Linux 設計實務 Assignment02

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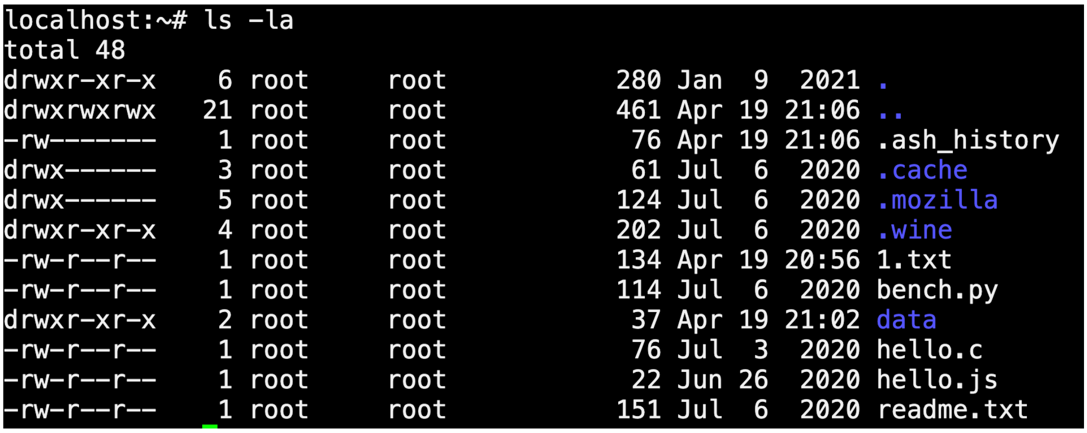
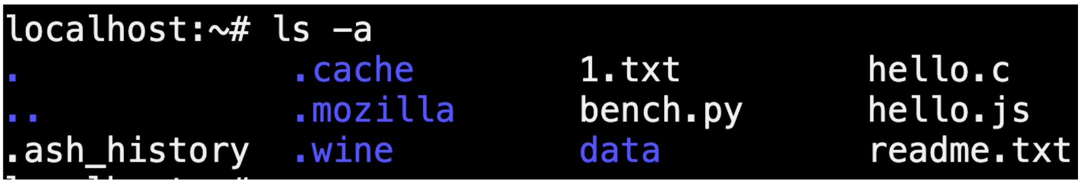
Question 1:How do you list all files, including hidden ones, in the current directory?

- Command: `ls -la` or `ls -a`



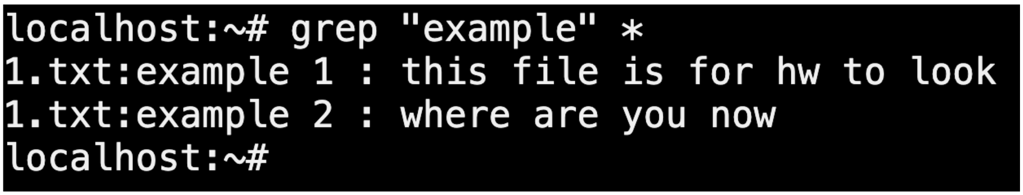
```
localhost:~# ls -la
total 48
drwxr-xr-x    6 root     root           280 Jan  9  2021 .
drwxrwxrwx   21 root     root           461 Apr 19 21:06 ..
-rw-------    1 root     root            76 Apr 19 21:06 .ash_history
drwx------    3 root     root            61 Jul  6  2020 .cache
drwx------    5 root     root           124 Jul  6  2020 .mozilla
drwxr-xr-x    4 root     root           202 Jul  6  2020 .wine
-rw-r--r--    1 root     root           134 Apr 19 20:56 1.txt
-rw-r--r--    1 root     root           114 Jul  6  2020 bench.py
drwxr-xr-x    2 root     root            37 Apr 19 21:02 data
-rw-r--r--    1 root     root            76 Jul  3  2020 hello.c
-rw-r--r--    1 root     root            22 Jun 26  2020 hello.js
-rw-r--r--    1 root     root           151 Jul  6  2020 readme.txt
```



