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2KE20CS032

Assignment 19

Understood. To follow the provided instructions and create the files/directory using the same name and case as provided in the task steps, please provide me with the specific names and case instructions for the files/directory you want to create.

Network Security

Assignment 1: Networking Security - Assignment 1 - Configure and enable Nginx to Use TLS and generate a certificate.

$~ openssl req -x509 -newkey rsa:2048 -nodes -keyout mm.pem -out mmcert.pem -sha256 -days 365

Options
req: Certificate Signing Request
X509: Certificate to be x509 format
newkey rsa:2048 : New certificate request and private key. RSA key size in bits
nodes: No DES(Data Encryption Standard). Generated private key will not be encrypted
keyout: Private key file name
out: Output file name. In this case, it is certificate

Step 1: Generate the certificate

```
lusy@localhost.localdomain /etc/nginx/certificates (32.86s)
sudo openssl req -x509 -newkey rsa:2048 -nodes -keyout mm.pem -out mmcert.pem -sha256 -days 365
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You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [XX]:IN
State or Province Name (full name) []:karnataka
Locality Name (eg, city) [Default City]:hubbli
Organization Name (eg, company) [Default Company Ltd]:lusy
Organizational Unit Name (eg, section) []:lusy_c
Common Name (eg, your name or your server's hostname) []:lusy
Email Address []:lusy@server.in
```

Step 2: Verify it

```
lusy@localhost.localdomain /etc/nginx (0.021s)
cd certificates/

lusy@localhost.localdomain /etc/nginx/certificates (0.022s)
tree
.
├── mmcert.pem
└── mm.pem

0 directories, 2 files
```

Step 3: Give permission to the directory to access the folder by master process

```
lusy@localhost.localdomain /etc/nginx (0.057s)
sudo chmod 777 /etc/nginx/certificates/
```

Step 4: Make changes in config files

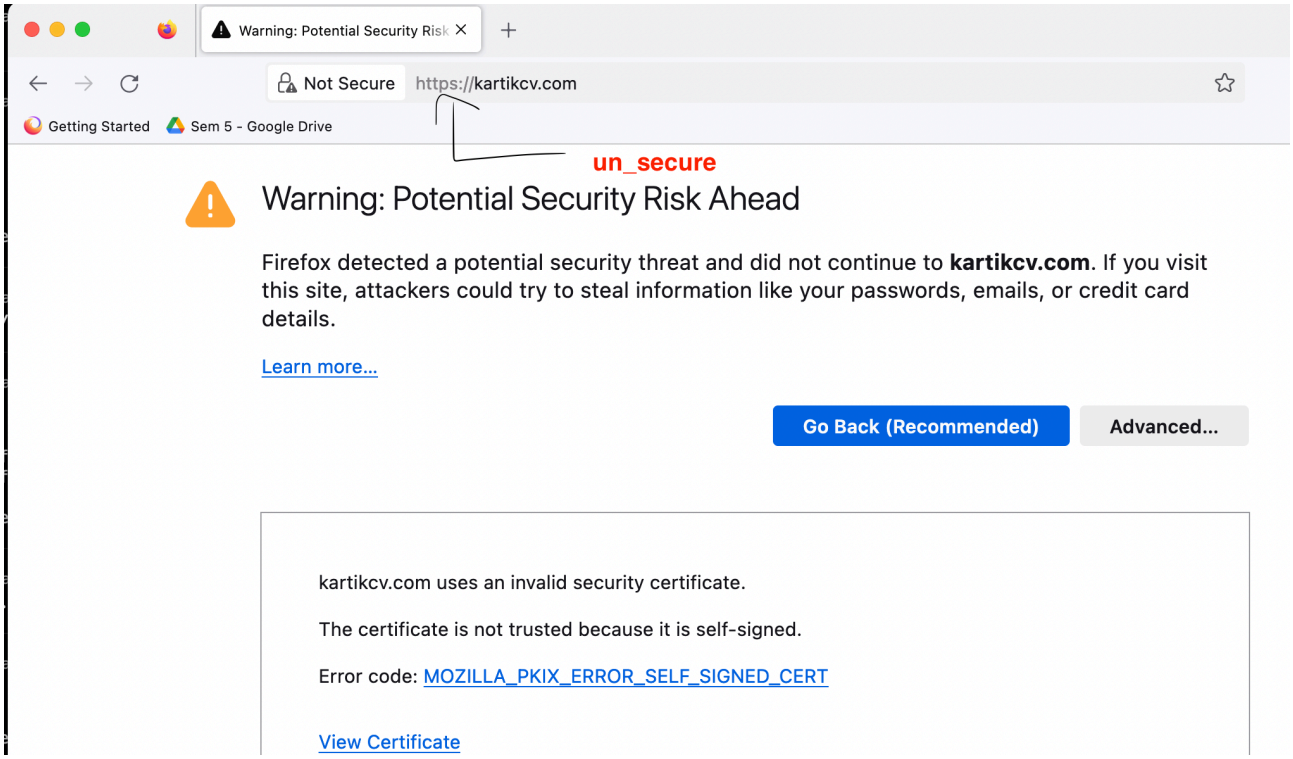
usy@localhost:/etc/nginx/certific /opt/homebrew/var/www

```
server {

        listen 80;
        server_name kartikcv.com;
        return 301 https://$server_name$request_uri;

}
        server{

        listen 443 ssl ;
        server_name kartikcv.com;

         ssl_certificate /etc/nginx/certificates/mmcert.pem;
         ssl_certificate_key /etc/nginx/certificates/mm.pem;

        location / {
        root /usr/share/nginx/mycv;
        index index.html;
        }
}
~
```

Step 5: Verify using the curl

```
lusy@localhost.localdomain /etc/nginx/conf.d (0.034s)
curl kartikcv.com

<html>
<head><title>301 Moved Permanently</title></head>
<body>
<center><h1>301 Moved Permanently</h1></center>
<hr><center>nginx/1.22.1</center>
</body>
</html>

lusy@localhost.localdomain /etc/nginx/conf.d
```

Step 6 Thus we can see her "The s is added to HTTP" which shows that the connection is secure



Step 7: Just click on advance and view the generated certification.

