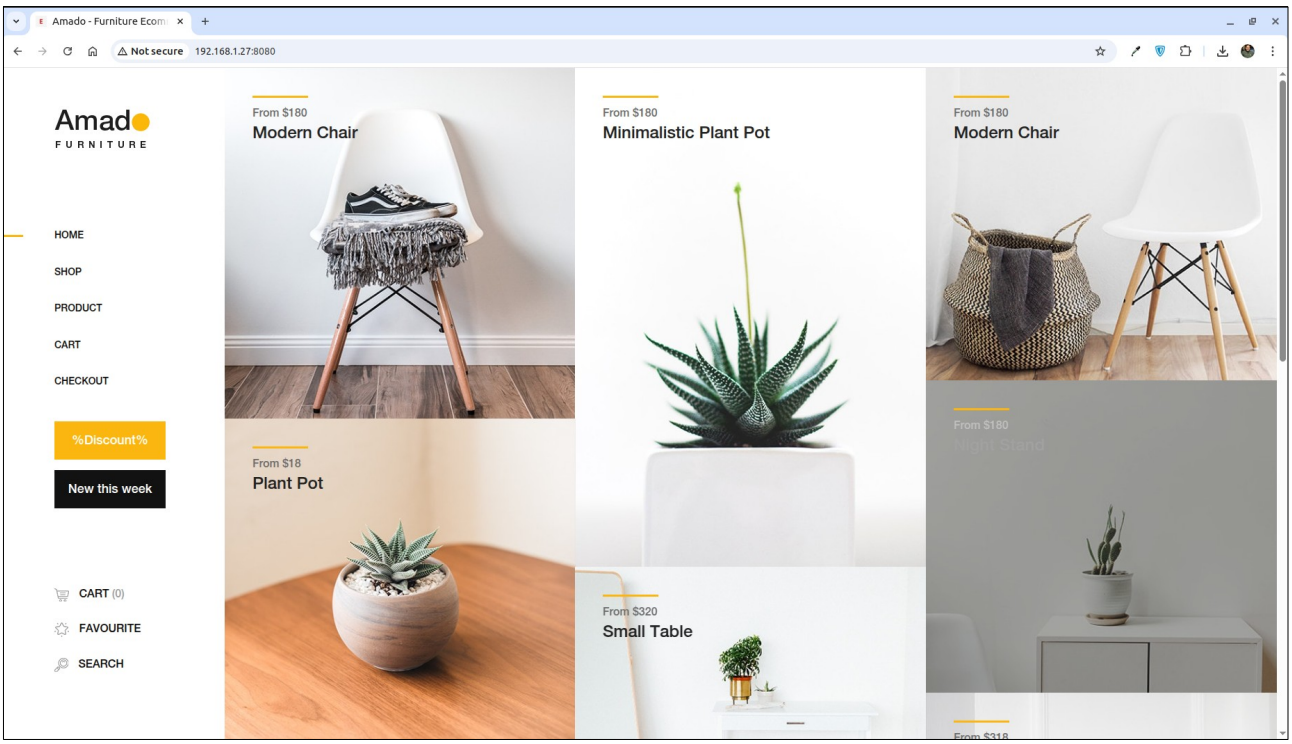
Lab 03

Amr Hassan Abd EL-Ghaffar
01027179463
Monday & Thursday 7 : 10 pm

1. Setting up a simple HTTP server

```
# Login as root user
su -

# Install apache2 web server
apt update
apt install apache2 -y
systemctl status apache2
systemctl start apache2
systemctl enable apache2

# Download web template
cd /tmp/
wget https://github.com/technext/amado/archive/master.zip

# Install unzip
apt install unzip

# Unzip the template
unzip master.zip

# Copy all files to /var/www/html
cd amado-master/
cp -r * /var/www/html/

# Run web server
cd /var/www/html/
python3 -m http.server 8080 --bind 0.0.0.0

# Go to browser and type
http://192.168.1.27:8080
```



2. Connect to a server via SSH

- Check SSH service is enabled

```
root@ubuntu:~# systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
     Active: active (running) since Thu 2025-03-13 13:22:44 UTC; 1h 25min ago
TriggeredBy: ● ssh.socket
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 1504 (sshd)
      Tasks: 1 (limit: 3504)
     Memory: 5.1M (peak: 5.8M)
        CPU: 196ms
     CGroup: /system.slice/ssh.service
             └─1504 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"
```

