

CPS 5401 Fall 2016

Homework 1

Due 6:30pm (at the end of the lecture) on Tuesday, September 13

Unix Shell Scripting Exercises: Solutions

Note: The purpose of this solution sheet is to provide examples of correct answers. To receive full credit of your submissions, your scripts will be implemented and they need to succeed in fulfilling a set of tests. They does not have to be the same as the ones given here.

The total points of this homework is 20 pts.

Exercise 1 (10 pts). Write a short script `count.txt` to count the total number of `.txt` files in the current directory, and print out this number to screen. (Hint: there are clearly many possibilities. For example, you can combine `ls` and `wc`, and you can also use the `for` loop and define a variable as described in class.)

Solution 1:

```
ls -l | wc -l
```

Solution 2:

```
i=0
for file in *.txt
do
    let i=$i+1
done
echo $i
```

Discussion: What special situation does the next scripts take into account of?

Script 1:

```
ls -la *.txt | wc -l
```

Script 2:

```
find . -maxdepth 1 -not -path '*/\.*' -type f -name "*.txt" | wc -l
```

In what common situation the following script will give the wrong number?

Script 3:

```
ls *.txt | wc -w
```

Exercise 2 (10 pts). The default `rm` command will not confirm before it deletes any regular files. Write a short script called `safe_rm`, such that it will make a copy before deleting a **single file** (that is, we do not use wildcard expressions for this problem) by do the following:

- Take one and only one argument at the command line (hint: search for an expression representing the number of arguments in the shell scripts). Print out an error message if no argument or more than one arguments are provided (hint: use `echo`).
- Create a directory “`safe_rm_recycle`” in the current one if it is not already created.
- Copy the file indicated by the first argument to this “`safe_rm_recycle`” folder.
- Remove this file in the current working directory.

Solution:

```
if [ "$#" -ne 1 ]
then
  echo "Only one argument is accepted!"
  exit
fi

if [ ! -d "safe_rm_recycle" ]
then
  mkdir safe_rm_recycle
else
  echo "Warning: The recycling directory already exists."
fi

cp $1 safe_rm_recycle/
rm $1
```

Discussion: What will happen if we call `./safe_rm *.txt` when there are multiple `.txt` files?