Unix

Each one of you will get an account on silo.cs.indiana.edu where you will do most of your work. You will need to become familiar with the Unix environment (file system and a number of Unix commands) on silo. We will guide you through an exercise below.

We start by identifying where we are. We then check that we don’t already have a folder named lab1 and create it. We move inside it, and create a folder named experiments inside. Move inside experiments and create two more folders there, next to each other. Call them documents and programs.

Move inside the first and create two empty files with the names doc1.txt and doc2.txt. Next open the doc1.txt file and write your name in it or something that identifies you. Then open the second one and write something that we don’t know about you, like I did below:

```
[tblgrant@silo ~]$ pwd
/u/tblgrant
[tblgrant@silo ~]$ ls -ld lab1
ls: cannot access lab1: No such file or directory
[tblgrant@silo ~]$ mkdir lab1
[tblgrant@silo ~]$ cd lab1
[tblgrant@silo lab1]$ mkdir experiments
[tblgrant@silo lab1]$ cd experiments/
[tblgrant@silo experiments]$ mkdir documents
[tblgrant@silo experiments]$ mkdir programs
[tblgrant@silo experiments]$ ls -l
total 8
drwx------ 2 tblgrant projects 4096 Jun 17 15:40 documents
drwx------ 2 tblgrant projects 4096 Jun 17 15:40 programs
[tblgrant@silo experiments]$ cd documents
[tblgrant@silo documents]$ ls
[tblgrant@silo documents]$ touch doc1.txt
[tblgrant@silo documents]$ ls -l
total 0
-rw------- 1 tblgrant projects 0 Jun 17 15:40 doc1.txt
[tblgrant@silo documents]$ touch doc2.txt
[tblgrant@silo documents]$ ls -l
total 0
-rw------- 1 tblgrant projects 0 Jun 17 15:40 doc1.txt
```
Now that you have your .txt files go to programs and create three folders. Name them perl, python and Java. Go into Java and write your first Java program using the code we provide below. Compile and run it with javac\(^1\) and java\(^2\). Notice that these commands are available without any additional setting. On the PCs in the STC labs we may need to set the PATH environment variable. We will need to set the PATH environment variable (and a few other environment variables) on the Unix account too, but not for compiling and running a Java program.

\[^1\]The Java compiler. 
\[^2\]The Java interpreter.
Next move into each of the other two folders you have created for programs and write and run your first Python and Perl programs. Unlike the Java programs here the interpreter is called implicitly and the file needs to be executable.

Time has come to wrap up all of this work. Go back up into lab1 and look at all the files you have created. Use the du -a . command. Create an archive

3By dot we indicate the current folder. Try man du as well
whoa.tar using the tar utility. Compress it with gzip.

```
[tblgrant@silo perl]$ pwd
/u/tblgrant/lab1/experiments/programs/perl
[tblgrant@silo perl]$ cd ..
[tblgrant@silo programs]$ pwd
/u/tblgrant/lab1/experiments/programs
[tblgrant@silo programs]$ cd ../../../
[tblgrant@silo lab1]$ ls -l
total 4
drx------ 4 tblgrant projects 4096 Jun 17 15:40 experiments
[tblgrant@silo lab1]$ du -a .
 4 ./experiments/documents/doc2.txt
 4 ./experiments/documents/doc1.txt
 12 ./experiments/documents
 4 ./experiments/programs/perl/one
 8 ./experiments/programs/perl
 4 ./experiments/programs/python/one
 8 ./experiments/programs/python
 4 ./experiments/programs/Java/One.java
 4 ./experiments/programs/Java/One.class
 12 ./experiments/programs/Java
 32 ./experiments/programs
 48 ./experiments
 52 .
[tblgrant@silo lab1]$ tar cvf whoa.tar experiments/
experiments/documents/
experiments/documents/doc2.txt
experiments/documents/doc1.txt
experiments/programs/
experiments/programs/perl/
experiments/programs/perl/one
experiments/programs/python/
experiments/programs/python/one
experiments/programs/Java/
experiments/programs/Java/One.java
experiments/programs/Java/One.class
[tblgrant@silo lab1]$ ls -l
total 16
drx------ 4 tblgrant projects 4096 Jun 17 15:40 experiments
-rw------- 1 tblgrant projects 10240 Jun 17 15:46 whoa.tar
[tblgrant@silo lab1]$ gzip whoa.tar
[tblgrant@silo lab1]$ ls -l
total 8
drx------ 4 tblgrant projects 4096 Jun 17 15:40 experiments
-rw------- 1 tblgrant projects 888 Jun 17 15:46 whoa.tar.gz
[tblgrant@silo lab1]$
```
Copy the compressed archive\(^4\) to your `~/public` folder. Make the archive itself readable (`chmod 644`) by everybody, make the `~/public` folder accessible and readable to everybody (755, which is what a really public folder is supposed to be like) and make your home folder permissible (711) to those who try to access public resources that you’ve made available to the world.

```
[tblgrant@silo lab1]$ ls -ld ~/public
drwxr-xr-x 2 tblgrant projects 4096 Dec 9 2011 /u/tblgrant/public
[tblgrant@silo lab1]$ cp whoa.tar.gz ~/public/
[tblgrant@silo lab1]$ ls -ld ~/public/whoa.tar.gz
-rw-r--r-- 1 tblgrant projects 888 Jun 17 15:47 /u/tblgrant/public/whoa.tar.gz
[tblgrant@silo lab1]$ chmod 644 ~/public/whoa.tar.gz
[tblgrant@silo lab1]$ chmod 755 ~/public
[tblgrant@silo lab1]$ chmod 711 ~
[tblgrant@silo lab1]$
```

Now from my own account I will be able to access and grade your work:

```
-bash-4.1$ pwd
/u/dgerman/grading
-bash-4.1$ ls
alpha
-bash-4.1$ ./alpha tblgrant
8    experiments/programs/python/one
16   experiments/programs/python
8    experiments/programs/perl/one
16   experiments/programs/perl
8    experiments/programs/Java/One.java
8    experiments/programs/Java/One.class
24   experiments/programs/Java
64   experiments/programs
8    experiments/documents/doc1.txt
8    experiments/documents/doc2.txt
24   experiments/documents
96   experiments
:--------------------:
experiments/documents/doc1.txt
:--------------------:
My name is Adrian German.
:--------------------:
experiments/documents/doc2.txt
:--------------------:
There’s a book by Moore and Mertens, entitled “The Nature of Computation, that I like a lot.
-bash-4.1$
```

\(^4\)whoa.tar.gz