



*IT361 System Administration and  
Maintenance 2019 - 2020 (First Semester)  
Project specification.*



## Web server.

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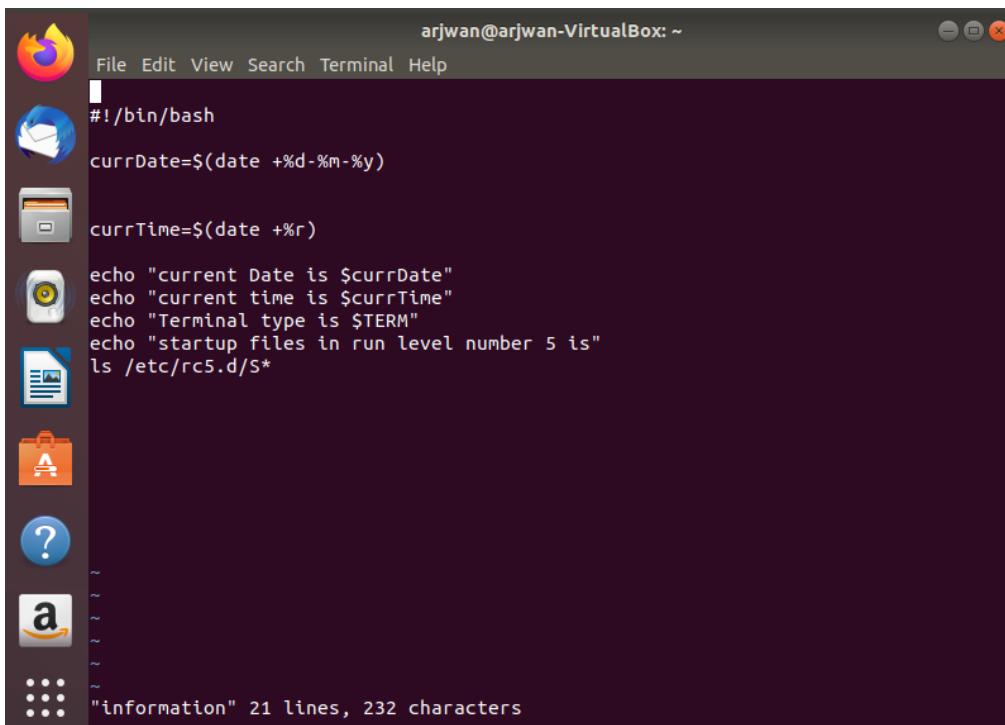
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# Part 1

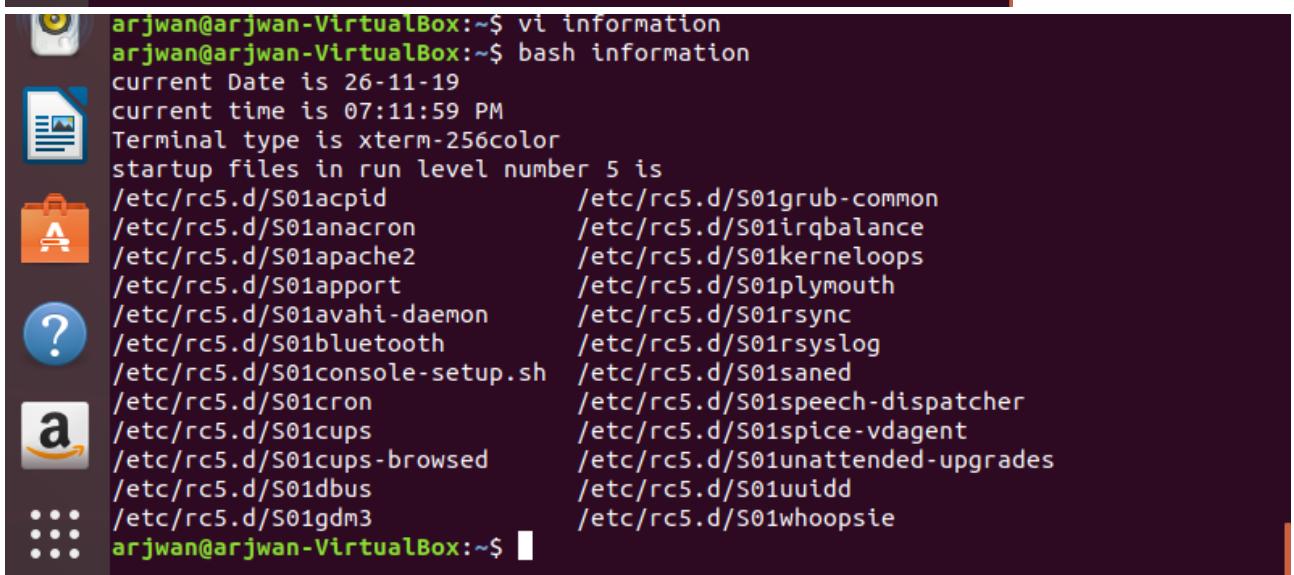
- 1. Write a script using your favorite editor. The script should display the current date and time, the terminal type that you are using. Additionally, it shows all the services



arjwan@arjwan-VirtualBox: ~

```
#!/bin/bash
currDate=$(date +%d-%m-%y)
currTime=$(date +%r)
echo "current Date is $currDate"
echo "current time is $currTime"
echo "Terminal type is $TERM"
echo "startup files in run level number 5 is"
ls /etc/rc5.d/S*
```

