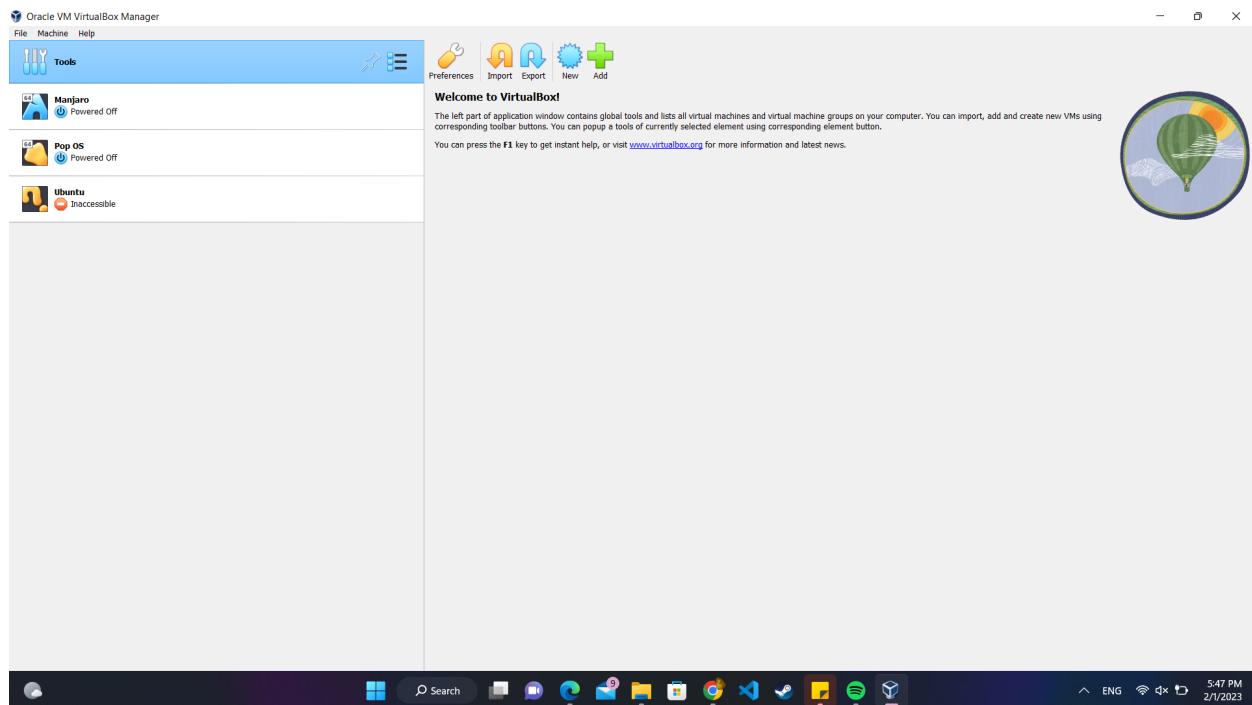
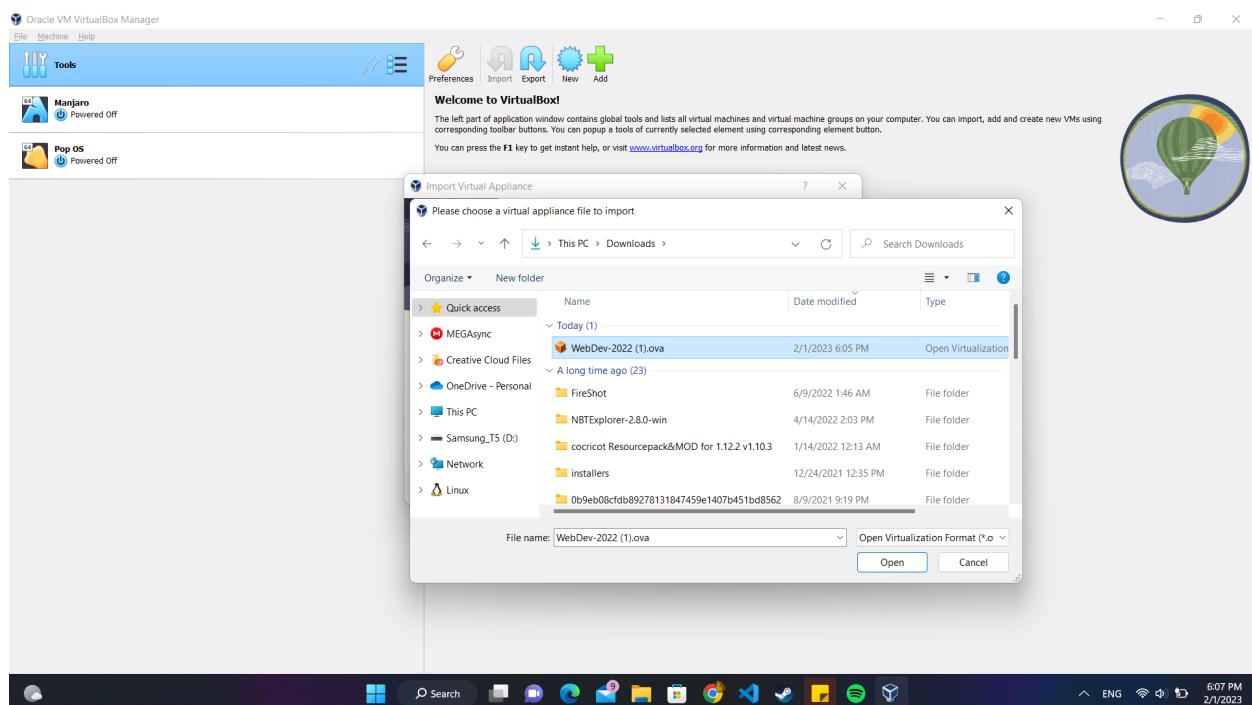


