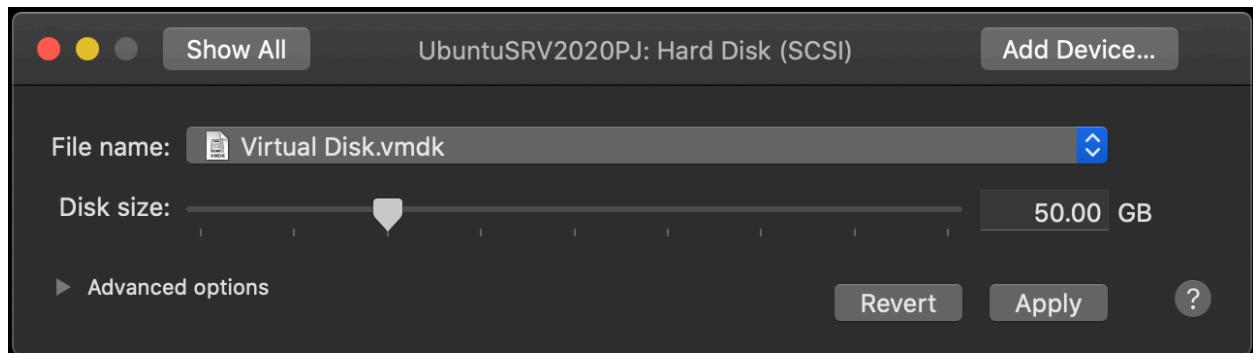


```
# CIS 217 Final Project

## Instructions: Document your work and submit your documentation in Canvas.

### 1. Install a new copy of Linux server, your choice of distribution. Create 1 50 GB disk for your installation. (10 points)
```



ubuntu®

Install Ubuntu Server
Install MAAS Region Controller
Install MAAS Rack Controller
Check disc for defects
Test memory
Boot from first hard disk
Rescue a broken system

F1 Help F2 Language F3 Keymap F4 Modes F5 Accessibility F6 Other Options

```
Ubuntu 18.04.1 LTS ubserver tty1

ubserver login: netsec
Password:
Last login: Sun Mar  8 17:06:32 PDT 2020 on tty1
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-29-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 System information as of Sun Mar  8 17:08:45 PDT 2020

 System load:  0.05      Processes:          181
 Usage of `/':  4.1% of 40.35GB  Users logged in:    0
 Memory usage: 9%           IP address for ens33: 192.168.166.134
 Swap usage:   0%

248 packages can be updated.
151 updates are security updates.

netsec@ubserver:~$
```

Resources:

Installing VMware Tools in an Ubuntu Virtual Machine

https://kb.vmware.com/s/article/1022525#install_vmware_tools_in_ubuntu_server_with_command_line_interface

2. Using manual partitioning, create the three partitions as listed below: (5 points)

1200 Primary	ext4	/boot
8192 Primary	swap	
Max Primary	ext4	/

[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a partition to modify its settings (file system, mount point, etc.), a free space to create partitions, or a device to initialize its partition table.

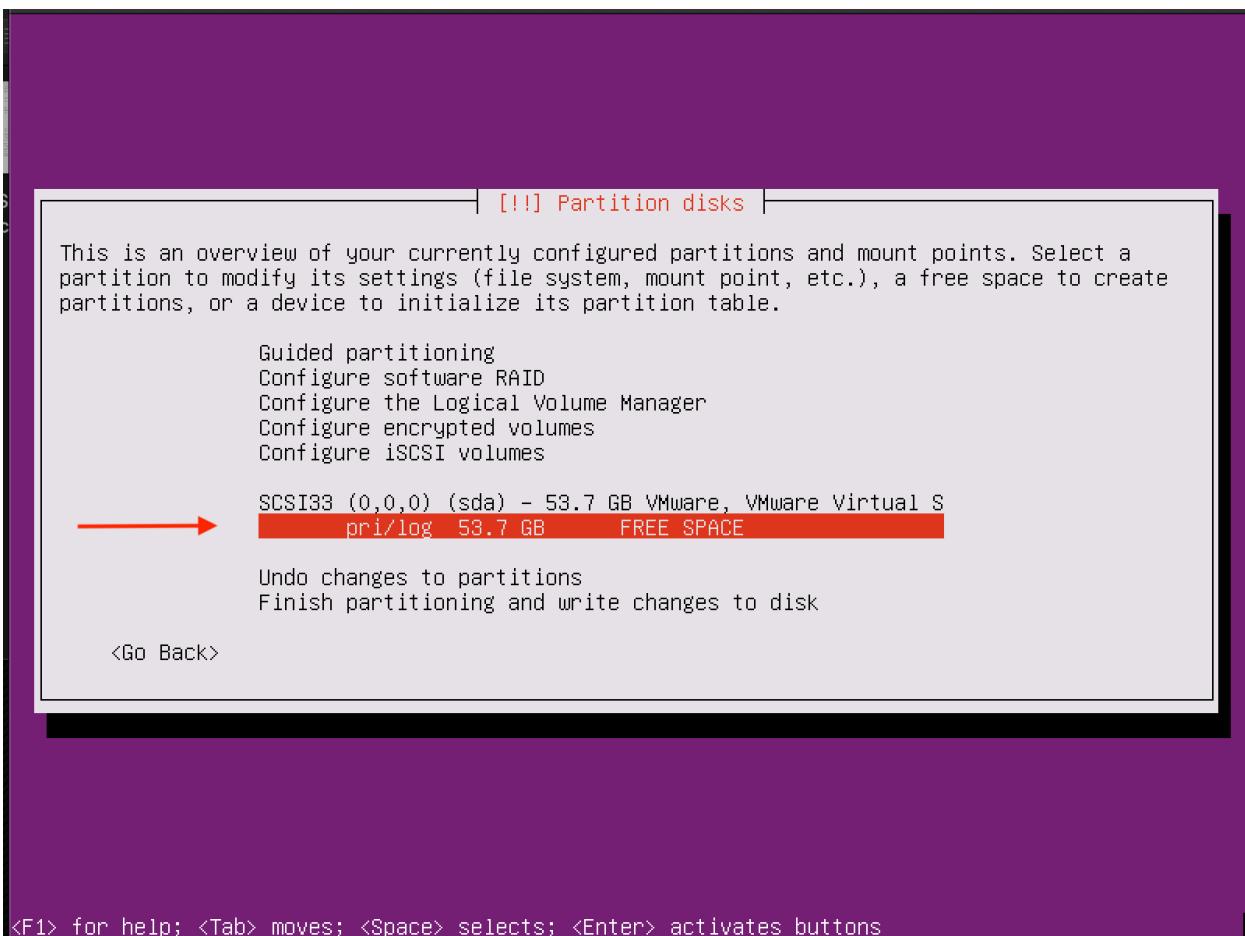
Guided partitioning
Configure iSCSI volumes