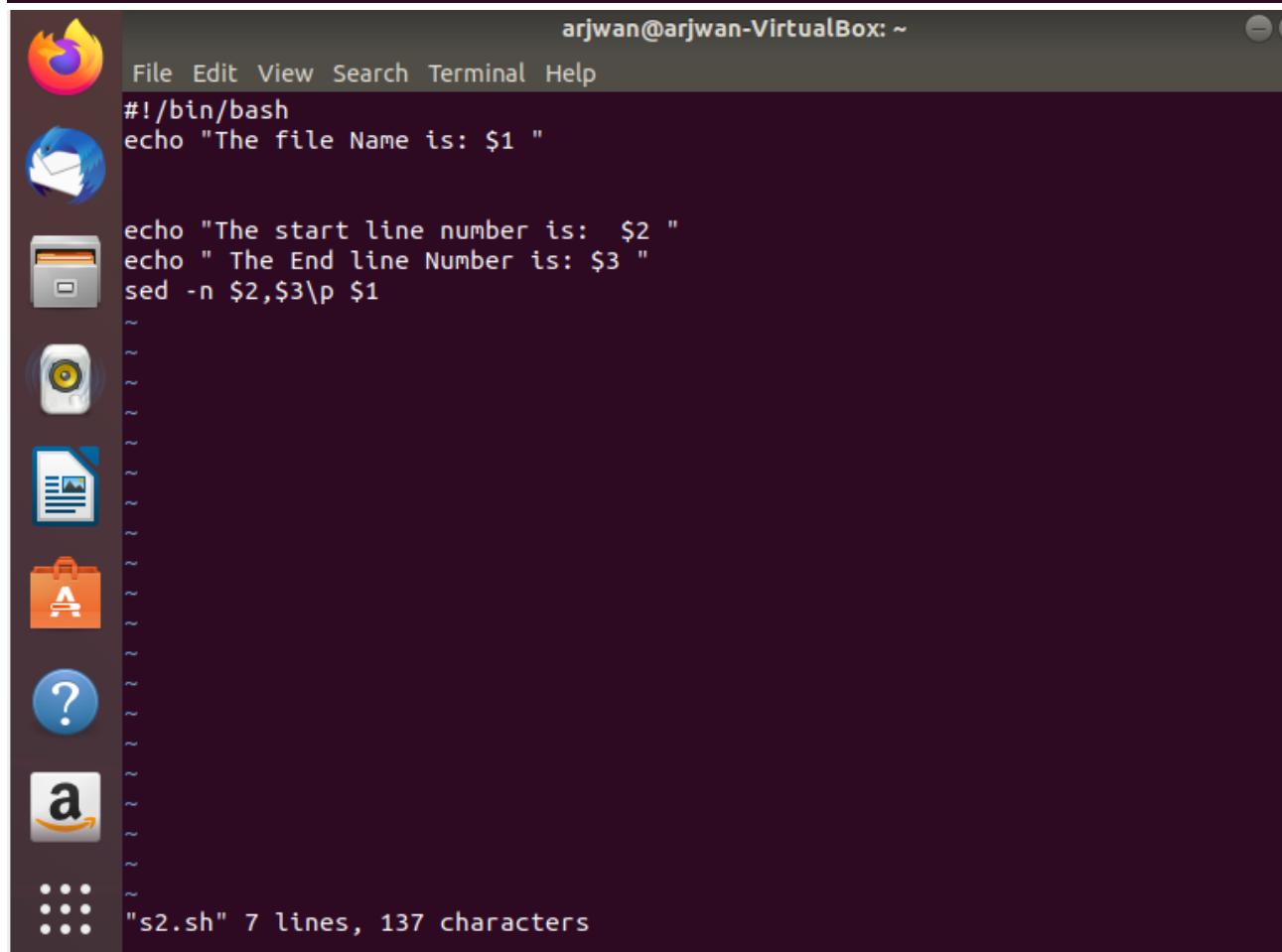
"information" 21 lines, 232 characters



```
arjwan@arjwan-VirtualBox:~$ vi information
arjwan@arjwan-VirtualBox:~$ bash information
current Date is 26-11-19
current time is 07:11:59 PM
Terminal type is xterm-256color
startup files in run level number 5 is
/etc/rc5.d/S01acpid          /etc/rc5.d/S01grub-common
/etc/rc5.d/S01anacron         /etc/rc5.d/S01irqbalance
/etc/rc5.d/S01apache2          /etc/rc5.d/S01kerneloops
/etc/rc5.d/S01apport           /etc/rc5.d/S01plymouth
/etc/rc5.d/S01avahi-daemon    /etc/rc5.d/S01rsync
/etc/rc5.d/S01bluetooth        /etc/rc5.d/S01rsyslog
/etc/rc5.d/S01console-setup.sh /etc/rc5.d/S01saned
/etc/rc5.d/S01cron              /etc/rc5.d/S01speech-dispatcher
/etc/rc5.d/S01cups              /etc/rc5.d/S01spice-vdagent
/etc/rc5.d/S01cups-browsed      /etc/rc5.d/S01unattended-upgrades
/etc/rc5.d/S01dbus              /etc/rc5.d/S01uuidd
/etc/rc5.d/S01gdm3              /etc/rc5.d/S01whoopsie
arjwan@arjwan-VirtualBox:~$
```

- 2. Write a shell script that accepts a file name, starting and ending lines numbers as a command-line argument the script will display all the lines between the given line numbers. (1.5 mark)

```
arjwan@arjwan-VirtualBox:~$ vi file1
arjwan@arjwan-VirtualBox:~$ ./s2.sh file1 2 4
The file Name is: file1
The start line number is: 2
The End line Number is: 4
hello
welcome
to
arjwan@arjwan-VirtualBox:~$
```



The screenshot shows a Linux desktop environment with a terminal window open in the foreground and a docked application menu on the left.