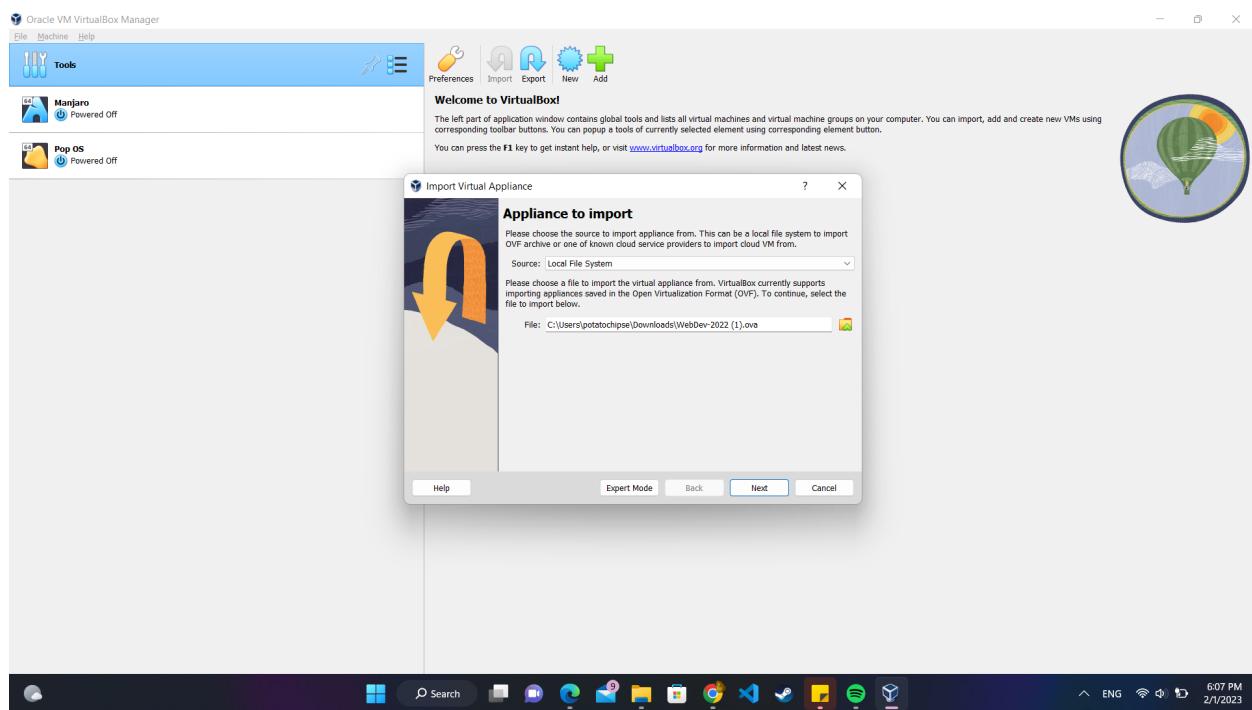
# Lamp Installation



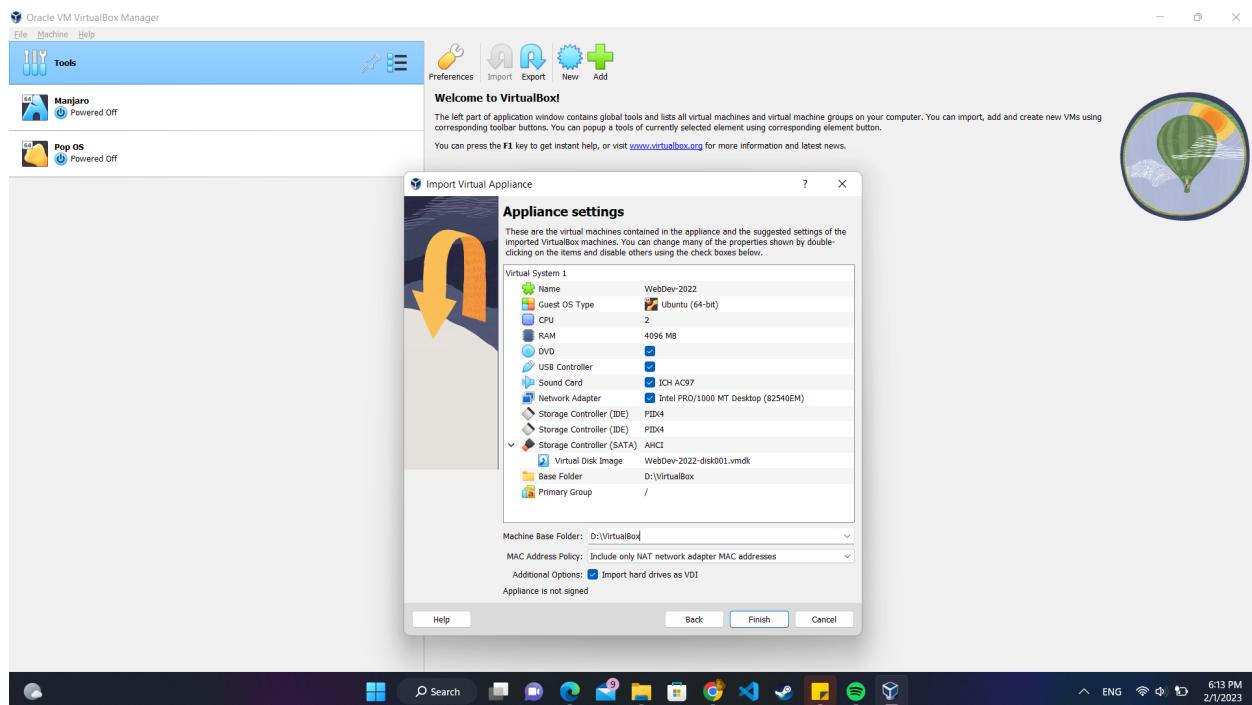
VirtualBox is open



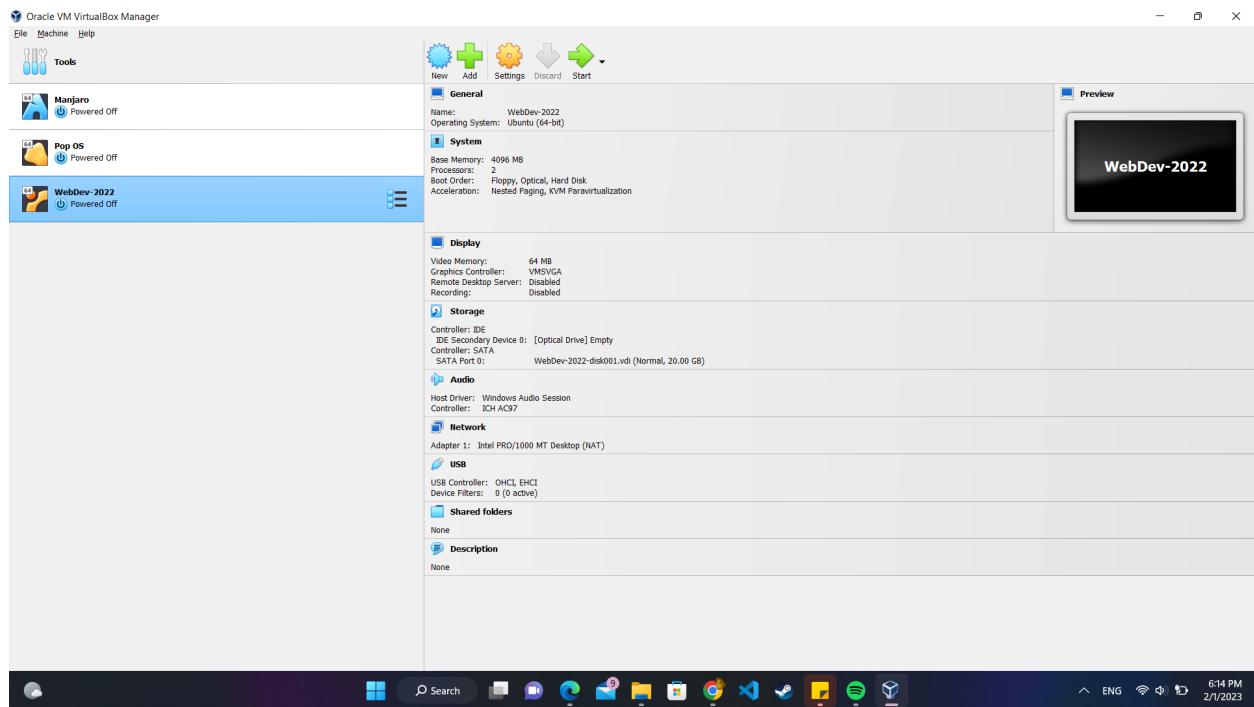
Browsing for the OVA file



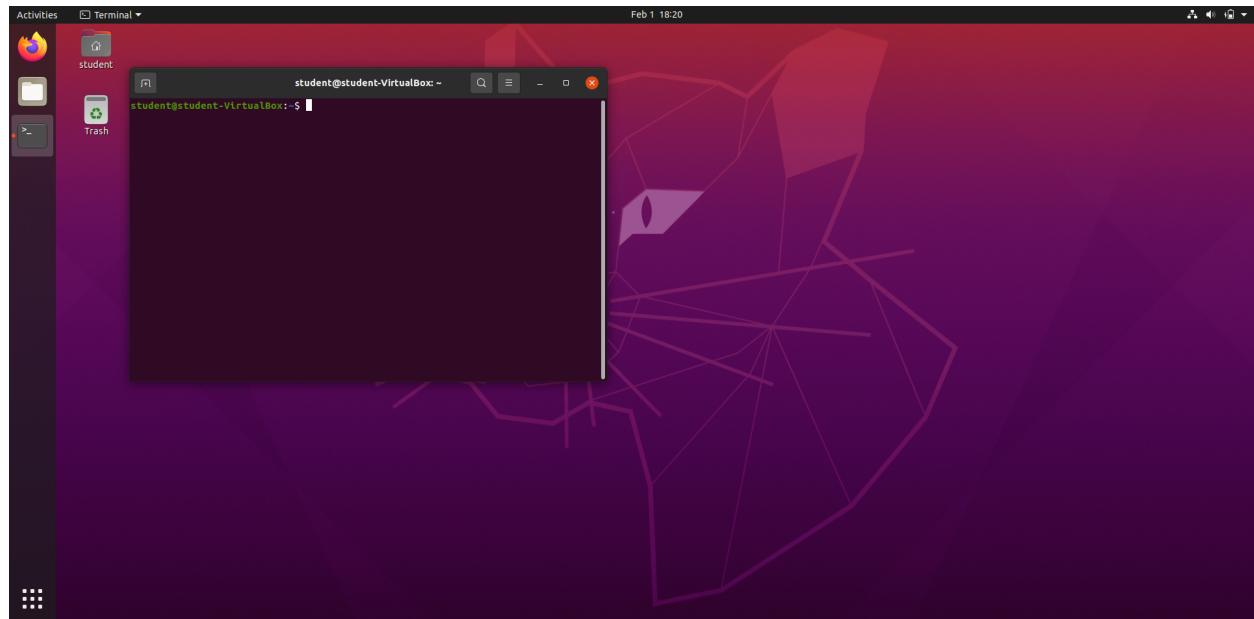
Import selected



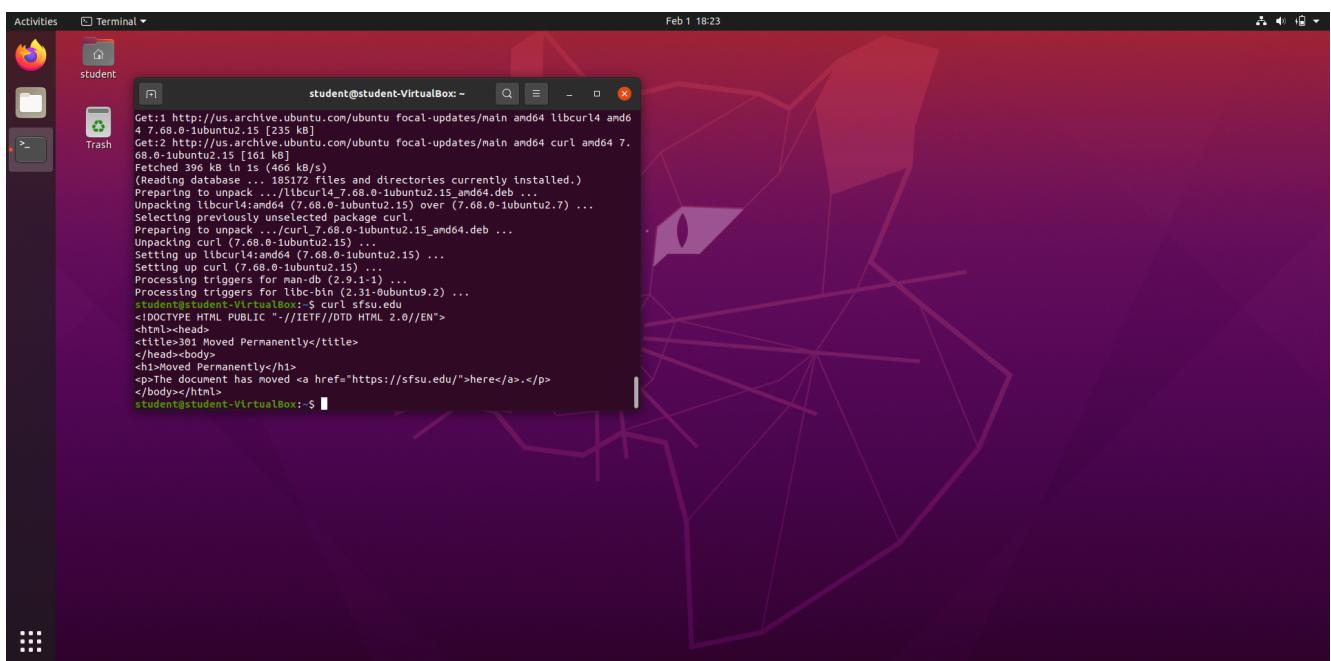
Showing the default settings



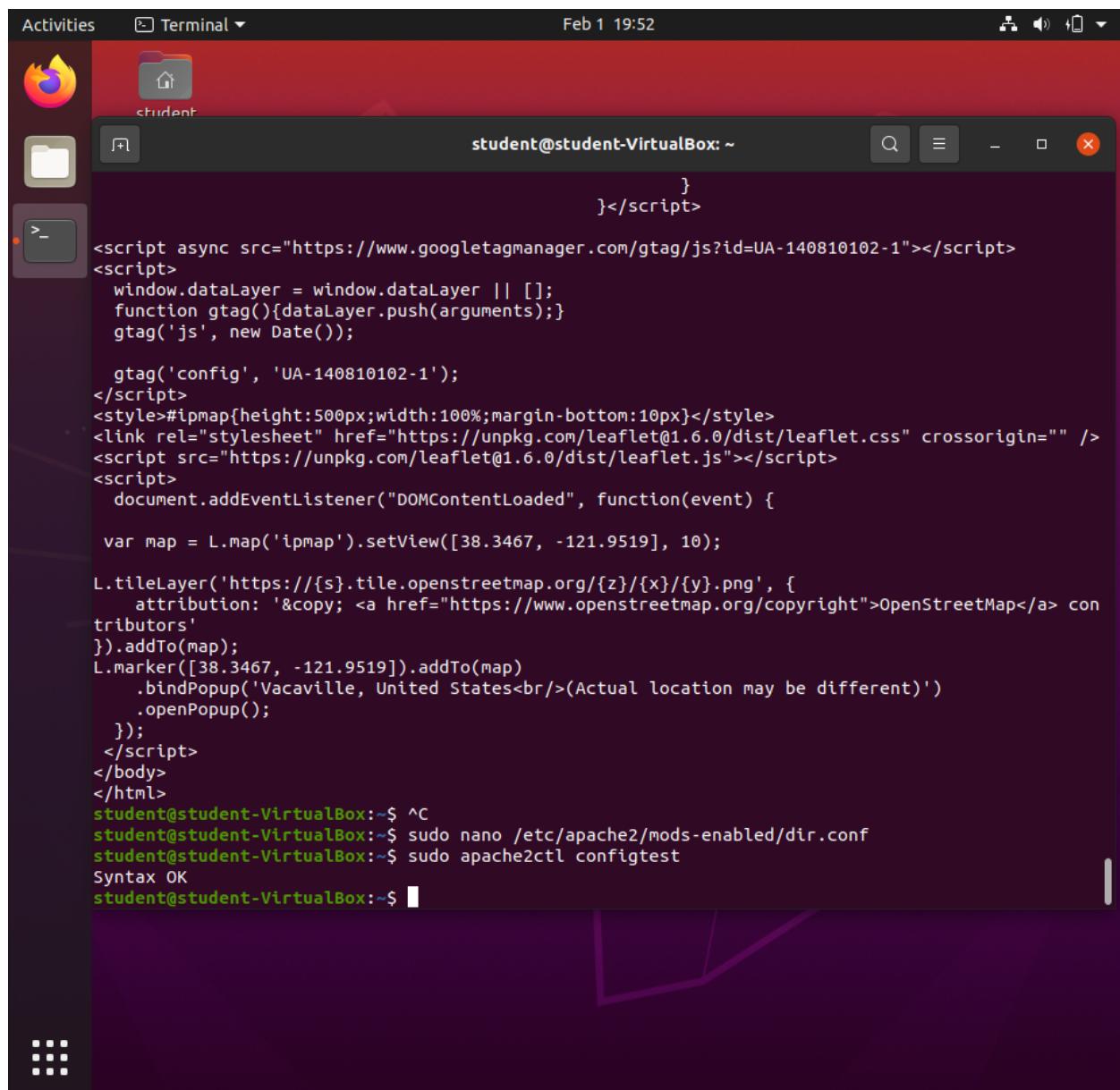
The Ova file was installed



Showing my Linux installation



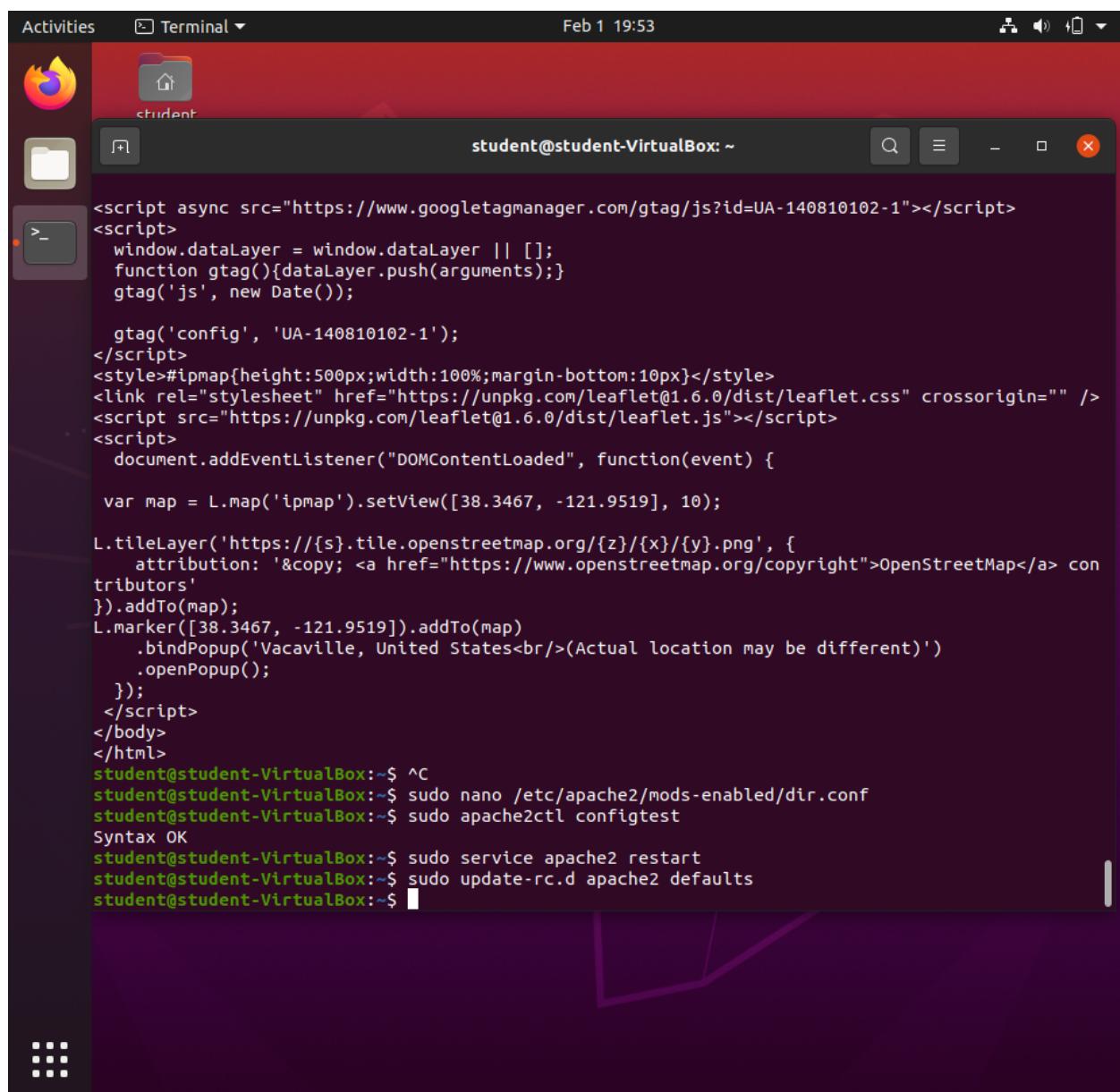
Curling a website



The screenshot shows a Linux desktop environment with a dark theme. A terminal window titled "student@student-VirtualBox: ~" is open, displaying the following command-line session:

```
student@student-VirtualBox:~$ ^C
student@student-VirtualBox:~$ sudo nano /etc/apache2/mods-enabled/dir.conf
student@student-VirtualBox:~$ sudo apache2ctl configtest
Syntax OK
student@student-VirtualBox:~$
```

Verifying Apache Configuration



The image shows a screenshot of an Ubuntu desktop environment. At the top, there is a header bar with the text "Activities", "Terminal", "Feb 1 19:53", and system icons. Below the header is a dock with icons for the Dash, Home, and a folder labeled "student". A terminal window titled "student@student-VirtualBox: ~" is open, displaying the following command-line session:

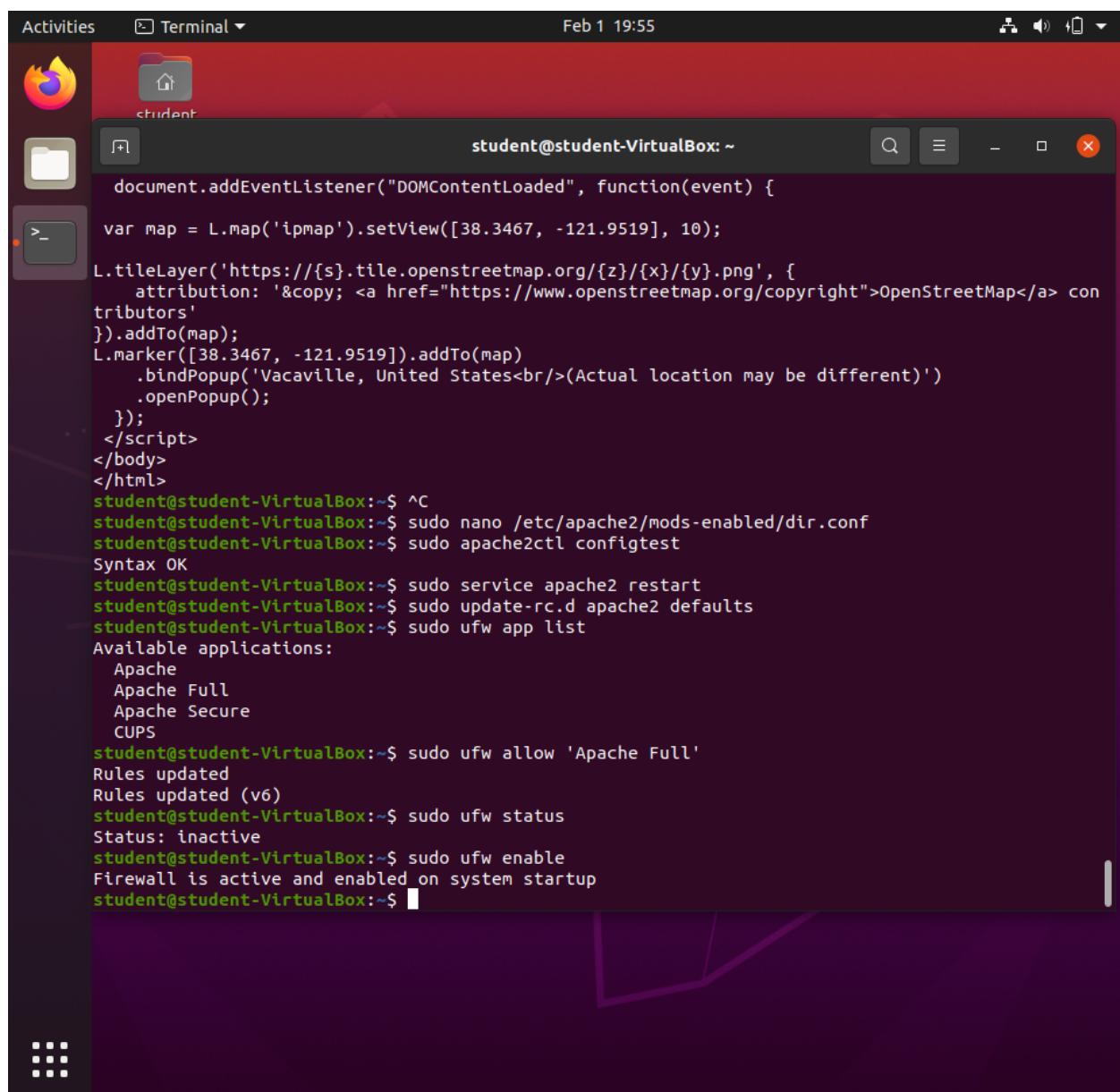