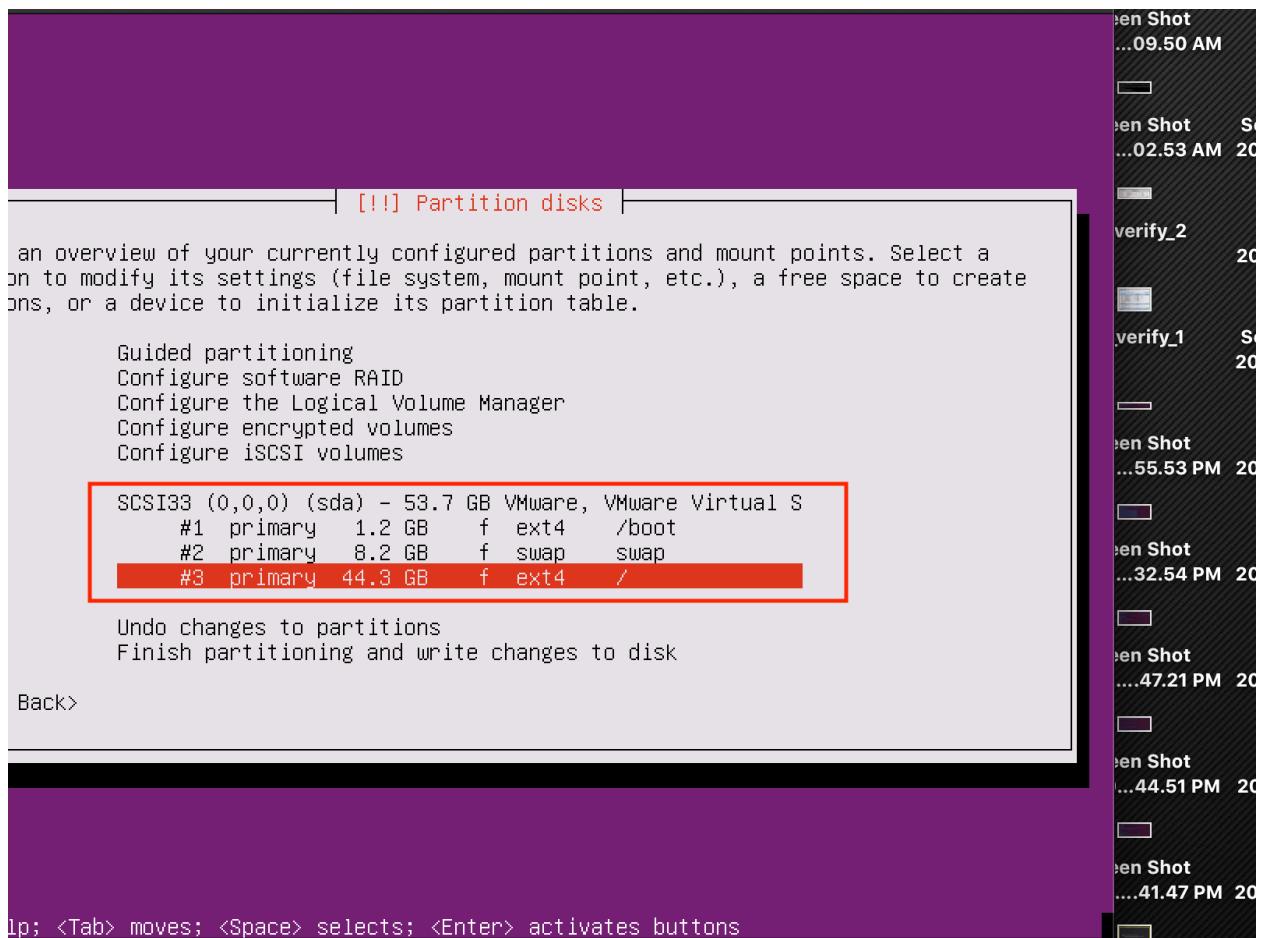
→ SCSI03 (0,0,0) (sda) - 53.7 GB VMware, VMware Virtual S