**Terminal Window:**

```
arjwan@arjwan-VirtualBox: ~
File Edit View Search Terminal Help
#!/bin/bash
echo "The file Name is: $1"

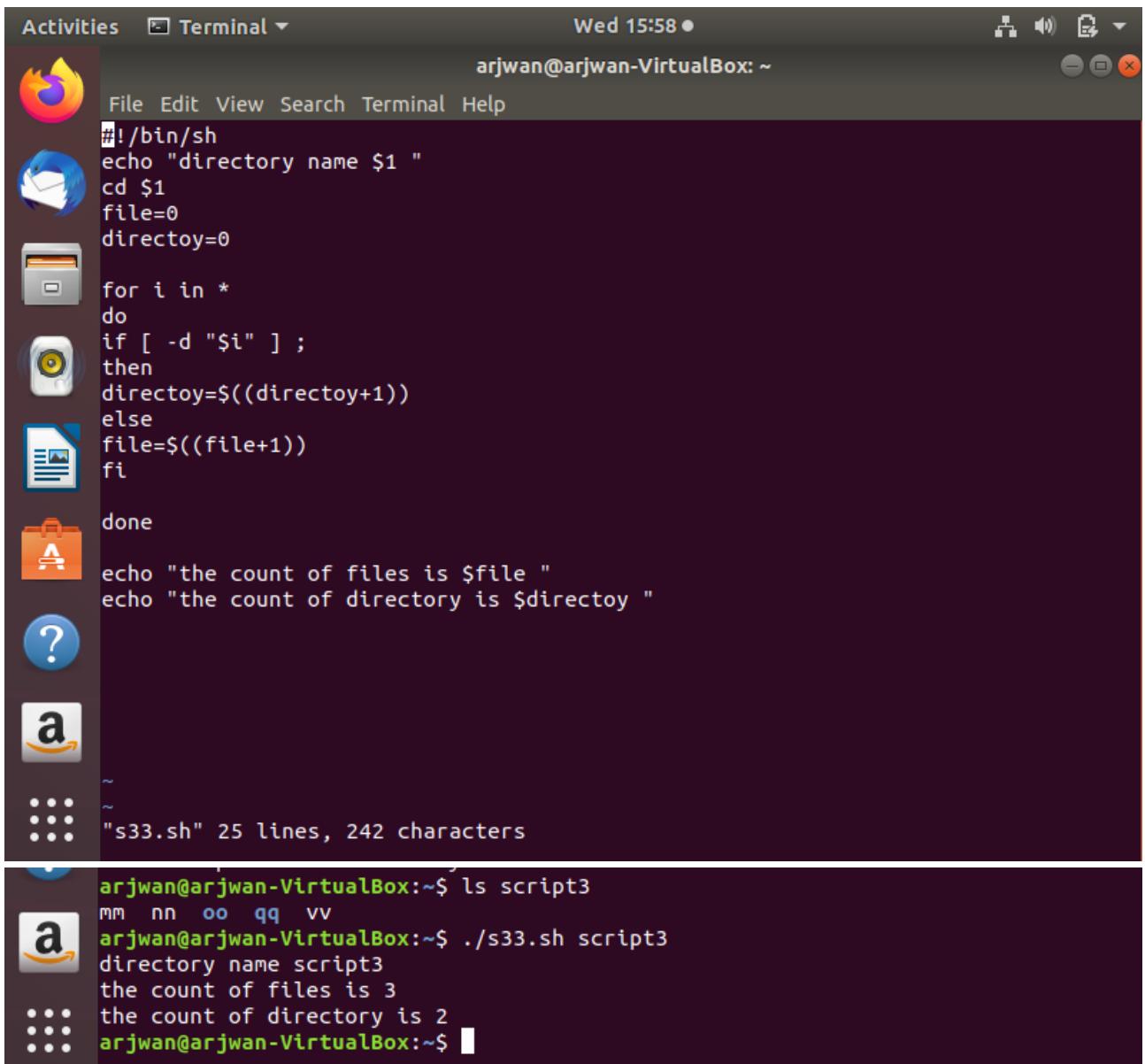
echo "The start line number is: $2 "
echo "The End line Number is: $3 "
sed -n ${2},${3}\p $1
~
```

**Docked Application Menu:**

- Firefox icon
- Mail icon
- Terminal icon
- File Manager icon
- Volume icon
- Image viewer icon
- Archiver icon
- Help icon
- Amazon icon
- Unknown icon (dots)

"s2.sh" 7 lines, 137 characters

- 3. Write a shell script to print the count of files and subdirectories in the specified directory, the directory name received as a command line argument. (1.5 mark)



The image shows a screenshot of an Ubuntu desktop environment. On the left, there is a vertical dock with various icons: a red Firefox icon, a blue folder icon, a white document icon, an orange briefcase icon, a blue question mark icon, and an orange 'a' icon. To the right of the dock is a terminal window titled "Terminal". The terminal shows the following script content:

```
#!/bin/sh
echo "directory name $1 "
cd $1
file=0
directoy=0

for i in *
do
if [ -d "$i" ] ;
then
directoy=$((directoy+1))
else
file=$((file+1))
fi

done

echo "the count of files is $file "
echo "the count of directory is $directoy "


```

At the bottom of the terminal window, it says "s33.sh" 25 lines, 242 characters.