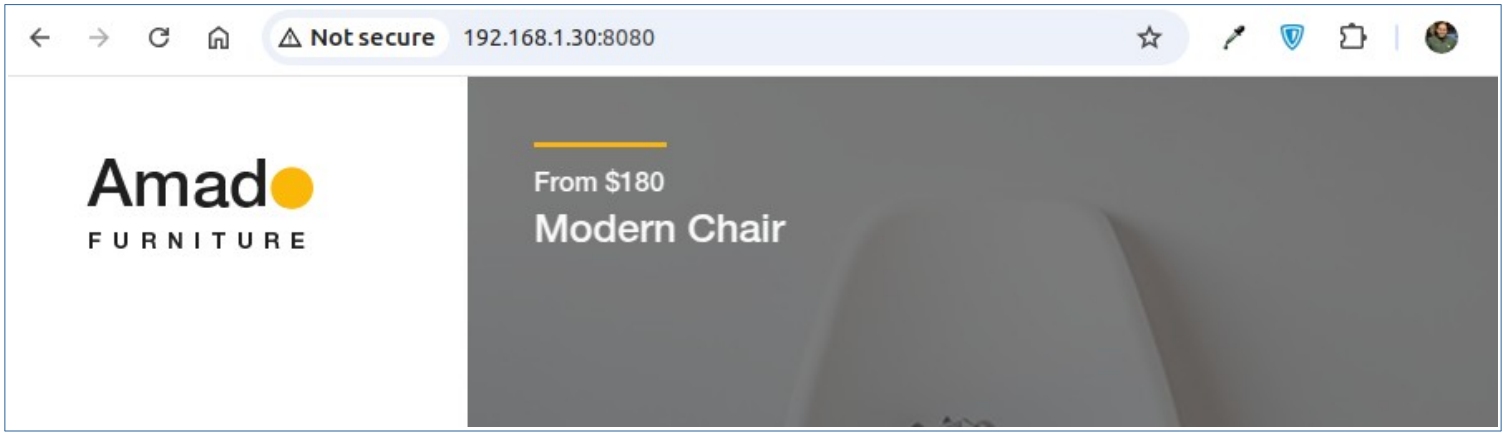
- Create SSH key to login without password

```
# My Laptop
ssh-keygen
cd /home/amr/.ssh/
cat id_rsa.pub       # copy my public key

# Remote Server
cd /home/vagrant/.ssh/
vim authorized_keys  # paste the key inside

# My Laptop
ssh vagrant@192.168.1.27
```

```
amr@Amr:~/.ssh$ ll
total 28
drwx------  2 amr amr 4096 Mar 12 22:13 ./
drwxr-x--- 29 amr amr 4096 Mar 13 14:06 ../
-rw-------  1 amr amr   96 Mar 12 22:07 authorized_keys
-rw-------  1 amr amr 2590 Mar 12 22:12 id_rsa
-rw-r--r--  1 amr amr  561 Mar 12 22:12 id_rsa.pub
-rw-------  1 amr amr 1262 Mar 13 15:04 known_hosts
-rw-r--r--  1 amr amr  142 Mar 12 19:53 known_hosts.old
amr@Amr:~/.ssh$ ssh vagrant@192.168.1.27
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-55-generic x86_64)

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

 System information as of Thu Mar 13 01:05:53 PM UTC 2025

  System load:           0.26
  Usage of /:            15.4% of 30.34GB
  Memory usage:          8%
  Swap usage:            0%
  Processes:             153
  Users logged in:       1
  IPv4 address for eth0: 10.0.2.15
  IPv6 address for eth0: fd00::a00:27ff:fe6b:69c9


This system is built by the Bento project by Chef Software
More information can be found at https://github.com/chef/bento

Use of this system is acceptance of the OS vendor EULA and License Agreements.
Last login: Thu Mar 13 13:04:31 2025 from 192.168.1.8
vagrant@ubuntu:~$
```