```
<script async src="https://www.googletagmanager.com/gtag/js?id=UA-140810102-1"></script>
<script>
  window.dataLayer = window.dataLayer || [];
  function gtag(){dataLayer.push(arguments);}
  gtag('js', new Date());

  gtag('config', 'UA-140810102-1');
</script>
<style>#ipmap{height:500px;width:100%;margin-bottom:10px}</style>
<link rel="stylesheet" href="https://unpkg.com/leaflet@1.6.0/dist/leaflet.css" crossorigin="" />
<script src="https://unpkg.com/leaflet@1.6.0/dist/leaflet.js"></script>
<script>
  document.addEventListener("DOMContentLoaded", function(event) {

    var map = L.map('ipmap').setView([38.3467, -121.9519], 10);

    L.tileLayer('https://s.tile.openstreetmap.org/{z}/{x}/{y}.png', {
      attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contributors'
    }).addTo(map);
    L.marker([38.3467, -121.9519]).addTo(map)
      .bindPopup('Vacaville, United States<br/>(Actual location may be different)')
      .openPopup();
  });
</script>
</body>
</html>
student@student-VirtualBox:~$ ^C
student@student-VirtualBox:~$ sudo nano /etc/apache2/mods-enabled/dir.conf
student@student-VirtualBox:~$ sudo apache2ctl configtest
Syntax OK
student@student-VirtualBox:~$ sudo service apache2 restart
student@student-VirtualBox:~$ sudo update-rc.d apache2 defaults
student@student-VirtualBox:~$
```