Below the terminal window is a smaller window titled "Activities" showing a file browser interface. The file browser lists several files and folders in the current directory, including "script3" and "script4".

```
arjwan@arjwan-VirtualBox:~$ ls script3
mm nn oo qq vv
arjwan@arjwan-VirtualBox:~$ ./s33.sh script3
directory name script3
the count of files is 3
the count of directory is 2
arjwan@arjwan-VirtualBox:~$ 
```

- 4. Write a script to list the files in your home directory that were changed less than 5 hours ago, but leave out directories ( Only Files ). (1 mark)

```
GNU nano 2.9.3                                         q4
#!/bin/bash
find $HOME -mmin -300 -type f
```

```
khuzama@khuzama-VirtualBox:~$ sh q4
/home/khuzama/.local/share/xorg/Xorg.0.log
/home/khuzama/.local/share/app-info/xmls/extensions-web.xml
/home/khuzama/.local/share/gvfs-metadata/root
/home/khuzama/.local/share/gvfs-metadata/root-95017a4d.log
/home/khuzama/.local/share/gnome-shell/application_state
/home/khuzama/.local/share/evolution/addressbook/system/contacts.db
/home/khuzama/.local/share/nano/search_history
/home/khuzama/ee
/home/khuzama/.cache/gnome-software/fwupd/remotes.d/lvfs/metadata.xml.gz.asc
/home/khuzama/.cache/gnome-software/fwupd/remotes.d/lvfs/metadata.xml.gz
/home/khuzama/.cache/gnome-software/icons/c23b17ab44a60e90ca1d3850ef6a7476799ae142-icon_24.png
/home/khuzama/.cache/gnome-software/icons/a3444929feadbed406748c7b0f0d7dc38b9eb22f-icon.svg_1.pr
/home/khuzama/.cache/gnome-software/shell-extensions/gnome.json
/home/khuzama/.ICEauthority
/home/khuzama/.config/pulse/2fefdf888d34cba93eed9ee3d9370ea-default-source
/home/khuzama/.config/pulse/2fefdf888d34cba93eed9ee3d9370ea-default-sink
/home/khuzama/.config/gtk-3.0/bookmarks
/home/khuzama/.config/dconf/user
/home/khuzama/.config/ibus/bus/2fefdf888d34cba93eed9ee3d9370ea-unix-0
/home/khuzama/.config/nautilus/desktop-metadata
/home/khuzama/.bash_history
/home/khuzama/q7
khuzama@khuzama-VirtualBox:~$
```

- 5. Write a script to add new user to a specific group (Exist and new group) and give an initial password to this account. All this info will be reading from the user. (1.5 mark)

```
#!/bin/bash
echo "enter username to add"
read user
sudo adduser $user
echo "add user to existing group? (y/n)"
read choice
if [ $choice = "y" ]; then
    echo "enter existing group name"
    read group
    sudo usermod -a -G $group $user
elif [ $choice = "n" ]; then
    echo "enter new group name"
    read group
    sudo groupadd $group
    sudo usermod -a -G $group $user
else
    echo "wrong input"
fi
```

File Edit View Search Terminal Help  
khuzama@khuzama-VirtualBox:~\$ sh q5  
enter username to add  
alsalem  
[sudo] password for khuzama:  
Adding user `alsalem' ...  
Adding new group `alsalem' (1021) ...  
Adding new user `alsalem' (1014) with group `alsalem' ...  
Creating home directory `/home/alsalem' ...  
Copying files from `/etc/skel' ...  
Enter new UNIX password:  
Retype new UNIX password:  
passwd: password updated successfully  
Changing the user information for alsalem  
Enter the new value, or press ENTER for the default  
Full Name []:  
Room Number []:  
Work Phone []:  
Home Phone []:  
Other []:  
Is the information correct? [Y/n] y  
add user to extsting group ?(y/n)  
n  
enter new gruop name  
kh

- 6. Write a script to find the value of one number raised to the power of another both numbers received as a command line argument. (1.5 mark)

```
#!/bin/bash
if [[ $2 -eq 0 ]]
then
echo "1"
elif [[ $2 -eq 1 ]]
then
echo $1
elif
[[ $2 -lt 0 ]]
then
m=$((2*-1))
p=$((1**$m))
echo "1/$p"
else

res=1

for (( i=$2 ; i!=0 ; i-- ))
do

res=$((res*$1))
done
echo ${1}^${2}=$res
```

```
asma@asma-VirtualBox:~$ ./s.sh 2 0
1
asma@asma-VirtualBox:~$ ./s.sh 3 1
3
asma@asma-VirtualBox:~$ ./s.sh 2 -3
1/8
asma@asma-VirtualBox:~$ ./s.sh 4 4
4^4=256
```

```
asma@asma-VirtualBox:~$ ./s.sh 2 0
1
asma@asma-VirtualBox:~$ ./s.sh 3 1
3
asma@asma-VirtualBox:~$ ./s.sh 2 -3
1/8
asma@asma-VirtualBox:~$ ./s.sh 4 4
4^4=256
```

- 7. Write a Shell Script that read a file name and specific line number from the user as a command line argument then display the count of characters in that line. (1.5 mark)

```
#!/bin/bash

x=$(sed -n $2'p' $1 | wc -m)

echo "character count in file $1 line number $2 = $x "
```

```
File Edit View Search Terminal Help
khuzama@khuzama-VirtualBox:~$ nano try
khuzama@khuzama-VirtualBox:~$ cat try
111111111111111111111111
22222222222222222222222222
33333333333333333333333333
4444444444444444444444444444
555555555555555555555555555555
666666666666666666666666666666
khuzama@khuzama-VirtualBox:~$ sh q7 try 5
character count in file try line number 5 = 47
khuzama@khuzama-VirtualBox:~$
```