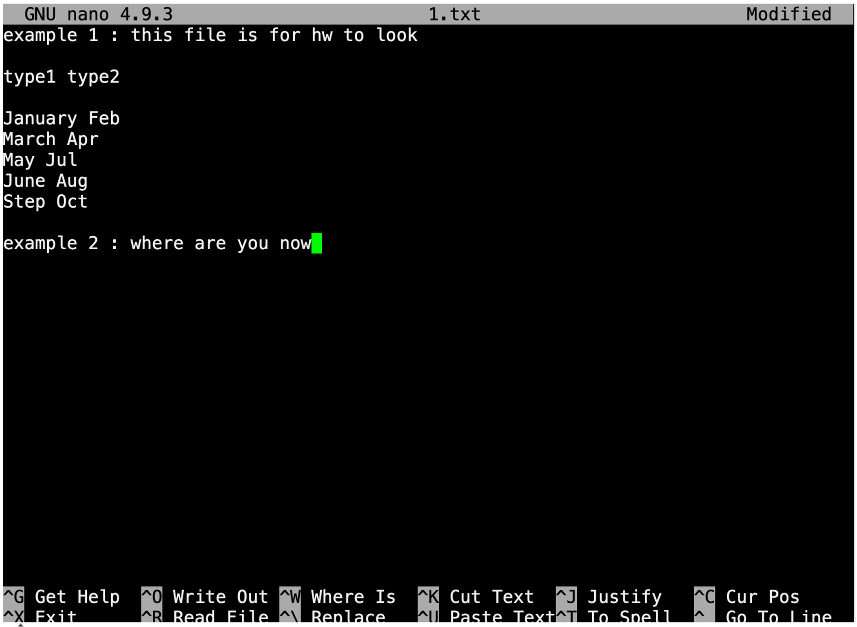
```
localhost:~# ls -a
.               .cache          1.txt           hello.c
..              .mozilla        bench.py        hello.js
.ash_history    .wine           data            readme.txt
```

Question 2: Describe how to search for the word "example" within files in a directory using a single command.

- Command: `grep "example" *`



```
localhost:~# grep "example" *
1.txt:example 1 : this file is for hw to look
1.txt:example 2 : where are you now
localhost:~#
```

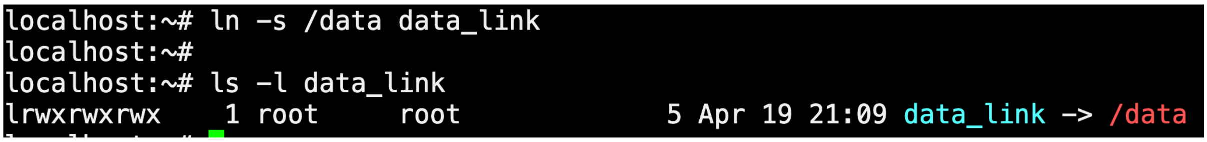


```
  GNU nano 4.9.3                      1.txt                          Modified
example 1 : this file is for hw to look

type1 type2

January Feb
March Apr
May Jul
June Aug
Step Oct

example 2 : where are you now
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify   ^C Cur Pos
^X Exit   ^R Read File ^\ Replace   ^U Paste Text^T To Spell   ^_ Go To Line

Question 3: Explain the process of creating a symbolic link named data_link that points to a directory named data.

- Command: `ln -s /path/to/data data_link`



```
localhost:~# ln -s /data data_link
localhost:~#
localhost:~# ls -l data_link
lrwxrwxrwx    1 root     root             5 Apr 19 21:09 data_link -> /data
```

Question 4: Using nano, how can you jump directly to line 25 of an open file?

- Command: Press `Ctrl` + `Shift` + `_`, then type `25`, and press `Enter`.
- Source: (Linux week04.pdf, page 26.)

• Jumping to Specific Lines or Characters:

• To go to a specific line in the file, press Ctrl+_ (Ctrl+Shift+-), then type the line number and press Enter.

• Nano does not support jumping directly to a specific character, but combining line navigation with arrow keys can effectively position the cursor.

Question 5: Detail the steps to replace all occurrences of the word "Linux" with "UNIX" in a file named sample.txt using nano.

- Description:

1. Open the file: `nano sample.txt`
2. Replace: Press `Ctrl` + `\` , enter `Linux`, and replace it with `UNIX`
3. Apply: Press `A` to apply to all matches
4. Save and exit: Press `Ctrl` + `X`

- Source: (Linux week04.pdf, page 23.)

• ReplacingText:

• Press Ctrl+\ to initiate the replace function.

• Enter the search term, the replacement term, and then choose to replace one instance at a time or all instances at once.

Question 6: Write a shell script that prints the current directory path to the console.

- Command:

```
#!/bin/bash
    echo "Current directory:    $(pwd)"
```

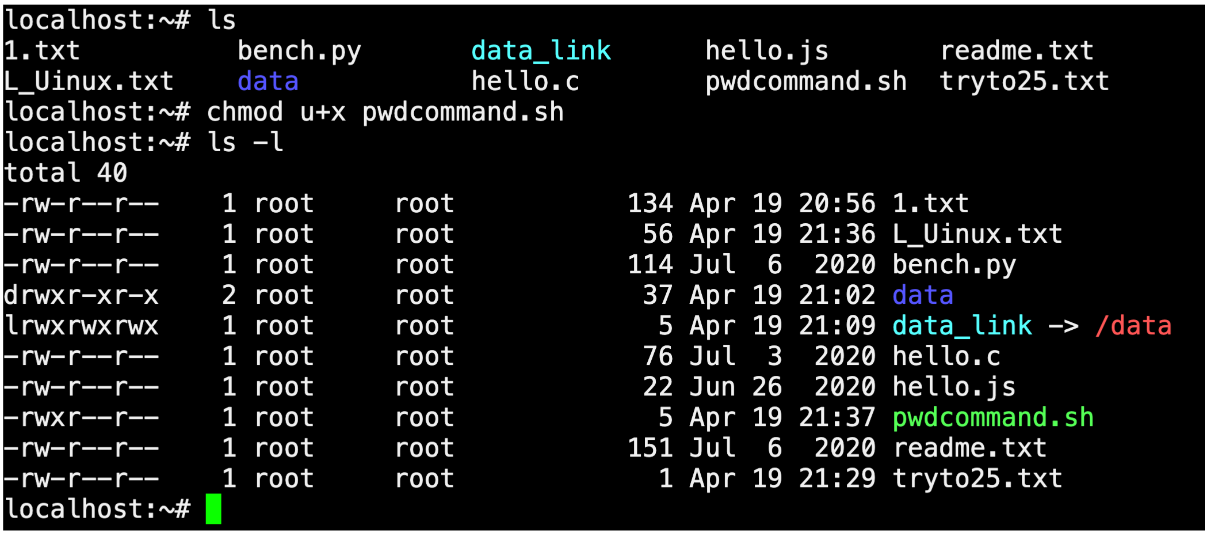
Need to do first:

`nano pwdcommand.sh`

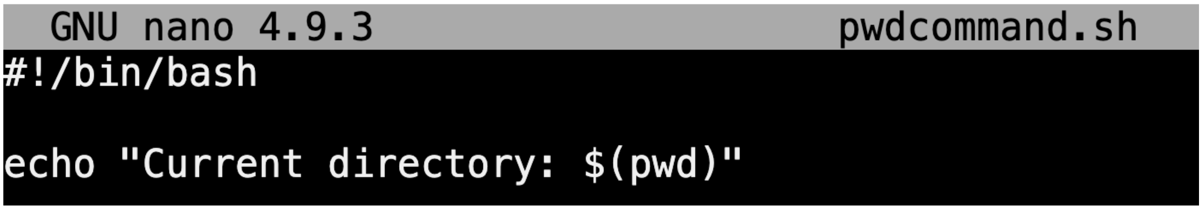
`Ctrl` + `O` -> `Enter` -> `Ctrl` + `X` -> `Enter`

Back to Terminal: chmod u+x pwdcommand.sh

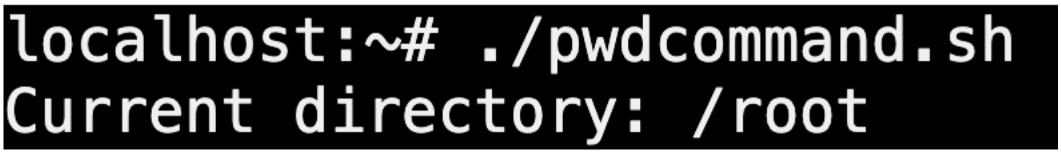
Then use `./pwdcommand.sh`