Verifying Apache configuration



The image shows a screenshot of an Ubuntu desktop environment. In the top bar, there are icons for Activities, Terminal, and a date/time indicator (Feb 1 19:55). The main window is a terminal window titled "student@student-VirtualBox: ~". It contains the following text:

```
document.addEventListener("DOMContentLoaded", function(event) {  
    var map = L.map('ipmap').setView([38.3467, -121.9519], 10);  
    L.tileLayer('https://s.tile.openstreetmap.org/{z}/{x}/{y}.png', {  
        attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contributors'  
    }).addTo(map);  
    L.marker([38.3467, -121.9519]).addTo(map)  
        .bindPopup('Vacaville, United States<br/>(Actual location may be different)')  
        .openPopup();  
};  
</script>  
</body>  
</html>  
student@student-VirtualBox:~$ ^C  
student@student-VirtualBox:~$ sudo nano /etc/apache2/mods-enabled/dir.conf  
student@student-VirtualBox:~$ sudo apache2ctl configtest  
Syntax OK  
student@student-VirtualBox:~$ sudo service apache2 restart  
student@student-VirtualBox:~$ sudo update-rc.d apache2 defaults  
student@student-VirtualBox:~$ sudo ufw app list  
Available applications:  
    Apache  
    Apache Full  
    Apache Secure  
    CUPS  
student@student-VirtualBox:~$ sudo ufw allow 'Apache Full'  
Rules updated  
Rules updated (v6)  
student@student-VirtualBox:~$ sudo ufw status  
Status: inactive  
student@student-VirtualBox:~$ sudo ufw enable  
Firewall is active and enabled on system startup  
student@student-VirtualBox:~$ █
```

Setting up the firewall

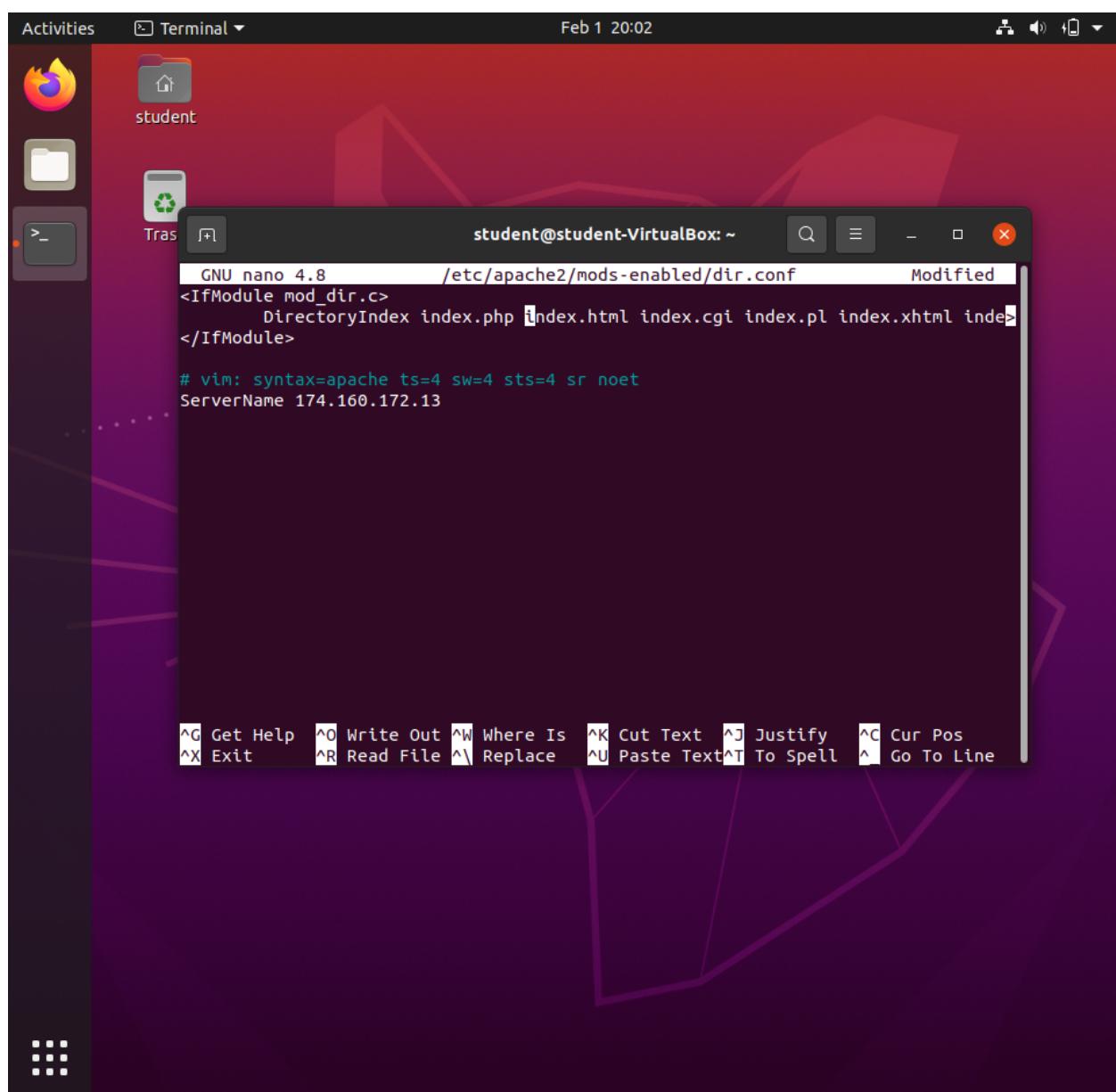
The screenshot shows a Firefox browser window titled "Apache2 Ubuntu Default Page" with the URL "localhost". The page features the Ubuntu logo and the text "Apache2 Ubuntu Default Page". A red banner at the top right says "It works!". Below it, a message states: "This is the default welcome page used 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." Another message below says: "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." A section titled "Configuration Overview" contains a tree diagram of configuration files:

```
/etc/apache2/
|-- apache2.conf
|   '-- ports.conf
|-- mods-enabled
|   '-- *.load
|   '-- *.conf
|-- conf-enabled
|   '-- *.conf
|-- sites-enabled
|   '-- *.conf
```