- 8. Make a scheduled backup process of your home directory. The backup file should be saving in var/backup directory (you may need to create it) and must be encrypted. This job is to be done every Sunday night at 9 pm. (2 marks)

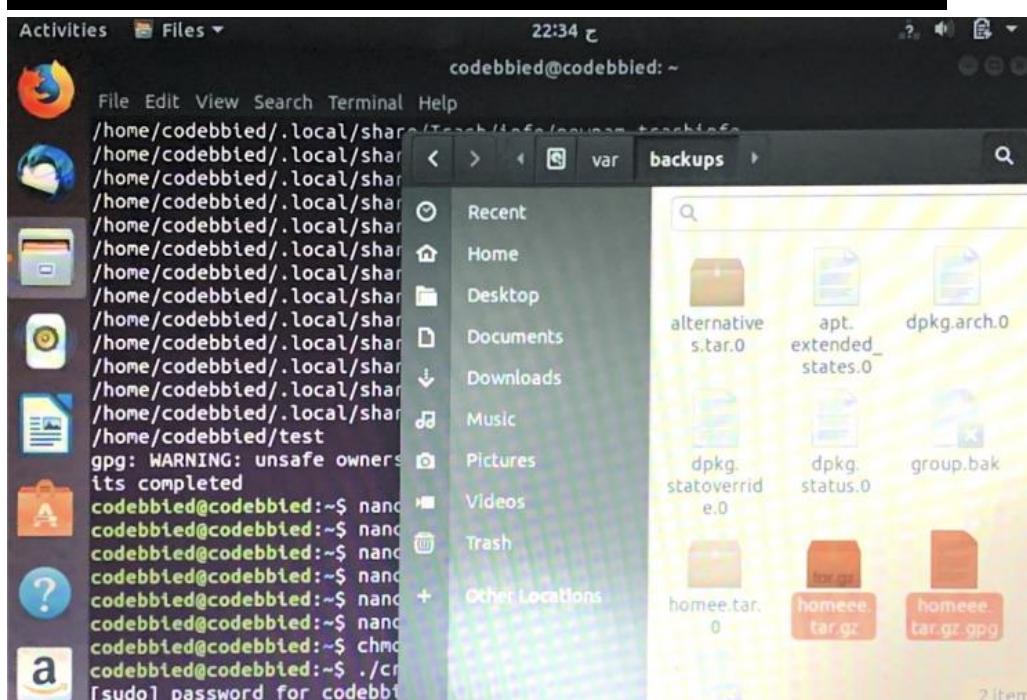
```
GNU nano 2.9.3                                backup

#!/bin/bash

if [ ! -d /var/backups ]
then
sudo mkdir /var/backups
fi
backDate=$(date +%d-%m-%y)
sudo tar -cvzpf /var/backups/homeee$backDate.tar.gz /home #for backup
sudo chmod +rwx /var/backups/homeee$backDate.tar.gz
sudo gpg -c /var/backups/homeee$backDate.tar.gz
echo its completed
```

```
GNU nano 2.9.3          CR

: /bin/bash
sudo crontab -e
0 21 * * sun /home/backup.sh
```



## Part 2

# Introduction

Many people know how to drive a car, but have little or no knowledge about how the car actually works. So, too, are many people familiar with how to view and navigate web pages, but have limited knowledge of how those web pages do what they do. Here we will answer the question: "What is a web server"?

a web server is simply a computer program that dispenses web pages as they are requested. The machine the program runs on is usually also called a server, and the two references are interchangeable in everyday conversation. When someone sits down at a computer and enters an address into an internet browser like Internet Explorer or Firefox, the browser sends a request off into the internet asking to view the web page found at that address. The web server is the program or machine that responds to that request, and delivers the content of the page back to the user.

We use Apache or Apache HTTP server is the most widely used web server software Developed and maintained by Apache Software Foundation, Apache is an open source software available for free. It runs on 67% of all webservers in the world. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules. Apache allows website developers to serve their content over the web. It serves as a delivery man by delivering files requested by users when they enter a domain name in their browser's address bar.

# Famous server

Apache was developed and maintained by the Apache Software Foundation community .

The Apache Software Foundation, abbreviated to ASF, is a not-for-profit company supporting Apache software projects, including the Apache web server.

Among the objectives of the Apache Software Foundation is to provide legal protection to volunteers working on Apache projects, and to prevent the use of the Apache name by other organizations without permission.

Initial release date: April 1995

Developer: Robert McCall

Website: (English) [httpd.apache.org](http://httpd.apache.org)

Operating System: Multi-Platform

Written in: C, XML, C++ .

The first version of Apache appeared by Robert McCall, who was working on the Web server of the National Center for High-Speed Applications, known as NCSA HTTPd, and when Robert left the center in mid-1994 development of HTTPD server stopped, leaving behind many optimization patches circulating via email.

Robert was not alone in these efforts, but was assisted by many of the developers who formed the Apache group: Brian Bellendorf, Roy Fielding.

**With the release of the second version** in which large portions of the Apache code were rewritten, the focus was on splitting the code into separate modules and developing the Apache Portable Runtime

The second version has seen many improvements including support for multitasking on Unix Better support for non- Unix platforms new software interface, and support for IPv6 ,(such as Microsoft Windows) .compatibility, and this release was launched in April 2002

# Downloading and Installing

## Installing Apache

Apache is available within Ubuntu's default software repositories, so you can install it using conventional package management tools.

You can download the latest version of a software by first updating the local package index of Ubuntu repositories.