```
localhost:~# ls
1.txt          bench.py       data_link      hello.js       readme.txt
L_Uinux.txt    data           hello.c        pwdcommand.sh  tryto25.txt
localhost:~# chmod u+x pwdcommand.sh
localhost:~# ls -l
total 40
-rw-r--r--    1 root     root           134 Apr 19 20:56 1.txt
-rw-r--r--    1 root     root            56 Apr 19 21:36 L_Uinux.txt
-rw-r--r--    1 root     root           114 Jul  6  2020 bench.py
drwxr-xr-x    2 root     root            37 Apr 19 21:02 data
lrwxrwxrwx    1 root     root             5 Apr 19 21:09 data_link -> /data
-rw-r--r--    1 root     root            76 Jul  3  2020 hello.c
-rw-r--r--    1 root     root            22 Jun 26  2020 hello.js
-rwxr--r--    1 root     root             5 Apr 19 21:37 pwdcommand.sh
-rw-r--r--    1 root     root           151 Jul  6  2020 readme.txt
-rw-r--r--    1 root     root             1 Apr 19 21:29 tryto25.txt
localhost:~# 
```



```
  GNU nano 4.9.3                          pwdcommand.sh
#!/bin/bash

echo "Current directory: $(pwd)"
```



```
localhost:~# ./pwdcommand.sh
Current directory: /root
```

Question 7: How can you pass arguments to a shell script? Provide an example script that echoes the first argument to the console.

- Command:

```bash
#!/bin/bash
echo "First argument: $1"
```

Question 8: Create a script that checks if a file named test.txt exists in the current directory. If it does, the script should print "File exists"; otherwise, "File does not exist".

- Command:

```
#!/bin/bash
if [ -e "test.txt" ]; then
        echo "File exists"
else
        echo "File does not exist"
fi
```

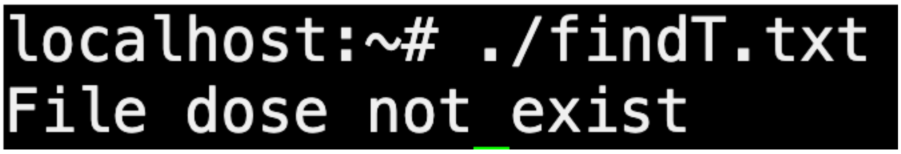
Need to do first:

`nano findT.sh`

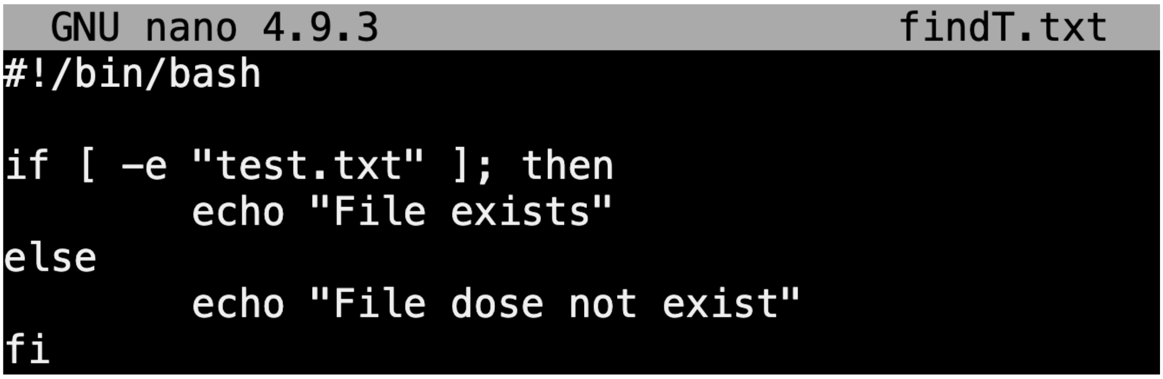
`Ctrl` + `O` -> `Enter` -> `Ctrl` + `X` -> `Enter`

Back to Terminal: chmod u+x findT.sh

Then use `./ findT.sh `