Undo changes to partitions
Finish partitioning and write changes to disk

<Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons





[!!] Partition disks

If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make further changes manually.

The partition tables of the following devices are changed:
SCSI33 (0,0,0) (sda)

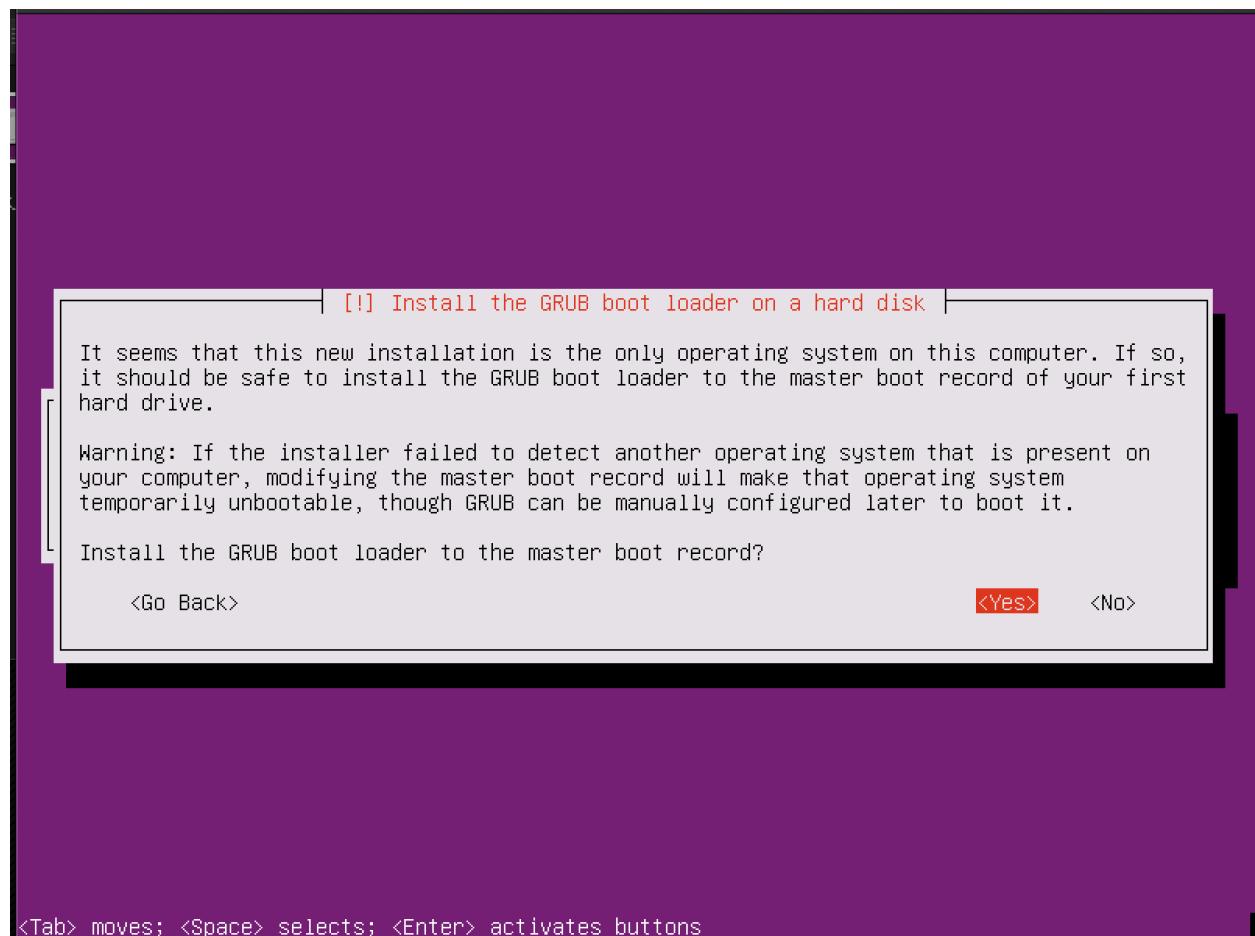
The following partitions are going to be formatted:
partition #1 of SCSI33 (0,0,0) (sda) as ext4
partition #2 of SCSI33 (0,0,0) (sda) as swap
partition #3 of SCSI33 (0,0,0) (sda) as ext4

Write the changes to disks?