Update your local package index:

```
ruba@ruba-VirtualBox:~$ sudo apt update -y
Get:1 http://security.ubuntu.com/ubuntu bionic-security InR
Hit:2 http://sa.archive.ubuntu.com/ubuntu bionic InRelease
Get:3 http://sa.archive.ubuntu.com/ubuntu bionic-updates In
Get:4 http://security.ubuntu.com/ubuntu bionic-security/main
 3 kB]
Get:5 http://sa.archive.ubuntu.com/ubuntu bionic-backports
Get:6 http://sa.archive.ubuntu.com/ubuntu bionic-updates/main
 96 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/main
 1 kB]
Get:8 http://sa.archive.ubuntu.com/ubuntu bionic-updates/main
 5 kB]
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

**Install the apache2 package:**

```
arjwan@arjwan-VirtualBox:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1
    libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.2-0
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1
    libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.2-0
0 upgraded, 9 newly installed, 0 to remove and 208 not upgraded.
Need to get 1,713 kB of archives.
After this operation, 6,917 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libapr1 amd64 1.6.3-2 [90.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libaprutil1 amd64 1.6.1-2 [84.4 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.1-2 [10.6 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 libaprutil1-ldap amd64 1.6.1-2 [8,764 B]
Get:5 http://us.archive.ubuntu.com/ubuntu bionic/main amd64 liblua5.2-0 amd64 5.2.4-1.1build1 [108 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu bionic-updates/main amd64 apache2-bin
```

**Check with the `systemd` init system to make sure the service is**

```
ruba@server:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
  Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor
Drop-In: /lib/systemd/system/apache2.service.d
          └─apache2-systemd.conf
  Active: active (running) since Fri 2019-11-22 22:41:58 +03; 2min 25s
    Process: 653 ExecStart=/usr/sbin/apachectl start (code=exited, status
Main PID: 703 (apache2)
  Tasks: 55 (limit: 2635)
 CGroup: /system.slice/apache2.service
         ├─703 /usr/sbin/apache2 -k start
         ├─705 /usr/sbin/apache2 -k start
         └─706 /usr/sbin/apache2 -k start

22 22:41:57 server systemd[1]: Starting The Apache HTTP Server...
22 22:41:58 server apachectl[653]: AH00558: apache2: Could not re
22 22:41:58 server systemd[1]: Started The Apache HTTP Server.
lines 1-16/16 (END)
```

# Configuration

## -Firewall Settings "UFW"

In order to configure Apache, we first need to allow outside access to certain web ports of our system and allow Apache on your UFW firewall.

### List the UFW application profiles

In order to configure the firewall, let us first list the application profiles we will need to enable access to Apache. Use the following command to list such available applications:

```
ruba@ruba-VirtualBox:~$ sudo ufw app list
Available applications:
  Apache
  Apache Full
  Apache Secure
  CUPS
  OpenSSH
```

The status of UFW will now display Apache enabled on the firewall

```
ruba@ruba-VirtualBox:~$ sudo ufw status
Status: inactive
ruba@ruba-VirtualBox:~$ sudo ufw enable
Firewall is active and enabled on system startup
ruba@ruba-VirtualBox:~$ sudo ufw status
Status: active

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

# Information about each application

```
asma@asma-VirtualBox:~$ sudo ufw app info "Apache Secure"
Profile: Apache Secure
Title: Web Server (HTTPS)
Description: Apache v2 is the next generation of the omnipresent Apache web
server.

Port:
  443/tcp
asma@asma-VirtualBox:~$ sudo ufw app info "Apache Full"
Profile: Apache Full
Title: Web Server (HTTP,HTTPS)
Description: Apache v2 is the next generation of the omnipresent Apache web
server.

Ports:
  80,443/tcp
asma@asma-VirtualBox:~$ sudo ufw app info "Apache"
Profile: Apache
Title: Web Server
Description: Apache v2 is the next generation of the omnipresent Apache web
server.

Port:
  80/tcp
```

We use( **Apache full** )because include oprts **80 , 443**

Port 80 “HTTP” to receive and send webpage and data in the internet port 443 “HTTP” receive and send webpage and data in the internet but is more security than port 80 .

```
asma@asma-VirtualBox:~$ sudo ufw allow 'apache full'
Rule added
Rule added (v6)
```

# Information about each application

## PORT 22-SECURES SHELL(SSH):

a cryptographic network protocol for operating network services securely over an unsecured network.[Typical applications include remote command-line, login, and remote command execution, but any network service can be secured with SSH.

```
asma@asma-VirtualBox:~$ sudo ufw allow 22
[sudo] password for asma:
Rule added
Rule added (v6)
asma@asma-VirtualBox:~$ sudo ufw status
Status: active

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

## hostname command :

hostname command is used to obtain the DNS(Domain Name System) name and set the system's hostname

**hostnamectl** is use to control Linux system hostname and change its related settings.

We write this command to set new name hostname “ hostnamectl set-hostname

```
ruba@ruba-VirtualBox:~$ hostname
ruba-VirtualBox
ruba@ruba-VirtualBox:~$ hostnamectl
    Static hostname: ruba-VirtualBox
              Icon name: computer-vm
              Chassis: vm
        Machine ID: cb73d9e60fcf4e7abc3518a3da07c553
            Boot ID: 7c2f95be736d418ebdd619fb5ab630c2
      Virtualization: oracle
Operating System: Ubuntu 18.04.3 LTS
          Kernel: Linux 5.0.0-23-generic
      Architecture: x86-64
ruba@ruba-VirtualBox:~$ hostnamectl set-hostname server
ruba@ruba-VirtualBox:~$ hostname
server
ruba@ruba-VirtualBox:~$
```

