

CS 460 Bash Scripting Tutorial

<http://ryanstutorials.net/bash-scripting-tutorial>

What is a Bash Script?, Variables, Arithmetic, If, Loops

```
# Let's copy some files from zeus to the local machine for the
# rest of the exercise.
```

```
# wget will retrieve a file from a web server.
```

```
wget zeus.cs.pacificu.edu/chadd/LinuxTest.tar.gz
```

```
tar xzf LinuxTest.tar.gz
```

```
cd LinuxTest
```

```
# Script 1
```

```
# write a script that will display the contents of CS150.txt
```

```
# create the following file (first.sh) in a text editor
```

```
# in the LinuxText directory
```

```
#!/bin/bash
```

```
# comment!
```

```
cat CS150.txt
```

```
## end file
```

```
chmod u+x first.sh # previously this was o+x which is incorrect
```

```
# run the file
```

```
./first.sh
```

```
# Script 2
```

```
# write a script that will display the contents of a file named
# on the command line
```

```
# create the following file (second.sh) in a text editor
```

```
# in the LinuxText directory
```

```
#!/bin/bash
```

```
cat $1
```

```
## end file
```

```
chmod u+x second.sh
```

```
# run the file
```

```
./second.sh CS300.txt
```

```
# Script 3
# write a script that will display the contents of each of the
# text (*.txt) files in the directory
```

```
# create the following file (third.sh) in a text editor
# in the LinuxText directory
```

```
#!/bin/bash
```

```
files=$(ls *.txt)
for file in $files
do
    echo $file
    cat $file
    echo
done
## end file
```

```
chmod u+x third.sh
```

```
# run the file
./third.sh
```

```
# Script 4
# write a script that will determine which file, of two given as
# command line arguments, is larger.
```

```
# create the following file (fourth.sh) in a text editor
# in the LinuxText directory
```

```
#!/bin/bash
```

```
sizeOne=$(stat --printf="%s" $1)
sizeTwo=$(stat --printf="%s" $2)
```

```
if [ $sizeOne -gt $sizeTwo ]
then
    echo $1
elif [ $sizeOne -lt $sizeTwo ]
then
    echo $2
else
    echo The Same Size
fi
## end file
```

```
chmod u+x fourth.sh
```

```
# run the file
```

```
./fourth.sh CS150.txt CS300.txt
```

```
./fourth.sh CS150.txt CS380.txt
```

```
./fourth.sh CS150.txt CS150.txt
```

```
# Script 5
```

```
# write a script that will sum then display the total size
```

```
# of all the text (*.txt) files in a directory
```

```
# create the following file (fifth.sh) in a text editor
```

```
# in the LinuxText directory
```

```
#!/bin/bash
```

```
sum=0
```

```
files=$(ls *.txt)
```

```
for file in $files
```

```
do
```

```
    size=$(stat --printf="%s" $file)
```

```
    let sum=sum+size
```

```
    echo $file $size $sum
```

```
done
```

```
echo Total Size $sum
```

```
## end file
```

```
chmod u+x fifth.sh
```

```
# run the file
```

```
./fifth.sh
```

Practice

1. Go back to script `second.sh` and display an error message and exit if exactly one command line argument is not given to the script.
2. Read the man page for `stat`. If we change `fourth.sh` to use `%U` rather than `%s`, what data would `stat` return?
3. Write a script, `sixth.sh`, that will display the name and size of largest text (`*.txt`) file in the current directory.
4. Confirm your answer by running
`ls -alSr *.txt`

What does each option, `a`, `l` (`ell`), `S`, `r` do for `ls`?

5. Write a new script, `seventh.sh`, which has the same functionality as `third.sh` but calls `second.sh` to display the file rather than calling `cat` directly.
6. Write a new script, `eighth.sh`, which will print the contents of files that contain the text passed as a command line argument.

`./eighth.sh Data #` should display `CS 300.txt` and `CS445.txt`

Hint: look at all the options to `grep`!

7. Run the command:

```
stat first.sh | grep Change | sed 's/Change:/'
```

Explain exactly what each command (`stat`, `grep`, `sed`) is doing and where the input and output from each command originates/ends up.

8. Read the following two web pages:

https://www.tutorialspoint.com/awk/awk_basic_syntax.htm

https://www.tutorialspoint.com/awk/awk_regular_expressions.htm

Consider the following command:

```
ls -l | awk 'C+.txt' {print $9}
```

What does the command do?

What does `+` mean?

What does `$9` mean?