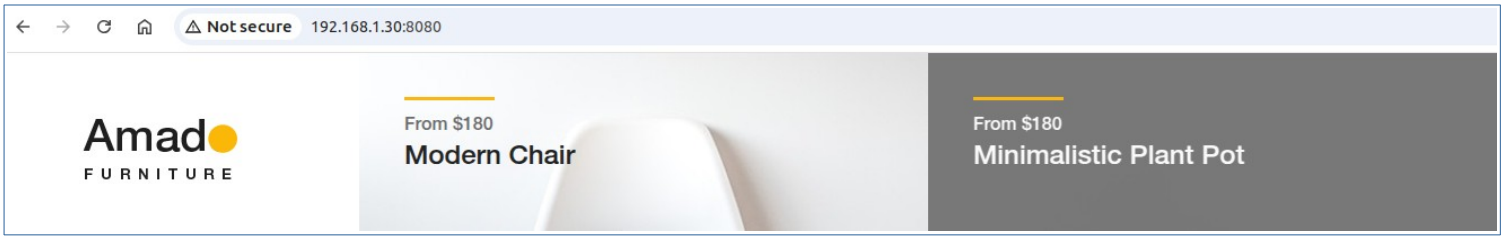
3. Configure a static IP

```
root@ubuntu:/home/vagrant# ip a | grep 192.168
    inet 192.168.1.27/24 brd 192.168.1.255 scope global eth1
root@ubuntu:/home/vagrant# cd /etc/netplan/
root@ubuntu:/etc/netplan# cat 50-vagrant.yaml
---
network:
  version: 2
  renderer: networkd
  ethernets:
    eth1:
      addresses:
      - 192.168.1.27/24
root@ubuntu:/etc/netplan# vim 50-vagrant.yaml
root@ubuntu:/etc/netplan# cat 50-vagrant.yaml
---
network:
  version: 2
  renderer: networkd
  ethernets:
    eth1:
      addresses:
      - 192.168.1.30/24
root@ubuntu:/etc/netplan# netplan apply

** (generate:2456): WARNING **: 13:25:36.588: Permissions for /etc/netplan/01-netcfg.yaml are too ope
n. Netplan configuration should NOT be accessible by others.

** (generate:2456): WARNING **: 13:25:36.588: Permissions for /etc/netplan/50-vagrant.yaml are too op
en. Netplan configuration should NOT be accessible by others.

** (process:2454): WARNING **: 13:25:37.046: Permissions for /etc/netplan/01-netcfg.yaml are too open
. Netplan configuration should NOT be accessible by others.

** (process:2454): WARNING **: 13:25:37.046: Permissions for /etc/netplan/50-vagrant.yaml are too ope
n. Netplan configuration should NOT be accessible by others.

** (process:2454): WARNING **: 13:25:37.198: Permissions for /etc/netplan/01-netcfg.yaml are too open
. Netplan configuration should NOT be accessible by others.

** (process:2454): WARNING **: 13:25:37.199: Permissions for /etc/netplan/50-vagrant.yaml are too ope
n. Netplan configuration should NOT be accessible by others.
root@ubuntu:/etc/netplan# ip a | grep 192.168
    inet 192.168.1.30/24 brd 192.168.1.255 scope global eth1
```



4. Set up and test Firewalls

1- Before enabling the firewall, we can access the web page

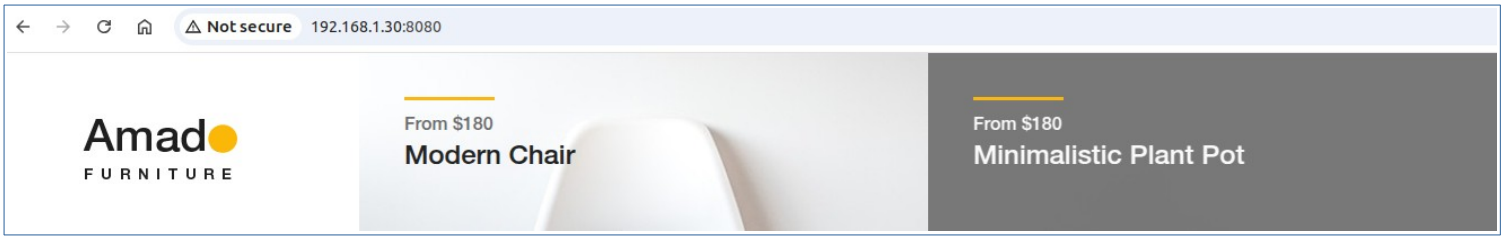


2- After enabling the firewall, we can't access the web page

```
root@ubuntu:~# systemctl status ufw
● ufw.service - Uncomplicated firewall
     Loaded: loaded (/usr/lib/systemd/system/ufw.service; enabled; preset: enabled)
     Active: active (exited) since Thu 2025-03-13 13:22:32 UTC; 1h 14min ago
       Docs: man:ufw(8)
   Main PID: 574 (code=exited, status=0/SUCCESS)
        CPU: 6ms

Mar 13 13:22:32 ubuntu systemd[1]: Starting ufw.service - Uncomplicated firewall...
Mar 13 13:22:32 ubuntu systemd[1]: Finished ufw.service - Uncomplicated firewall.
root@ubuntu:~# ufw status
Status: inactive
root@ubuntu:~# ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
root@ubuntu:~# ufw status
Status: active
```

3- Adding firewall rule to enable port 8080, so we can access it again

```
root@ubuntu:~# ufw allow 8080
Rule added
Rule added (v6)
root@ubuntu:~# ufw status
Status: active

To                         Action      From
--                         ------      ----
8080                       ALLOW       Anywhere
8080 (v6)                  ALLOW       Anywhere (v6)
```



4- Allow SSH from a specific IP only

```
root@ubuntu:~# ufw allow from 192.168.1.8 to any port 22
Rule added
root@ubuntu:~# ufw status
Status: active

To                         Action      From
--                         ------      ----
8080                       ALLOW       Anywhere
22                         ALLOW       192.168.1.8
8080 (v6)                  ALLOW       Anywhere (v6)
```