```
ruba@server:~$ hostnamectl
    Static hostname: server
              Icon name: computer-vm
              Chassis: vm
        Machine ID: cb73d9e60fcf4e7abc3518a3da07c553
            Boot ID: 7c2f95be736d418ebdd619fb5ab630c2
      Virtualization: oracle
Operating System: Ubuntu 18.04.3 LTS
          Kernel: Linux 5.0.0-23-generic
      Architecture: x86-64
ruba@server:~$
```

# Testing the server

## Check your Web Server

At the end of the installation process .

The web server should already be up and running.

We can check with the systemd init system to make sure the service is running by typing:

**\$ sudo systemctl status apache2**

As you can see above, the service appears to have started successfully. However, the best way to test this is to actually request a page from Apache.

You can access the default Apache landing page to confirm that the software is running properly.

You can access this through your server's domain name or IP address.

Try typing this at your server's command prompt:

**\$ hostname -I**

Then you want to enter if this directory

**cd /var/www**

and list **ls** and create the file **index.html** ,  
remove the index.html , crate another one  
then , write your page and save ,  
when you want check use your IP to see the page .

```
File Edit View Search Terminal Help
khuzama@khuzama-VirtualBox:/var/www/html$ ls
index.html
khuzama@khuzama-VirtualBox:/var/www/html$ sudo systemctl start apache2
khuzama@khuzama-VirtualBox:/var/www/html$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:84:b0:79 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 85544sec preferred_lft 85544sec
    inet6 fe80::4b58:3269:5747:8cce/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
khuzama@khuzama-VirtualBox:/var/www/html$ ls
index.html
khuzama@khuzama-VirtualBox:/var/www/html$ sudo rm -rf index.html
khuzama@khuzama-VirtualBox:/var/www/html$ sudo nano index.html
khuzama@khuzama-VirtualBox:/var/www/html$ sudo systemctl restart apache2
khuzama@khuzama-VirtualBox:/var/www/html$
```

```
<html>
<head>
<title> Registration Form </title>
<style type="text/css">
body {
background-color:white;
}
.lab{
background-color:lightyellow;
background-position:bottom right;
background-repeat:no-repeat;
background-image: url("xx.jpg")
position:absolute;
top:50px;
left:300px;
right:300px;
padding:50px;
}

h1{
color:black;
text-decoration:underline;
text-align:center;}
```

```
GNU nano 2.9.3          index.html

<p>
<label> Email <a style="color:red;">*</a></style>
<input class="kk" type="Email"
placeholder="example@example.com" required/>
</label></p>

<p>
<label>Password<a style="color:red;">*</a></style>
<input class="kk" type="password" name="password" size="10" required/>
</label></p>
[

<p>
<strong> Gender </strong><br>

<input type="radio" name="Gender" value="Male"> Male <br>
<input type="radio" name="Gender" value="female"> Female <br>
</p>

<p>
<label> Country:
<select class="kk" name="country">
<option selected>Saudi Arabia </option>
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify  
^X Exit ^R Read File ^L Replace ^U Uncut Text ^T To Spell

```
GNU nano 2.9.3                               index.html

.rr{
background-color:saddleBrown;
color:white;
width:700px;
height:50px}

.kk{
width:700px;
height:50px;
font-size:20px;
}

</style>

<body>
<h1> Registration Form </h1>
<div class="lab">

<p>
<from name ="Name">
<label> Name <a style ="color:red;">*</a></style>
<input class="kk" type="text"
placeholder="your name" required>
```

```
GNU nano 2.9.3                               index.html

<option> Bahrain </option>
</select>
</lable>
</p>

<h3> Terms and conditions </h3>
<p style="width:60%;height:150px; background-color:white; overflow:scroll">
Please read these terms and conditions of use carefully before accessing, usin$ information , proudcts or services. by accessing , the our website, mobile or $ our ,privacy policy.
please read these terms and conditions before accessing, using or obtaining an$ </p>

<p>
<input type="checkbox">
<lable> I agree </lable></p>
<p style="color:red; font-size:20px;"> Required Fields </p>
<input class="rr" type="submit" value="Registration">

</div>
</body>
</html>
```

Registration Form X +

← → C H (i)  10.0.2.15 50% ... OK ★ ≡ »

