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BUSA 8090  
Assignment 1  
March 18, 2020

First of all, the URL of my code from github,

<https://github.com/zacharyPan/BUSA8090assignment1>

Problem1,

```
#!/bin/bash
# save as newer.sh
# Author, Zhengyu Pan
# Mar 18th, 2020
# this program will give input file(s) and print
# the newest file

# first of all I need initial the file and number(the higher
# the newer) of the file, so in the for loop I could make a compare
newFile=$1
newNumber=$(ls -i "$newFile" | awk 'NR==1{print $1}')

# I don't 100% happy with the for-loop
# in python I would do for i in range(1,len(allFile))
# to avoid compare the first file information with the
# first file. However, in linux shell, I don't know how
# to do it yet
for file in "$@"; do # (linux-How to pass multiple files to
                    # a Bash script as variables?, n.d.)
    number=$(ls -i "$file" | awk 'NR==1{print $1}')
    # (filesystems-How to find a very latest created file
    # in current directory on linux machine?, n.d.)
    # get the number from the file

    # compare with current newest file
    # if the current file's number is greater than
    # current newest file, replace
    if test $number -gt $newNumber; then
        newFile=$file
        NewNumber=$number
    fi
done

# print the file with biggest number, which is the newest file
echo "$newFile"

let first check top newest file
ubuntu@ip-172-31-28-245:~$ ls -lt
total 288
```

```

-rwxrw-r-- 1 ubuntu ubuntu 1650 Mar 18 08:46 newer.sh
-rwxrw-r-- 1 ubuntu ubuntu 569 Mar 18 06:33 test_me.sh
-rwxrwxr-x 1 ubuntu ubuntu 1033 Mar 18 06:14 time-signal.sh
-rw-rw-r-- 1 ubuntu ubuntu 37 Mar 17 19:22 test
-rwxrw-r-- 1 ubuntu ubuntu 426 Mar 17 17:21 exam.sh
-rwxrw-r-- 1 ubuntu ubuntu 100 Mar 17 17:08 ls.sh
-rwxrw-r-- 1 ubuntu ubuntu 13 Mar 17 17:04 goo.sh
-rwxrw-r-- 1 ubuntu ubuntu 248 Mar 17 17:03 foo.sh
-rw-rw-r-- 1 ubuntu ubuntu 91 Mar 16 12:47 expression.tab
-rw-rw-r-- 1 ubuntu ubuntu 368 Mar 16 12:38 annotation.tab
drwxrwxr-x 3 ubuntu ubuntu 4096 Mar 16 08:18 beg-sql-queries
-rw-rw-r-- 1 ubuntu ubuntu 62755 Mar 16 07:55 GolfCulb.accdb
-rw-rw-r-- 1 ubuntu ubuntu 75030 Mar 16 07:54 CreateTable.sql
-rw-rw-r-- 1 ubuntu ubuntu 103687 Mar 16 07:53 CreateData.sql
-rw-rw-r-- 1 ubuntu ubuntu 0 Mar 15 18:02 hoo
-rw-rw-r-- 1 ubuntu ubuntu 0 Mar 15 18:01 goo
-rw-rw-r-- 1 ubuntu ubuntu 0 Mar 15 18:00 foo

```

check

```
ubuntu@ip-172-31-28-245:~$ ./newer.sh goo hoo foo
```

hoo

```
ubuntu@ip-172-31-28-245:~$ ./newer.sh exam.sh ls.sh goo.sh
expression.tab
```

goo.sh

from the result I could concluded that my code is correct

## Problem 2

```
#!/bin/bash
# saved as test_me.sh
# the program will check if there is txt or not txt all
# Author Zhengyu Pan
# March 18th, 2020

if test -z "$1"; then      # if there is nothing at all
                           # we just need to check $1 since
                           # if there is $2 that means there
                           # are something
                           # (Gite, 2012)
    echo "This is NOT a test"
else
    echo "This is a test"
fi
```

```
ubuntu@ip-172-31-28-245:~$ ./test_me.sh hello world
This is a test
ubuntu@ip-172-31-28-245:~$ ./test_me.sh a
This is a test
ubuntu@ip-172-31-28-245:~$ ./test_me.sh
This is NOT a test
```

**We could tell the code work**

## Problem 3

a.)

in Ubuntu command window,  
curl https://www.staff.hs-mittweida.de/~wuenschi/data/media/compbiolbook/chapter-10-shell-programming--time-signal.sh > time-signal.s

b.)

check

ubuntu@ip-172-31-28-245:~\$ help let

we got that “let” will make the rest line as an arithmetic expression.

So let count = count + 1, the old count value been replace by old count value +1, which is equal to count=\$((count+1))

c.)

expr would evaluate an expression, expr \$count+1, would get a numerical result of value count add one. then sign the value to count again count=\$((expr \$count+1)). Which would make count add 1, which is equal to count=\$((count+1))

(Expr—Unix, Linux Command—Tutorialspoint, n.d.)

d.)

\$((expression)) is also an arithmetic expression, but only work for integer. In this case, we only want to add one, so it equal to count=\$((count+1))

(Arithmetic Expansion, n.d.)

e.)

```
#!/bin/bash
# save as time-signal.sh
# gives a time signal every hour when connected to cron
# Author, Zhengyu Pan
# modified code from https://www.staff.hs-mittweida.de/~wuenschi/data/media/compbiolbook/chapter-10-shell-programming--time-signal.sh
```

```
time=$(date +%I)
minute=$(date +%M) # get the minute
a=15 # set number equal to 15, 30 and 45
b=30
c=45
count=0
while test $count -lt $time; do
    echo -e "\a"
    sleep 1 # sleep for one second
    count=$((count+1))
done
sleep 3 # quiet for 3 second

if test $minute -le $a ;then # if minues less than 15
```

```

                                # do nothing
    exit
elif test $minute -le $b ;then # since we already check minute is
not                               # less than 15 if it goes here. so
just                               # check it less than 30, which is
                                # if 15 < minute <= 30

    echo -e "\a"
elif test $minute -le $c ;then # simialar with comment above
    echo -e "\a"
    echo -e "\a"

else                               # else refer to all cases minute > 45
    echo -e "\a"
    echo -e "\a"
    echo -e "\a"
fi

```

**it works and it take me an hour to check it really works.**

Reference:

Arithmetic Expansion. (n.d.). Retrieved March 18, 2020, from <https://www.tldp.org/LDP/abs/html/arithexp.html>

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Gite, V. (2012, December 6). Bash Shell Find Out If a Variable Is Empty Or Not. NixCraft. <https://www.cyberciti.biz/faq/unix-linux-bash-script-check-if-variable-is-empty/>

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