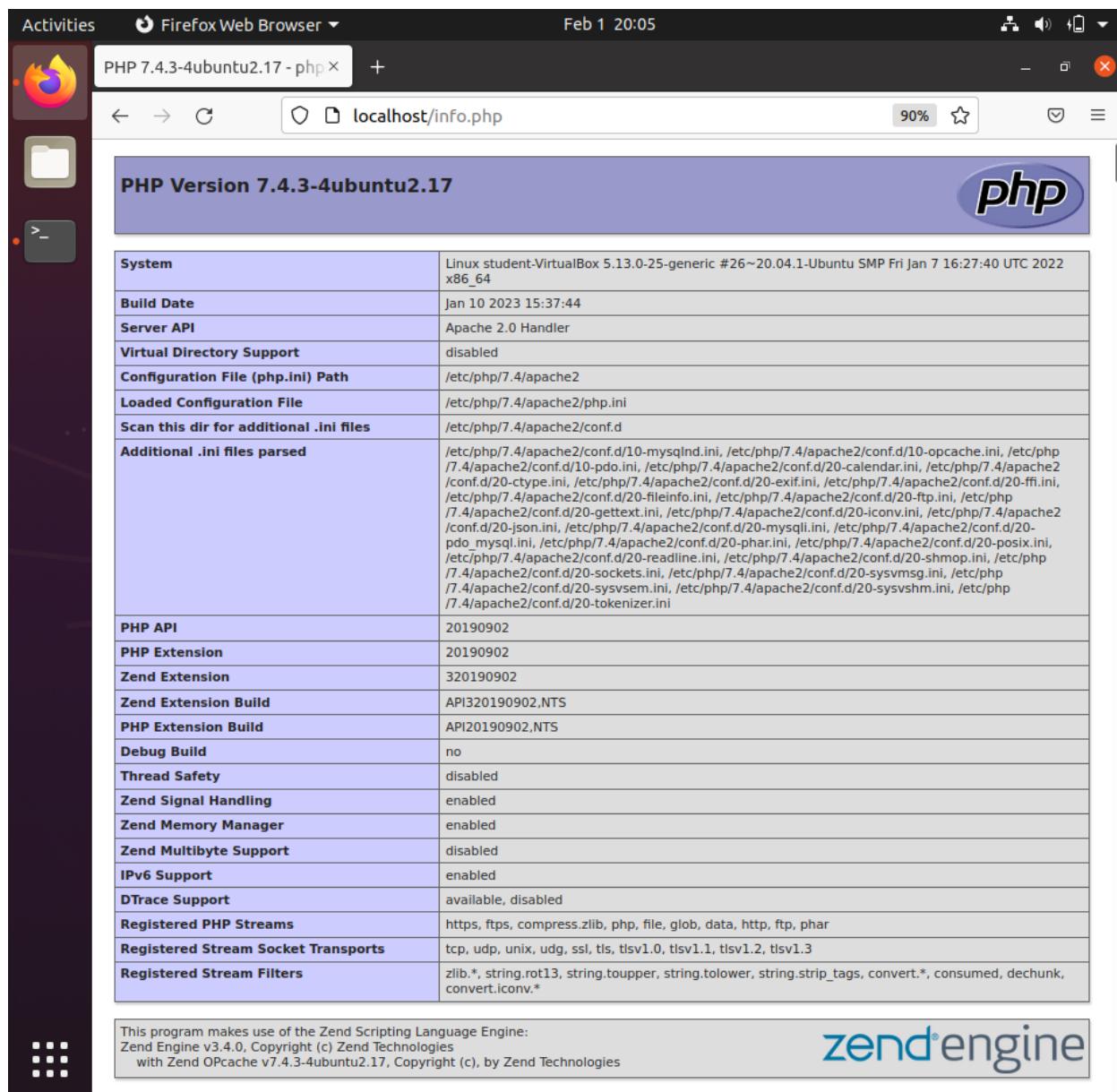
A bulleted list explains the structure:

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
- Configuration files in the `mods-enabled/`, `conf-enabled/` and `sites-enabled/` directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.