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons



<Tab> moves; <Space> selects; <Enter> activates buttons

3. Update the system. (5 points)

update-system.sh

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

```
echo "Preparing for System Updates"
apt update -y
echo "Running Update"
apt upgrade -y
echo "Upgrading Packages"
apt clean
echo "Cleaning Packages"
apt autoremove --purge
echo "Done!"
```

Resources:

<https://askubuntu.com/questions/984797/clean-autoclean-and-autoremove-combining-them-is-a-good-step>

4. Set these password complexity requirements: 1 upper case letter, 1 lower case letter, 1 number, 1 special character, min 8 characters long. (5 points)

/etc/login

```
152
153 #
154 # Password aging controls:
155 #
156 #      PASS_MAX_DAYS   Maximum number of days a password may be used.
157 #      PASS_MIN_DAYS   Minimum number of days allowed between password changes.
158 #      PASS_WARN_AGE    Number of days warning given before a password expires.
159 #
160 PASS_MAX_DAYS    30
161 PASS_MIN_DAYS   0
162 PASS_WARN_AGE   7
163
164 #
```

/etc/pad.d/common-password

```

# local modules either before or after the default block, and use
# pam-auth-update to manage selection of other modules. See
# pam-auth-update(8) for details.

# here are the per-package modules (the "Primary" block)
password      requisite          pam_pwquality.so retry=3
password      [success=1 default=ignore]    pam_unix.so obscure use_authtok try_first_pass sha51
2
# here's the fallback if no module succeeds
password      requisite          pam_deny.so
# prime the stack with a positive return value if there isn't one already;
# this avoids us returning an error just because nothing sets a success code
# since the modules above will each just jump around
password      required          pam_permit.so
# and here are more per-package modules (the "Additional" block)
# minimum password length
password      requisite          minlen=8
# allow maximum numbers of repeating characters
password      requisite          maxrepeat=3
# require at least one uppercase character
password      requisite          ucredit=-1
# require at least one lowercase character
password      requisite          lcredit=-1
# require at least one digit
password      requisite          dccredit=-1
# minimum number of special characters
password      requisite          ocredit=-1
# reject if username is in password
password      requisite          reject_username
# enforce for root account
password      requisite          enforce_for_root
# maximum number of monotonic ('1234', 'abcd') repeating sequence of characters
password      requisite          maxsequence=3
# allow maximum of repeating characters
password      requisite          maxrepeat=3
# end of pam-auth-update config

```

53,32-59 Bot

Configuration options:

/etc/pam.d/common-password

```

password      requisite          pam_pwquality.so retry=3 minlen=8
maxrepeat=3 ucredit=-1 lcredit=-1 dccredit=-1 ocredit=-1 difok=3
gecoscheck=1 reject_username enforce_for_root
maxsequence=3

```

Resources:

https://www.server-world.info/en/note?os=Ubuntu_18.04&p=password

<https://computingforgeeks.com/enforce-strong-user-password-policy-ubuntu-debian/>

<https://kifarunix.com/enforce-password-complexity-policy-on-ubuntu-18-04/>

<https://goinggnu.wordpress.com/2015/06/04/solution-for-passwd-module-is-unknown-issue-in-ubuntu/>

5. Create the following users, using the first initial and lastname as the username.

Create a file users.txt containing comma separated list of first and last names. Create a home directory for each user. (10 points)

Fname,Lname

Arden,Ally
Tanner,Bellon
Leonard,Contrero
Colorado,Davids
Ursula,Gresham
Alex,Huston
Xaviera,Newman
Alec,Potter
Melody,Sharpton
Charlotte,Tennison

Create a script to make usernames, then create accounts:

```
script update-group

#!/bin/bash

for name in $(cat $1); do
    FI=$(echo $name | cut -b 1)
    FN=$(echo $name | cut -d "," -f 1)           # first initial
    LN=$(echo $name | cut -d "," -f 2)           # lastname
    USERNAME=$FI$LN

    USERNAME=$(echo $USERNAME | tr '[:upper:]' '[:lower:]')
    # Convert to lowercase

    echo "Creating User: $USERNAME"

    useradd --create-home $USERNAME --shell /bin/bash -c "$FN $LN"
    # Create USER, /home and set to bash shell
done
```

```
netsec@ubuntu-server:~/user-config$ sudo create-users users.txt

Creating User: aally
Creating User: tbellon
Creating User: lcontrero
Creating User: cdavids
Creating User: ugresham
Creating User: ahuston
Creating User: xnewman
Creating User: apotter
Creating User: msharpton
Creating User: ctemnison
netsec@ubuntu-server:~/user-config$
```

```
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
lxd:x:105:65534::/var/lib/lxd/:/bin/false
uuid:x:106:110::/run/uuid:/usr/sbin/nologin
dnsmasq:x:107:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
landscape:x:108:112::/var/lib/landscape:/usr/sbin/nologin
pollinate:x:109:1::/var/cache/pollinate:/bin/false
netsec:x:1000:1000:netsec student,,,:/home/netsec:/bin/bash
aally:x:1001:1001::/home/aally:/bin/bash
tbellon:x:1002:1002::/home/tbellon:/bin/bash
lcontrero:x:1003:1003::/home/lcontrero:/bin/bash
cdavids:x:1004:1004::/home/cdavids:/bin/bash
ugresham:x:1005:1005::/home/ugresham:/bin/bash
ahuston:x:1006:1006::/home/ahuston:/bin/bash
xnewman:x:1007:1007::/home/xnewman:/bin/bash
apotter:x:1008:1008::/home/apotter:/bin/bash
msharpton:x:1009:1009::/home/msharpton:/bin/bash
ctennison:x:1010:1010::/home/ctennison:/bin/bash
netsec@ubuntu-server:~/user-config$
```