## Registration Form

Name \*

Email \*

Password\*

Gender

Male

Female

Country:  ▼

# Summary

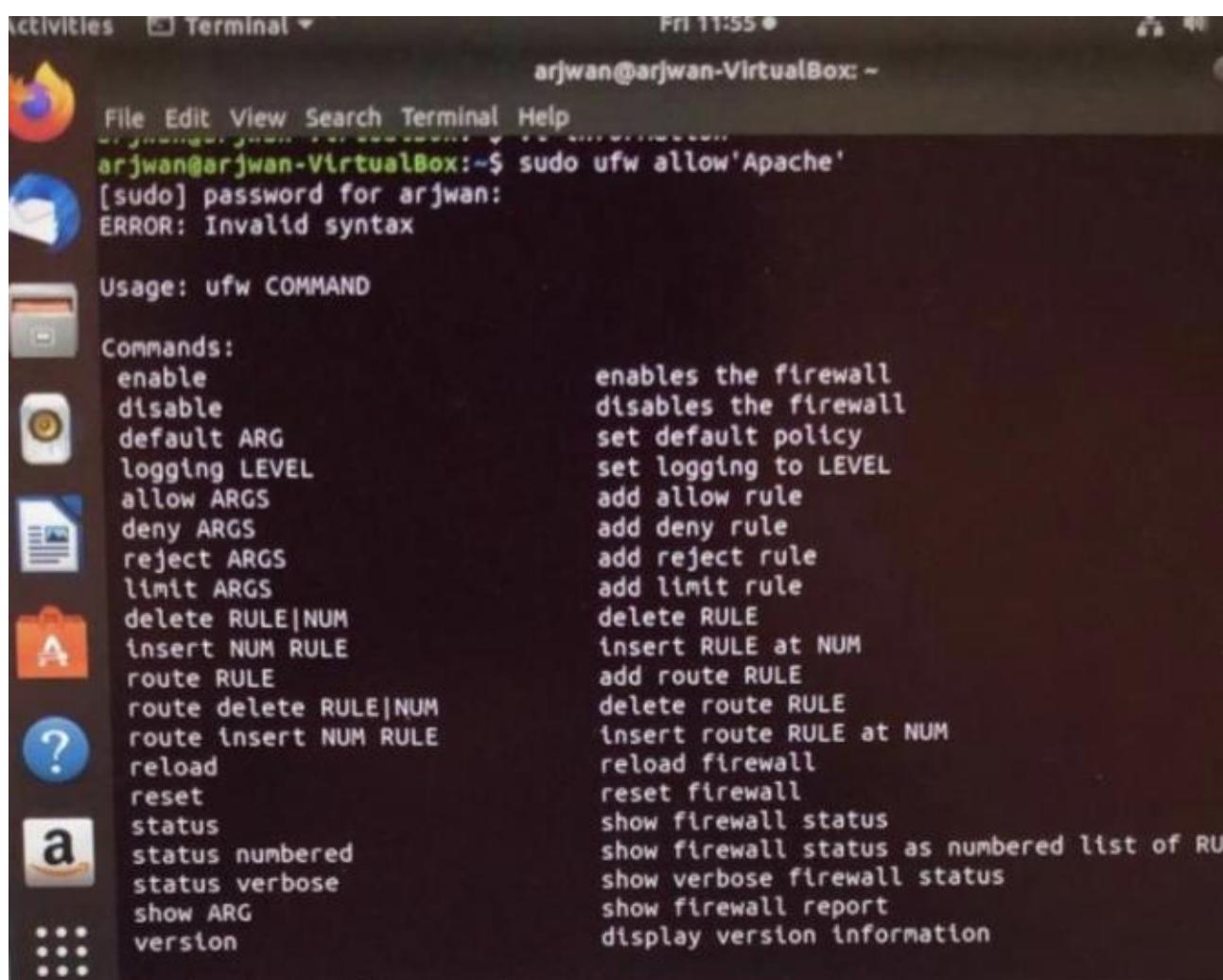
SUMMARY ERROR:

```
ruba@ruba-VirtualBox:~$ ifconfig  
Command 'ifconfig' not found, but can be installed with:  
sudo apt install net-tools
```

SOLUTION:

```
ruba@ruba-VirtualBox:~$ ip addr show  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
        inet6 ::1/128 scope host  
            valid_lft forever preferred_lft forever  
:: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000  
    link/ether 08:00:27:88:56:60 brd ff:ff:ff:ff:ff:ff  
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3  
        valid_lft 82947sec preferred_lft 82947sec  
        inet6 fe80::57fd:baeb:41aa:1d3d/64 scope link noprefixroute  
            valid_lft forever preferred_lft forever  
ruba@ruba-VirtualBox:~$ ip a  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
        inet6 ::1/128 scope host  
            valid_lft forever preferred_lft forever  
:: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000  
    link/ether 08:00:27:88:56:60 brd ff:ff:ff:ff:ff:ff  
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3  
        valid_lft 82967sec preferred_lft 82967sec  
        inet6 fe80::57fd:baeb:41aa:1d3d/64 scope link noprefixroute  
            valid_lft forever preferred_lft forever
```

ERROR:



A screenshot of a Linux desktop environment, likely Ubuntu, showing a terminal window. The terminal window has a dark background and light-colored text. At the top, it says "Activities Terminal" and "Fri 11:55". The command entered was "sudo ufw allow 'Apache'". It prompted for a password ("[sudo] password for arjwan:"), but then returned an error message ("ERROR: Invalid syntax"). Below this, standard usage and command descriptions for the ufw command are displayed.

```
File Edit View Search Terminal Help
arjwan@arjwan-VirtualBox:~$ sudo ufw allow 'Apache'
[sudo] password for arjwan:
ERROR: Invalid syntax

Usage: ufw COMMAND

Commands:
enable                                enables the firewall
disable                               disables the firewall
default ARG                            set default policy
logging LEVEL                          set logging to LEVEL
allow ARGS                            add allow rule
deny ARGS                             add deny rule
reject ARGS                           add reject rule
limit ARGS                            add limit rule
delete RULE|NUM                        delete RULE
insert NUM RULE                        insert RULE at NUM
route RULE                            add route RULE
route delete RULE|NUM                  delete route RULE
route insert NUM RULE                  insert route RULE at NUM
reload                                 reload firewall
reset                                 reset firewall
status                                show firewall status
status numbered                       show firewall status as numbered list of RULES
status verbose                         show verbose firewall status
show ARG                             show firewall report
version                               display version information
```

## SOLUTION



```
arjwan@arjwan-VirtualBox:~$ sudo ufw allow 'Apache'
Rule added
Rule added (v6)
arjwan@arjwan-VirtualBox:~$
```

References: <https://video.search.yahoo.com/search/video?fr=mcafee&p=how+install+webserver+in+ubuntu#id=1&vid=9ddb27fa223574c97e95db29f31508ac&action=click>

<https://www.digitalocean.com/community/tutorials/how-to-install-the-apache-web-server-on-ubuntu- 18-04-quickstart>