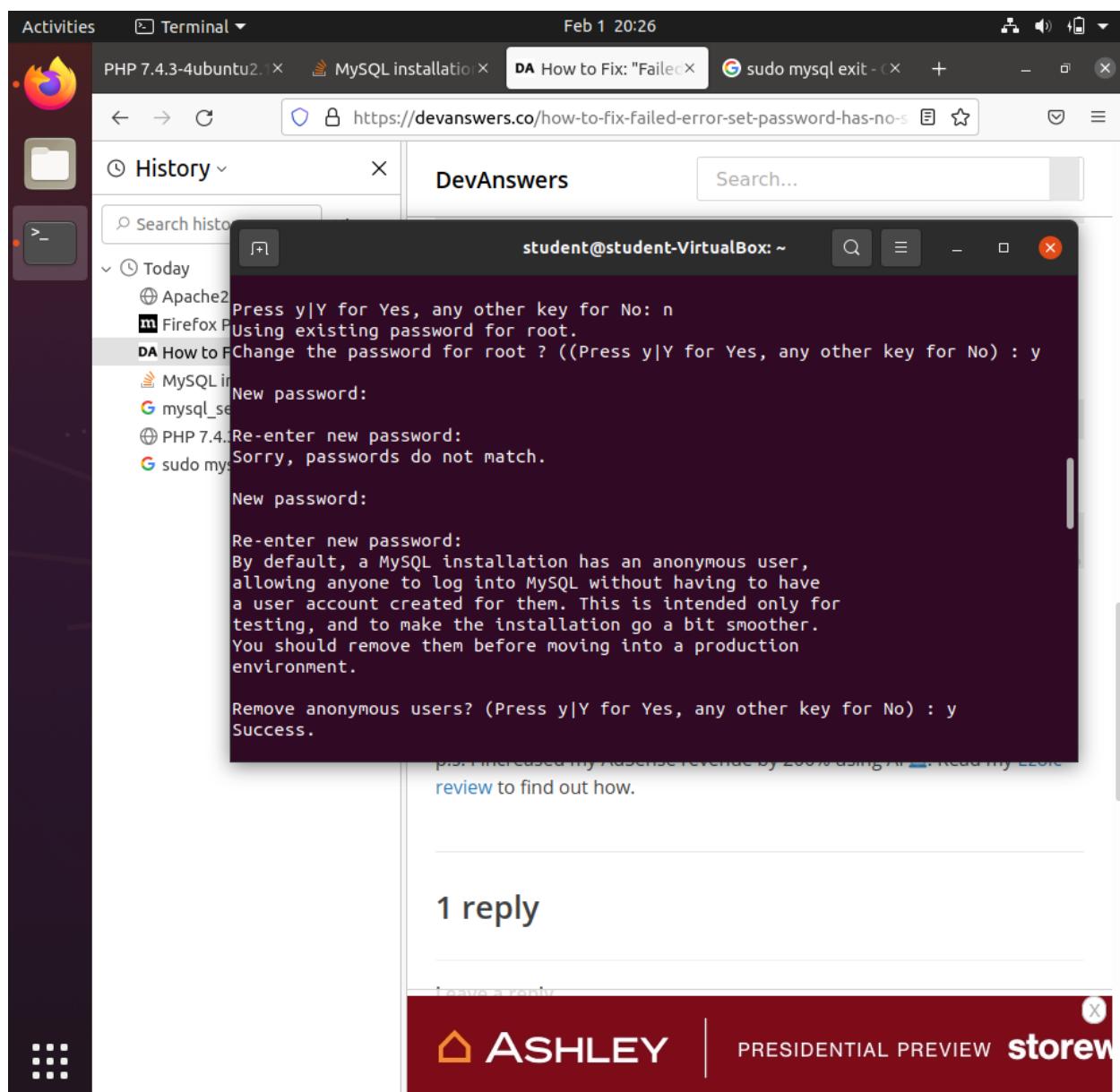
### Viewing the Apache WebPage



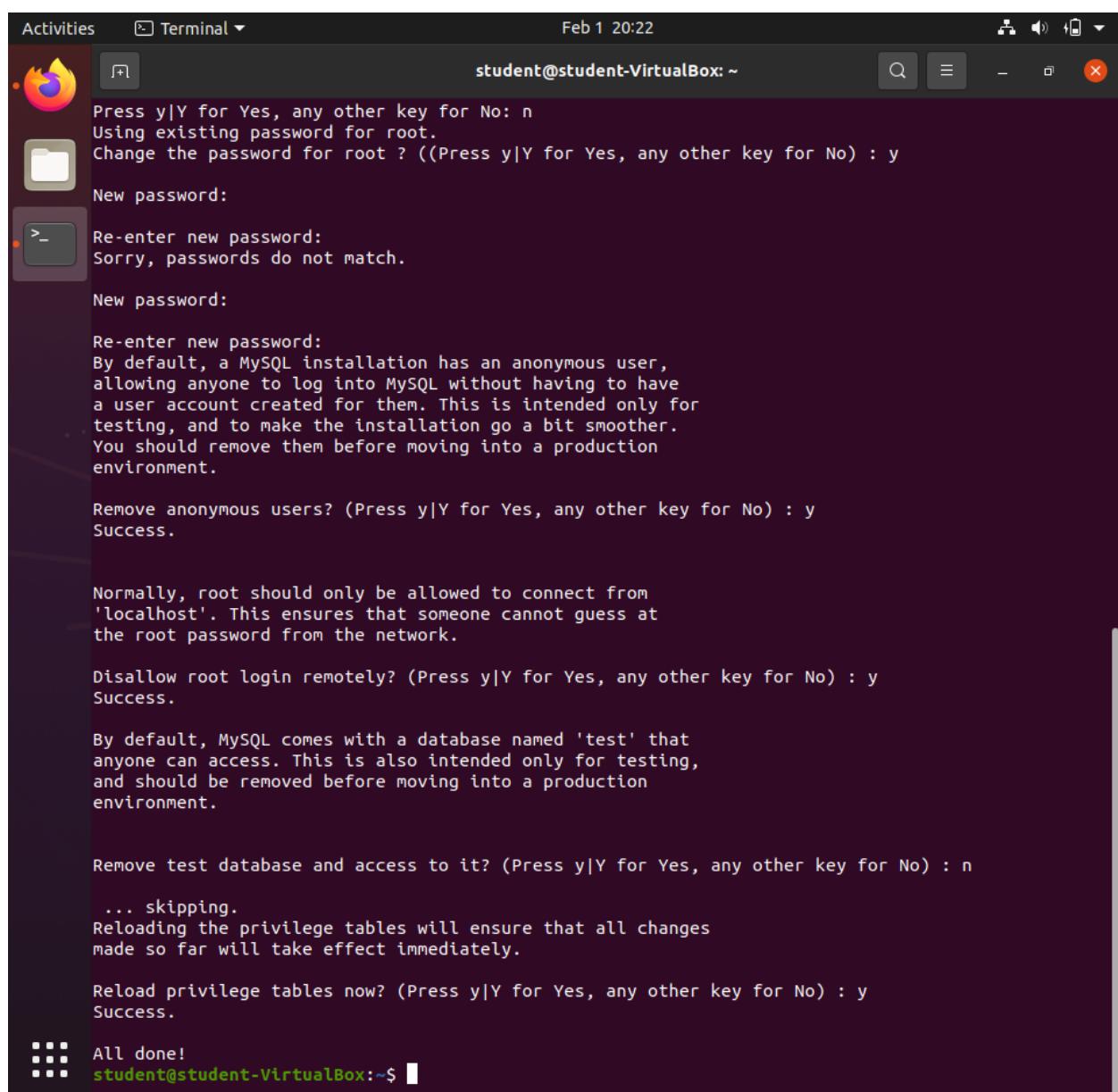
Setting Directory Index



## Viewing my test PHP webpage



Setting a new password



Activities Terminal ▾ student@student-VirtualBox: ~ Feb 1 20:22

```
Press y|Y for Yes, any other key for No: n
Using existing password for root.
Change the password for root ? ((Press y|Y for Yes, any other key for No) : y
New password:
Re-enter new password:
Sorry, passwords do not match.

New password:
Re-enter new password:
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.

Remove test database and access to it? (Press y|Y for Yes, any other key for No) : n
... skipping.
Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
student@student-VirtualBox:~$
```

Configuring the rest of the settings for MySQL