Resources:

<https://linuxize.com/post/how-to-create-users-in-linux-using-the-useradd-command/>

<https://www.geeksforgeeks.org/cut-command-linux-examples/>

<https://www.cyberciti.biz/faq/linux-unix-shell-programming-converting-lowercase-uppercase/>

<https://linuxize.com/post/how-to-create-users-in-linux-using-the-useradd-command/>

[https://www.howtoforge.com/user password creating with a bash script](https://www.howtoforge.com/user_password_creating_with_a_bash_script)

<https://www.cyberciti.biz/faq/bash-for-loop/>

6. Create a group named accounting (5 points)

```
groupadd -g group-ID group-name  
sudo groupadd accounting  
cat /etc/group
```

```
aally:x:1001:  
tbellon:x:1002:  
lcontrero:x:1003:  
cdavids:x:1004:  
ugresham:x:1005:  
ahuston:x:1006:  
xnewman:x:1007:  
apotter:x:1008:  
msharpton:x:1009:  
ctennison:x:1010:  
accounting:x:1011:  
netsec@ubuntu-server:/home/user-config$ _  
## Resources:
```

https://www.ibm.com/support/knowledgecenter/SSFKSJ_9.1.0/com.ibm.mq.sec.doc/q011110.htm

<https://linuxize.com/post/how-to-create-groups-in-linux/>

<https://www.techrepublic.com/article/how-to-create-users-and-groups-in-linux-from-the-command-line/>

7. Add the following users to the accounting group: (5 points)

Users: tbellon, ahuston, apotter and msharpton

Create a file usernames.txt containing usernames to add to the accounting group.

Create a script user-groupadd:

```
#!/bin/bash  
  
# Usage: ./user-groupadd groupname usernames.txt  
#
```

```

#
for uname in $(cat $2); do
    echo "Adding $uname to $1"
    usermod -a -G $1 $uname
done

grep "$1" /etc/group

```

```

#!/bin/bash

#
# Usage: ./user-groupadd groupname usernames_file
#
#

for uname in $(cat $2); do
    echo "Adding $uname to $1"
    usermod -a -G $1 $uname
done

grep "$2" /etc/group
~
```

```

accounting:x:1011:tbellon,ahuston,apotter,msharpton
netsec@ubuntu-server:/home/user-configuration$ grep 'accounting' /etc/group
accounting:x:1011:tbellon,ahuston,apotter,msharpton
netsec@ubuntu-server:/home/user-configuration$
```

Resources:

<https://www.hostingadvice.com/how-to/linux-add-user-to-group/>

<https://www.howtogeek.com/50787/add-a-user-to-a-group-or-second-group-on-linux/>

<https://www.techrepublic.com/article/how-to-create-users-and-groups-in-linux-from-the-command-line/>

8. Create an accounting folder located at /srv/accounting and set the accounting group as the owner. Copy a number of files into this folder. (5 points)

mkdir /srv/accounting

format: chown [OPTIONS] USER[:GROUP] FILE(s)

chown :GROUP FILE

```
chown :accounting /srv/accounting
```

```
netsec@ubuntu-server:/srv$  
netsec@ubuntu-server:/srv$ ls -la accounting/  
total 8  
drwxr-xr-x 2 root root 4096 Mar  9 17:20 .  
drwxr-xr-x 3 root root 4096 Mar  9 17:20 ..  
netsec@ubuntu-server:/srv$ sudo chown :accounting accounting/  
netsec@ubuntu-server:/srv$ ls -la accounting/  
total 8  
drwxr-xr-x 2 root accounting 4096 Mar  9 17:20 .  
drwxr-xr-x 3 root root     4096 Mar  9 17:20 ..
```

```
netsec@ubuntu-server:~/user-config$ sudo cp user* /srv/accounting/  
netsec@ubuntu-server:~/user-config$ ls -la /srv/accounting/  
total 16  
drwxr-xr-x 2 root accounting 4096 Mar  9 17:32 .  
drwxr-xr-x 3 root root     4096 Mar  9 17:20 ..  
-rw-r--r-- 1 root root      34 Mar  9 17:32 usernames.txt  
-rw-r--r-- 1 root root     147 Mar  9 17:32 users.txt  
netsec@ubuntu-server:~/user-config$ _
```

