 137811 538909 538909
3 ALBERT CAPTAIN 212739 106088 16452 335279 335279
4 CHRISTOPHER MECHANIC 77916 56120 198306 332343 332343
5 PATRICK DEPUTYCHIEF 134401 9737 182234 326373 326373
6 DAVID ASSTDEPUTY 118602 8601 189082 316285 316285
7 ALSON BATTALIONCHIEF 92492 89062 134426 315981 315981
8 DAVID DEPUTYDIRECTOR 256576 0 51322 307899 307899
10 JOANNE CHIEF 285262 0 17115 302377 302377
12 PATRICIA CAPTAIN 99722 87082 110804 297608 297608
13 EDWARD EXECUTIVE 294580 0 0 294580 294580

Ajinkya@LAPTOP-NFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$ awk '($4 > 10000) {print $2, $7}' data.csv
EmployeeName TotalPay
NATHANIEL-567595
GARY-538909
ALBERT-335279
CHRISTOPHER-332343
PATRICK-326373
DAVID-316285
ALSON-315981
DAVID-307899
JOANNE-302377
PATRICIA-297608
EDWARD-294580

```

ii)

```
MINGW64/c/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv
Id EmployeeName JobTitle BasePay OvertimePay OtherPay TotalPay TotalPayBenefits
1 NATHANIEL GM 167411 0 400184 567595 567595
2 GARY CAPTAIN 155966 245131 137811 538909 538909
3 ALBERT CAPTAIN 212739 106088 16452 335279 335279
4 CHRISTOPHER MECHANIC 77916 56120 198306 332343 332343
5 PATRICK DEPUTYCHIEF 134401 9737 182234 326373 326373
6 DAVID ASSTDEPUTY 118602 8601 189082 316285 316285
7 ALSON BATTALIONCHIEF 92492 89062 134426 315981 315981
8 DAVID DEPUTYDIRECTOR 256576 0 51322 307899 307899
10 JOANNE CHIEF 285262 0 17115 302377 302377
12 PATRICIA CAPTAIN 99722 87082 110804 297608 297608
13 EDWARD EXECUTIVE 294580 0 0 294580 294580

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv | grep -i captain
2 GARY CAPTAIN 155966 245131 137811 538909 538909
3 ALBERT CAPTAIN 212739 106088 16452 335279 335279
12 PATRICIA CAPTAIN 99722 87082 110804 297608 297608

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv | grep -i captain | awk '{sum+=$7} END{print sum/NR}'
390599

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ |
```

iii)

```
MINGW64/c/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv
Id EmployeeName JobTitle BasePay OvertimePay OtherPay TotalPay TotalPayBenefits
1 NATHANIEL GM 167411 0 400184 567595 567595
2 GARY CAPTAIN 155966 245131 137811 538909 538909
3 ALBERT CAPTAIN 212739 106088 16452 335279 335279
4 CHRISTOPHER MECHANIC 77916 56120 198306 332343 332343
5 PATRICK DEPUTYCHIEF 134401 9737 182234 326373 326373
6 DAVID ASSTDEPUTY 118602 8601 189082 316285 316285
7 ALSON BATTALIONCHIEF 92492 89062 134426 315981 315981
8 DAVID DEPUTYDIRECTOR 256576 0 51322 307899 307899
10 JOANNE CHIEF 285262 0 17115 302377 302377
12 PATRICIA CAPTAIN 99722 87082 110804 297608 297608
13 EDWARD EXECUTIVE 294580 0 0 294580 294580

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv | awk '$5>7000 && $5<10000 { print }'
5 PATRICK DEPUTYCHIEF 134401 9737 182234 326373 326373
6 DAVID ASSTDEPUTY 118602 8601 189082 316285 316285

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv | awk '$5>7000 && $5<10000 { print $3 "\t" $5}'
DEPUTYCHIEF 9737
ASSTDEPUTY 8601

Ajinkya@LAPTOP-MFHMGIHD MINGW64 ~/BridgeLabz/linux-content (master)
$
```

iv)

```
MINGW64/c:/Users/Ajinkya/BridgeLabz/linux-content
Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$ cat data.csv
Id EmployeeName JobTitle BasePay OvertimePay otherPay TotalPay TotalPayBenefits
1 NATHANIEL GM 167411 0 400184 567595 567595
2 GARY CAPTAIN 155966 245131 137811 538909 538909
3 ALBERT CAPTAIN 212739 106088 16452 335279 335279
4 CHRISTOPHER MECHANIC 77916 56120 198306 332343 332343
5 PATRICK DEPUTYCHIEF 134401 9737 182234 326373 326373
6 DAVID ASSTDEPUTY 118602 8601 189082 316285 316285
7 ALSON BATTALIONCHIEF 92492 89062 134426 315981 315981
8 DAVID DEPUTYDIRECTOR 256576 0 51322 307899 307899
10 JOANNE CHIEF 285262 0 17115 302377 302377
12 PATRICIA CAPTAIN 99722 87082 110804 297608 297608
13 EDWARD EXECUTIVE 294580 0 0 294580 294580

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$ awk '{sum+=$4} END{print sum/NR}' data.csv
157972

Ajinkya@LAPTOP-MFHMGLHD MINGW64 ~/BridgeLabz/linux-content (master)
$
```



Find the difference between original file and the updated file.  
Apply changes to the original file.

- a) Create two directories as "original" and "updated"
- b) Copy given file 'original-file.sh' to the folder "original" and "updated-file.sh" to the folder "updated"
- c) Find the difference between these directories using linux command
- d) Make copy of folder "original" to some other directory as "original-backup" and apply changes to 'original-file.sh' file
- e) Verify that both folders "updated" and "original-backup" have no difference.

```
MINGW64/c:/Users/Ajinkya/BridgeLabz
Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ mkdir original updated

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ touch original-file.sh updated-file.sh

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ cp original-file.sh original

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ cp updated-file.sh updated

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ diff original updated
Only in original: original-file.sh
Only in updated: updated-file.sh

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ cp -r original original-backup

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$ diff updated original-backup
Only in original-backup: original-file.sh
Only in updated: updated-file.sh

Ajinkya@LAPTOP-MFHMG1HD MINGW64 ~/BridgeLabz
$
```