

CS 2043 – ASSIGNMENT #2

Assigned: 2/2/2022
Due: 2/8/2022, 11:59PM

PROBLEM:

The challenge of Assignment #2 is to write a “silly sentence generator” by constructing a shell script that can build a sentence using words provided in directory hierarchy.

You will either download the file `A2.zip` from CMS or copy it from the `/tmp` directory on `ugclinux(132.236.91.182)`. When you unpack the `.zip` file you should see the following:

```
ron@osboxes:~$ unzip A2.zip
ron@osboxes:~$ ls A2
adjectives  adverbs  nouns  verbs
```

Each of those entries in the `A2` directory are directories of empty files whose file names correspond to an English word. The name of the directory containing these empty files describes the type of words it contains (adjectives, adverbs, nouns and verbs).

Your job is to write a script named `a2.sh` that, when run, will construct a sentence using the following format:

The <adjective> <noun> <adverb> <verb> the <adjective> <noun>

You may hard code the output of the word “The”, but where you see <adjective>, <noun>, <adverb> or <verb> you need to output a random word (filename) from the corresponding directory.

An example would look like this:

```
ron@osboxes:~$ ./a2.sh
The mysterious cat methodically walked to the green bike.
ron@osboxes:~$ ./a2.sh
The sleepy rabbit peacefully ran to the sad book.
```

HINTS/DISCUSSION:

It will work best if, at each step, you concatenate output to a file named something like `sentence.txt`. Your shell script should execute the following steps:

1. Echo "The" and a space to the file `sentence.txt` (use `>` to overwrite any previous file)
2. Change to the `adjectives` directory
3. Pick a random file from the `adjectives` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
4. Echo a space to the `sentence.txt` file (Use `>>`)
5. Change to the `nouns` directory
6. Pick a random file from the `nouns` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
7. Echo a space to the `sentence.txt` file (Use `>>`)
8. Change to the `adverbs` directory
9. Pick a random file from the `adverbs` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
10. Echo a space to the `sentence.txt` file (Use `>>`)
11. Change to the `verbs` directory
12. Pick a random file from the `verbs` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
13. Echo a space to the `sentence.txt` file (Use `>>`)
14. Echo "the" and a space to the `sentence.txt` file (Use `>>`)
15. Change to the `adjectives` directory
16. Pick a random file from the `adjectives` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
17. Echo a space to the `sentence.txt` file (Use `>>`)
18. Change to the `nouns` directory
19. Pick a random file from the `nouns` directory and write its name to `sentence.txt` (Use `>>` to append to the `sentence.txt` file)
20. Echo a space and a period to the `sentence.txt` file (Use `>>`)
21. `cat` the `sentence.txt` file so it is printed out!

VERY IMPORTANT:

You should assume that your script will be run from the same directory that the `A2` directory exists in. So, if you are going to `cd` into the `adjectives` directory first, you'll do a:

```
cd ../A2/adjectives
```

Make sure that the `sentence.txt` file you create is in the *same directory* as the `../A2` directory. This will make the grading scripts *very* happy and will expedite the grading process!

The trickiest part of the assignment is how to randomly select a file from each directory when needed. I accomplished this using the following commands (you will have to look up syntax and options) and the pipe operator (`|`):

- `ls` (to get a list of files in the directory)

- `sort` (it has an option to sort randomly... use that!)
- `head` (to take a randomly sorted list of filenames and pick the first one)
- `tr -d '\n'` to remove the newline that is included when you use `head` to choose the first filename in the list of randomly sorted filenames

This assignment may seem very daunting, but it really isn't. Once you figure out how to select one file from a directory randomly, the rest should be much easier. Please come to office hours with questions; we're here to help!

FOR FUN:

While testing your script you may be thinking that you'd like to add words to the random pool that I've provided. It would actually be very easy to do... just go into one of the `adjective`, `adverb`, `noun` or `verb` directories and touch a new file with the name of the word you'd like to add. So, if you wanted to color `purple` to the list of words, go into the `adjectives` directory and type the command:

```
$ touch purple
```

And `purple` will be a word that might be selected randomly as an adjective!

FILES TO SUBMIT:

1. `a2.sh`