Resources:

<https://linuxize.com/post/linux-chown-command/>

9. Give the owner read, write and execute permissions on the Accounting folder and all of its files. (10 points).

Remove all permissions for the general public to the Accounting folder and all of its files.

chmod 770

```
netsec@ubuntu-server:/srv$  
netsec@ubuntu-server:/srv$ ls -la  
total 12  
drwxr-xr-x 3 root root 4096 Mar  9 17:20 .  
drwxr-xr-x 23 root root 4096 Mar  8 17:23 ..  
drwxrwxrwx 2 root accounting 4096 Mar  9 17:32 accounting  
netsec@ubuntu-server:/srv$ sudo chmod 770 accounting/  
netsec@ubuntu-server:/srv$ ls -la  
total 12  
drwxr-xr-x 3 root root 4096 Mar  9 17:20 .  
drwxr-xr-x 23 root root 4096 Mar  8 17:23 ..  
drwxrwx--- 2 root accounting 4096 Mar  9 17:32 accounting  
netsec@ubuntu-server:/srv$
```

```
netsec@ubuntu-server:/srv$ cat /srv/accounting/users.txt
cat: /srv/accounting/users.txt: Permission denied
netsec@ubuntu-server:/srv$ cat /srv/accounting/users.txt
cat: /srv/accounting/users.txt: Permission denied
netsec@ubuntu-server:/srv$ ls -la accounting/
ls: cannot open directory 'accounting/': Permission denied
netsec@ubuntu-server:/srv$
```

10. Limit ordinary users with administration privileges to the following users: (5 points)

ugresham and xnewman

usermod -aG sudo username

better approach:

```
echo "username  ALL=(ALL) NOPASSWD:ALL" | sudo tee
/etc/sudoers.d/username
```

```
netsec@ubuntu-server:~$ 
netsec@ubuntu-server:~$ sudo touch /etc/sudoers.d/ugresham
netsec@ubuntu-server:~$ sudo touch /etc/sudoers.d/xnewman
netsec@ubuntu-server:~$ 
netsec@ubuntu-server:~$ echo "ugresham ALL=(ALL) NOPASSWD:ALL" | sudo tee /etc/sudoers.d/ugresham
ugresham ALL=(ALL) NOPASSWD:ALL
netsec@ubuntu-server:~$ echo "xnewman ALL=(ALL) NOPASSWD:ALL" | sudo tee /etc/sudoers.d/xnewman
xnewman ALL=(ALL) NOPASSWD:ALL
netsec@ubuntu-server:~$
```

applicable raw.

```
ugresham@ubuntu-server:~$ whoami
ugresham
ugresham@ubuntu-server:~$ sudo whoami
root
ugresham@ubuntu-server:~$
```

```
xnewman@ubuntu-server:~$ 
xnewman@ubuntu-server:~$ 
xnewman@ubuntu-server:~$ sudo whoami
root
xnewman@ubuntu-server:~$ 
xnewman@ubuntu-server:~$ 
xnewman@ubuntu-server:~$
```

Resources:

<https://linuxize.com/post/how-to-add-user-to-sudoers-in-ubuntu/>

11. Install Apache, MySQL and PHP. (15 points)

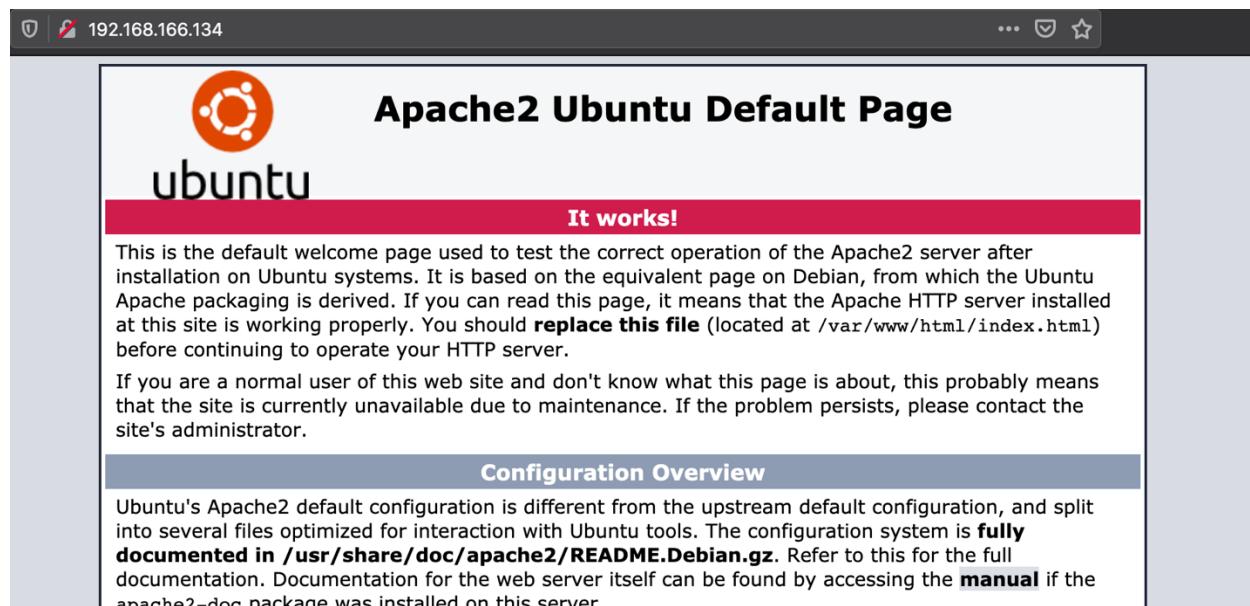
Apache

```
netsec@ubuntu-server:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Drop-In: /lib/systemd/system/apache2.service.d
             └─apache2-systemd.conf
     Active: active (running) since Tue 2020-03-10 10:45:46 PDT; 34s ago
       Main PID: 5535 (apache2)
         Tasks: 55 (limit: 2817)
        CGroup: /system.slice/apache2.service
                  ├─5535 /usr/sbin/apache2 -k start
                  ├─6283 /usr/sbin/apache2 -k start
                  ├─6284 /usr/sbin/apache2 -k start
                  └─6285 /usr/sbin/apache2 -k start

Mar 10 10:45:31 ubuntu-server systemd[1]: Starting The Apache HTTP Server...
Mar 10 10:45:46 ubuntu-server apachectl[5512]: AH00558: apache2: Could not reliably determine the se
Mar 10 10:45:46 ubuntu-server systemd[1]: Started The Apache HTTP Server.
Lines 1-15/15 (END)
```

```
netsec@ubuntu-server:~$ sudo ufw status
Status: inactive
netsec@ubuntu-server:~$ sudo ufw enable
Firewall is active and enabled on system startup
netsec@ubuntu-server:~$ sudo ufw status
Status: active
netsec@ubuntu-server:~$ sudo ufw allow 'Apache Full'
Rule added
Rule added (v6)
netsec@ubuntu-server:~$ sudo ufw status
Status: active

To                         Action      From
-----                    ----
Apache Full               ALLOW      Anywhere
Apache Full (v6)          ALLOW      Anywhere (v6)
```



The screenshot shows a web browser window with the URL `192.168.166.134` in the address bar. The page itself is titled "Apache2 Ubuntu Default Page". It features the Ubuntu logo and the word "ubuntu" below it. A red banner across the middle contains the text "It works!". Below this, there is explanatory text about the default welcome page and instructions to replace the `/var/www/html/index.html` file. At the bottom, there is a "Configuration Overview" section with information about the configuration files.

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

```
## Resources:
```

<https://linuxize.com/post/how-to-install-apache-on-ubuntu-18-04/>

<https://www.digitalocean.com/community/tutorials/how-to-install-linux-apache-mysql-php-lamp-stack-ubuntu-18-04>

MySQL

```
sudo apt install mysql-server  
sudo systemctl status mysql  
sudo mysql_secure_installation
```

```
Processing triggers for ureadahead (0.100.0-21) ...  
netsec@ubuntu-server:~$ sudo systemctl status mysql  
● mysql.service - MySQL Community Server  
  Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)  
  Active: active (running) since Tue 2020-03-10 09:38:59 PDT; 44s ago  
    Main PID: 3969 (mysqld)  
      Tasks: 27 (limit: 2817)  
     CGroup: /system.slice/mysql.service  
             └─3969 /usr/sbin/mysqld --daemonize --pid-file=/run/mysqld/mysqld.pid  
  
Mar 10 09:38:58 ubuntu-server systemd[1]: Starting MySQL Community Server...  
Mar 10 09:38:59 ubuntu-server systemd[1]: Started MySQL Community Server.  
netsec@ubuntu-server:~$
```

```
## 12. Create an ordinary MySQL user account with a personal database.
```

```
mysql> select user, host from mysql.user  
-> ;  
+-----+-----+  
| user   | host  |  
+-----+-----+  
| debian-sys-maint | localhost |  
| mysql.session    | localhost |  
| mysql.sys        | localhost |  
| netsec           | localhost |  
| root              | localhost |  
+-----+-----+  
5 rows in set (0.00 sec)
```

```
mysql> show databases;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| netsec_db      |
| performance_schema |
| sys            |
+-----+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> show grants for 'netsec'@'localhost';
+-----+
| Grants for netsec@localhost           |
+-----+
| GRANT USAGE ON *.* TO 'netsec'@'localhost' |
| GRANT ALL PRIVILEGES ON `netsec_db`.* TO 'netsec'@'localhost' |
+-----+
2 rows in set (0.00 sec)

mysql>
```

