Start a putty session to groningen with "linuser" and login to your VM as root.

Create two users: *user1* and *user2*

[root@centos7-7 ~]# **useradd -m user1**
[root@centos7-7 ~]# **passwd user1**
[root@centos7-7 ~]# **useradd -m user2**
[root@centos7-7 ~]# **passwd user2**

Start another putty session to groningen with "linuser"
and login to your VM as user1

pi@pi159:~ $ ssh user1@192.168.4.237

1. How many users are logged in?

[user1@centos7-7 ~]$ **who**
root   pts/0   2017-12-06 11:21 (pi159)
user1   pts/1   2017-12-06 11:30 (pi159)

2. Make sure that your prompt will look like this: **vm7 $**

[user1@centos7-7 ~]$ **echo "PS1='vm7 $ '" >> ~/.bashrc**
[user1@centos7-7 ~]$ **bash**
vm7 $

3. Create a directory structure *files/backups* in your login dir.
vm7 $ **mkdir -p ~/files/backups**

4. Copy all files plus subdirectories from */etc* to the new directory.
Also, make sure that you don't see any errors.

vm7 $ **cp -r /etc/* ~/files/backups 2> /dev/null**

5. Create a tarfile of all files in the *files/backups* directory.

vm7 $ **cd files/backups**
vm7 $ **tar cvf etc.tar .**

6. What is the size of the tarfile?

vm7 $ **ls -lh etc.tar**
-rw-rw-r--. 1 user1 user1 **16M** Dec 6 11:50 etc.tar

7. Compress the tarfile using *gzip*.

vm7 $ **gzip etc.tar**

8. What is the size of the tarfile now?

vm7 $ **ls -lh etc.tar.gz**
-rw-rw-r--. 1 user1 user1 **3.5M** Dec 6 11:50 etc.tar.gz

9. What sort of file is the *etc.tar.gz* file

```
vm7 $ file etc.tar.gz
etc.tar.gz: gzip compressed data, was "etc.tar", from Unix, last
modified: Wed Dec  6 11:50:34 2017
```

Permissions.

Log in to the VM as user1.

10. What is your current working directory?

```
vm7 $ pwd
/home/user1
```

11. Create a file that contains the following line:
     echo my name is user1

```
vm7 $ echo "echo my name is user1" > me
```

12. What are the permissions of me?

```
vm7 $ ls -l me
-rw-rw-r--. 1 user1 user1 23 Dec  6 15:24 me
```

13. Try to run the file *me*.

```
vm7 $ ./me
-bash: ./me: Permission denied
```

14. Add the execute bit to the file *me*.

```
vm7 $ chmod a+x me
vm7 $ ls -l me
-rwxrwxr-x. 1 user1 user1 23 Dec  6 15:24 me
```

15. Try to run the file *me*.

```
vm7 $ ./me
my name is user1
```

Variables.

A variable is only there in memory. You can set it, change it and unset
it. Once you end your process or reset your machine, it is
gone forever.

To set a variable you simply say: *<name>=<value>*

In your VM, set the value of *300* to the variable *amount*.

vm7 $ **amount=300**

vm7 $ **echo $amount**

Change the value of the variable.

vm7 $ **amount=400**

Funny: if you simply say *$<variable>*,
the shell will try and execute it, whatever
the value is.

Example:

"1" is not a command so is will give you an error.

```
vm7 $ run=1
vm7 $ $run
-bash: 1: command not found

vm7 $ var=ls
vm7 $ $run /var
adm     db      gopher local   mail   preserve   tmp
cache   empty   kerberos   lock    nis    run        www
crash   games   lib     log     opt    spool      yp
```