```
localhost:~# ./findT.txt
File dose not exist
```



```
  GNU nano 4.9.3                              findT.txt
#!/bin/bash

if [ -e "test.txt" ]; then
        echo "File exists"
else
        echo "File dose not exist"
fi
```

Question 9: Explain how to create an array named colors containing three colors. Then, write a script snippet to print each color on a new line.

- Command:

```
#!/bin/bash
colors=("red" "blue" "green" "yellow")
for i in "${colors[@]}"; do
        echo "$i"
done
```

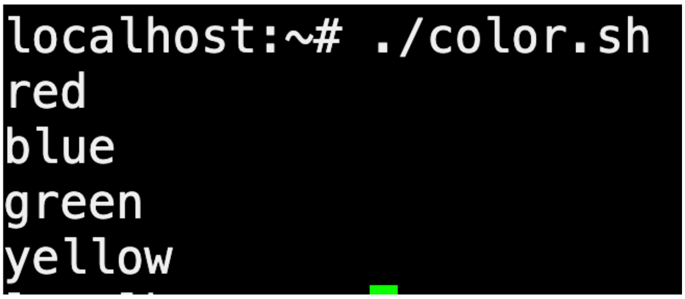
Need to do first:

`nano color.sh`

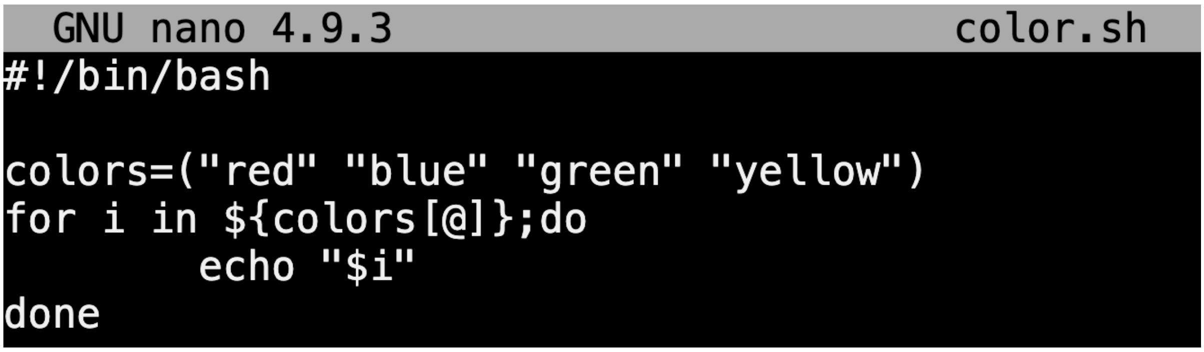
`Ctrl` + `O` -> `Enter` -> `Ctrl` + `X` -> `Enter`

Back to Terminal: chmod u+x color.sh

Then use `./ color.sh `



```
localhost:~# ./color.sh
red
blue
green
yellow
```



```
  GNU nano 4.9.3                                  color.sh
#!/bin/bash

colors=("red" "blue" "green" "yellow")
for i in ${colors[@]};do
        echo "$i"
done
```

Question 10: Write a script that loops through numbers 1 to 10 and prints each number, but if the number is divisible by 3, it prints "Fizz" instead.

- Command:

```
#!/bin/bash
for i in {1..10}; do
    if [ $(($i % 3)) -eq 0 ]; then
        echo "Fizz"
    else
        echo "$i"
    fi
done
```

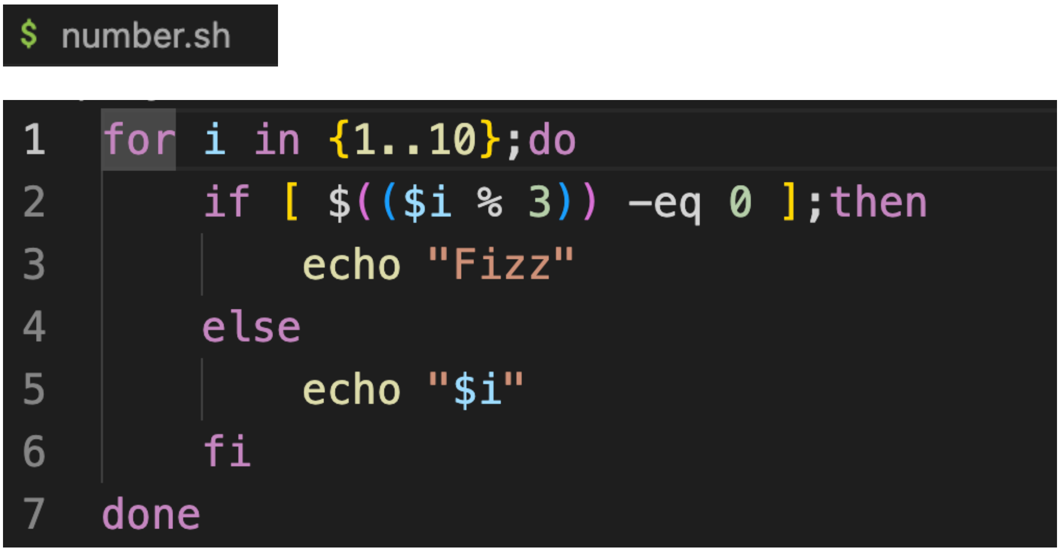
Need to do first:

`nano number.sh`

`Ctrl` + `O` -> `Enter` -> `Ctrl` + `X` -> `Enter`

Back to Terminal: chmod u+x number.sh

Then use `./ number.sh `



```
for i in {1..10};do
    if [ $(($i % 3)) -eq 0 ];then
        echo "Fizz"
    else
        echo "$i"
    fi
done
```

Question 11: Develop a script that backs up all .txt files from the current directory into a directory ./backup/txts/, appending the current date to each filename.

- Command:

```
#!/bin/bash
backup_dir="./backup/txts"
mkdir -p "$backup_dir"
for file in *.txt; do
        cp "$file" "$backup_dir/${file%.*}_$(date +%Y-%m-%d).txt"
done
```

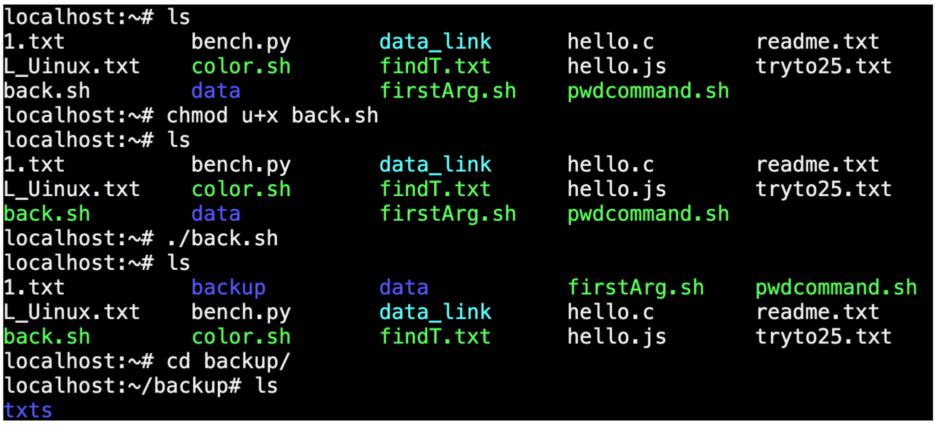
Need to do first:

`nano back.sh`

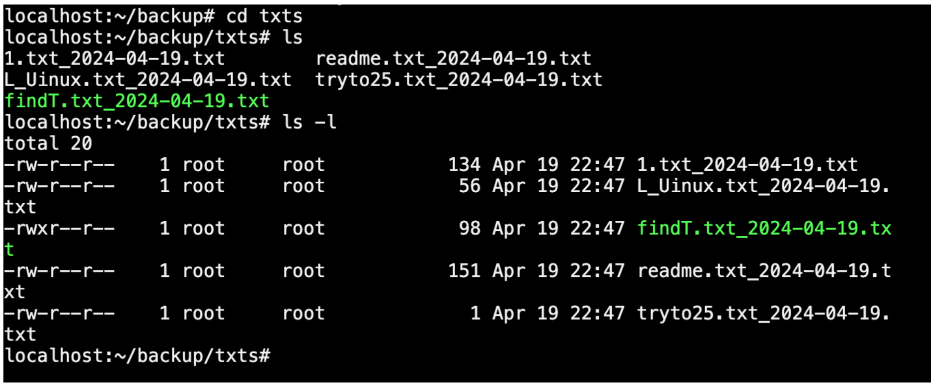
`Ctrl` + `O` -> `Enter` -> `Ctrl` + `X` -> `Enter`

Back to Terminal: chmod u+x back.sh

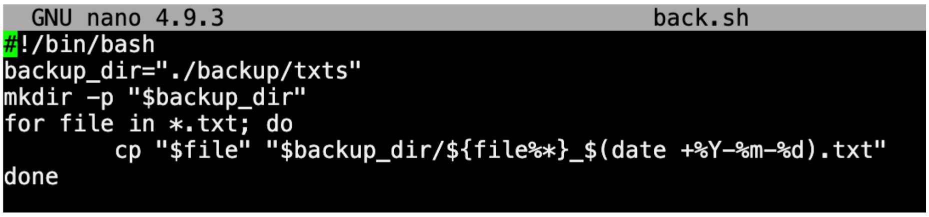
Then use `./ back.sh `



```
localhost:~# ls
1.txt           bench.py        data_link       hello.c         readme.txt
L_Uinux.txt     color.sh        findT.txt       hello.js        tryto25.txt
back.sh         data            firstArg.sh     pwdcommand.sh
localhost:~# chmod u+x back.sh
localhost:~# ls
1.txt           bench.py        data_link       hello.c         readme.txt
L_Uinux.txt     color.sh        findT.txt       hello.js        tryto25.txt
back.sh         data            firstArg.sh     pwdcommand.sh
localhost:~# ./back.sh
localhost:~# ls
1.txt           backup          data            firstArg.sh     pwdcommand.sh
L_Uinux.txt     bench.py        data_link       hello.c         readme.txt
back.sh         color.sh        findT.txt       hello.js        tryto25.txt
localhost:~# cd backup/
localhost:~/backup# ls
txts
```



```
localhost:~/backup# cd txts
localhost:~/backup/txts# ls
1.txt_2024-04-19.txt          readme.txt_2024-04-19.txt
L_Uinux.txt_2024-04-19.txt  tryto25.txt_2024-04-19.txt
findT.txt_2024-04-19.txt
localhost:~/backup/txts# ls -l
total 20
-rw-r--r--    1 root     root           134 Apr 19 22:47 1.txt_2024-04-19.txt
-rw-r--r--    1 root     root            56 Apr 19 22:47 L_Uinux.txt_2024-04-19.
txt
-rwxr--r--    1 root     root            98 Apr 19 22:47 findT.txt_2024-04-19.tx
t
-rw-r--r--    1 root     root           151 Apr 19 22:47 readme.txt_2024-04-19.t
xt
-rw-r--r--    1 root     root             1 Apr 19 22:47 tryto25.txt_2024-04-19.
txt
localhost:~/backup/txts#
```



```
  GNU nano 4.9.3                                        back.sh
#!/bin/bash
backup_dir="./backup/txts"
mkdir -p "$backup_dir"
for file in *.txt; do
        cp "$file" "$backup_dir/${file%*}_$(date +%Y-%m-%d).txt"
done
```