Log in and upload the client.txt file to create a set of new tables in this database. (10 points)

```
mysql> show databases;
+-----+
| Database      |
+-----+
| information_schema |
| netsec_db      |
+-----+
2 rows in set (0.00 sec)

mysql> use netsec_db;
Database changed
mysql> show tables;
Empty set (0.00 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_netsec_db |
+-----+
| AUTHOR      |
| BOOK        |
| CHECKOUT    |
| PATRON      |
| WRITES      |
+-----+
5 rows in set (0.00 sec)

mysql>
```

Resources:

<https://linuxize.com/series/how-to-install-lamp-stack-on-ubuntu-18-04/>

<https://linuxize.com/post/how-to-install-mysql-on-ubuntu-18-04/>

13. Install ssh server, create a Self-Signed SSL Certificate, and demonstrate you can open a ssh session. (10 points)

```
sudo apt update  
sudo apt install openssh-server  
sudo systemctl status ssh
```

```
reburary zv10  
netsec@ubuntu-server:~$ sudo ufw allow ssh  
Rule added  
Rule added (v6)  
netsec@ubuntu-server:~$ sudo ufw status  
Status: active  
  
To                         Action      From  
---  
Apache Full                 ALLOW      Anywhere  
22/tcp                      ALLOW      Anywhere  
Apache Full (v6)            ALLOW      Anywhere (v6)  
22/tcp (v6)                 ALLOW      Anywhere (v6)  
  
netsec@ubuntu-server:~$ _
```

```
infosec | research -> ls -l ~/.ssh/id_*.pub  
ls: cannot access '/home/n37w0rk_in7ruzn/.ssh/id_*.pub': No such file or directory  
infosec | research -> ssh-keygen -t rsa -b 4096 -C "netsec@ubuntu-server"  
Generating public/private rsa key pair.  
Enter file in which to save the key (/home/n37w0rk_in7ruzn/.ssh/id_rsa):  
Enter passphrase (empty for no passphrase):  
Enter same passphrase again:  
Your identification has been saved in /home/n37w0rk_in7ruzn/.ssh/id_rsa.  
Your public key has been saved in /home/n37w0rk_in7ruzn/.ssh/id_rsa.pub.  
The key fingerprint is:  
SHA256:xGCi1Et467DGQ4ieS3Gc3t+KcJHre3s4k7D01ZGGktU netsec@ubuntu-server  
The key's randomart image is:  
+--[RSA 4096]----+  
| .o. o . |  
| ...+o o . E |  
| ..oo. = . . |  
| o.o+o .+ . + |  
| .o=+.o S o . |  
| +=..+o . . |  
| ...o.o= = |  
| . +..o o |  
| +oo* |  
+----[SHA256]----+  
infosec | research ->
```

```

netsec@ubuntu-server:~$ netstat -tan
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address      State
tcp      0      0 127.0.0.1:3306          0.0.0.0:*
tcp      0      0 127.0.0.53:53          0.0.0.0:*
tcp      0      0 0.0.0.0:22          0.0.0.0:*
tcp      0      0 192.168.166.134:22     192.168.166.165:49156 ESTABLISHED
tcp6     0      0 :::80                  ::::*
tcp6     0      0 ::::22                 ::::*
netsec@ubuntu-server:~$


infosec | research -> netstat -atn
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address          Foreign Address      State
tcp      0      0 0.0.0.0:111             0.0.0.0:*
tcp      0      0 192.168.166.165:49156   192.168.166.134:22 ESTABLISHED
tcp      1      0 192.168.166.165:49134   192.168.166.134:22 CLOSE_WAIT
tcp6     0      0 ::::111                ::::*
infosec | research ->
infosec | research ->

```

Resources:

<https://linuxize.com/post/how-to-enable-ssh-on-ubuntu-18-04/>

<https://help.ubuntu.com/community/SSH/OpenSSH/Configuring>

<https://linuxize.com/post/how-to-set-up-ssh-keys-on-ubuntu-1804/>

<https://www.ssh.com/ssh/keygen>

<https://unix.stackexchange.com/questions/98888/how-to-copy-a-public-key-to-your-server>

if errors, use:

ssh-keygen -f "/home/user/.ssh/known_hosts" -R "your ip address"

##14. Clear and disable bash history. (5 points)

```

netsec@ubuntu-server:~$ history -c
netsec@ubuntu-server:~$ sudo vim .bashrc
[sudo] password for netsec:
netsec@ubuntu-server:~$ history
1 sudo vim .bashrc
2 history
netsec@ubuntu-server:~$ 

```

```
# disable bash history  
set +o history
```

Resources:

history -c

<https://linuxize.com/post/history-command-in-linux/>

.bashrc file:

add set +o history

[https://bash.cyberciti.biz/guide/Setting shell options](https://bash.cyberciti.biz/guide/Setting_shell_options)

Extra Credit: Assess your machine for vulnerabilities. Document any vulnerabilities that are found.

Propose mitigations and/or solutions for each vulnerability.

Turn off any unnecessary services.

Document any solutions that are applied. (0-20 points)