Certificate

lusy

Subject Name

Country	IN
State/Province	karnataka
Locality	hubbli
Organization	lusy
Organizational Unit	lusy_c
Common Name	lusy
Email Address	lusy@server.in

Issuer Name

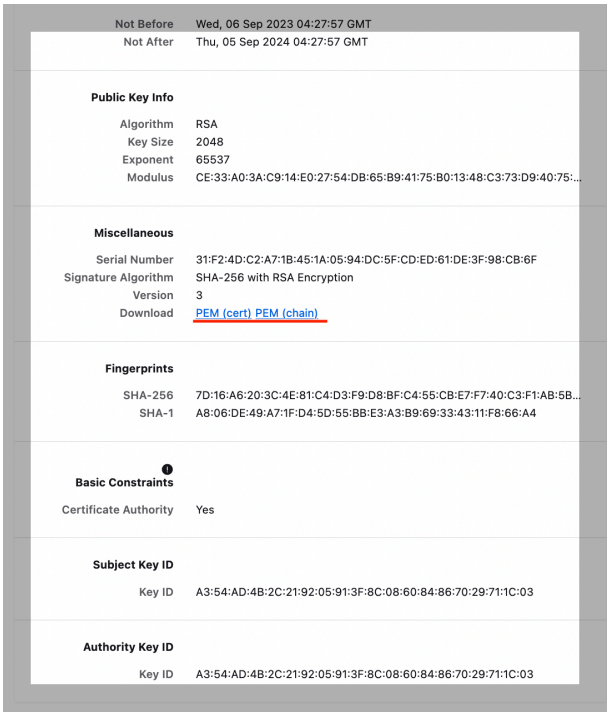
Country	IN
State/Province	karnataka
Locality	hubbli
Organization	lusy
Organizational Unit	lusy_c
Common Name	lusy
Email Address	lusy@server.in

Validity

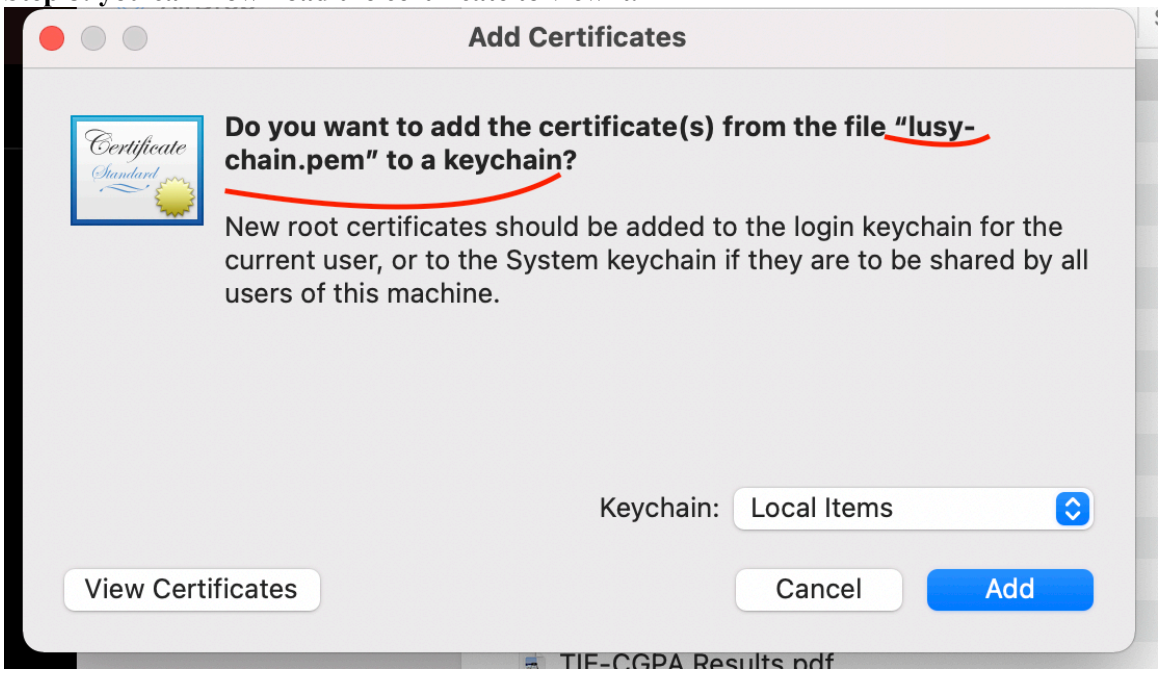
Not Before	Wed, 06 Sep 2023 04:27:57 GMT
Not After	Thu, 05 Sep 2024 04:27:57 GMT

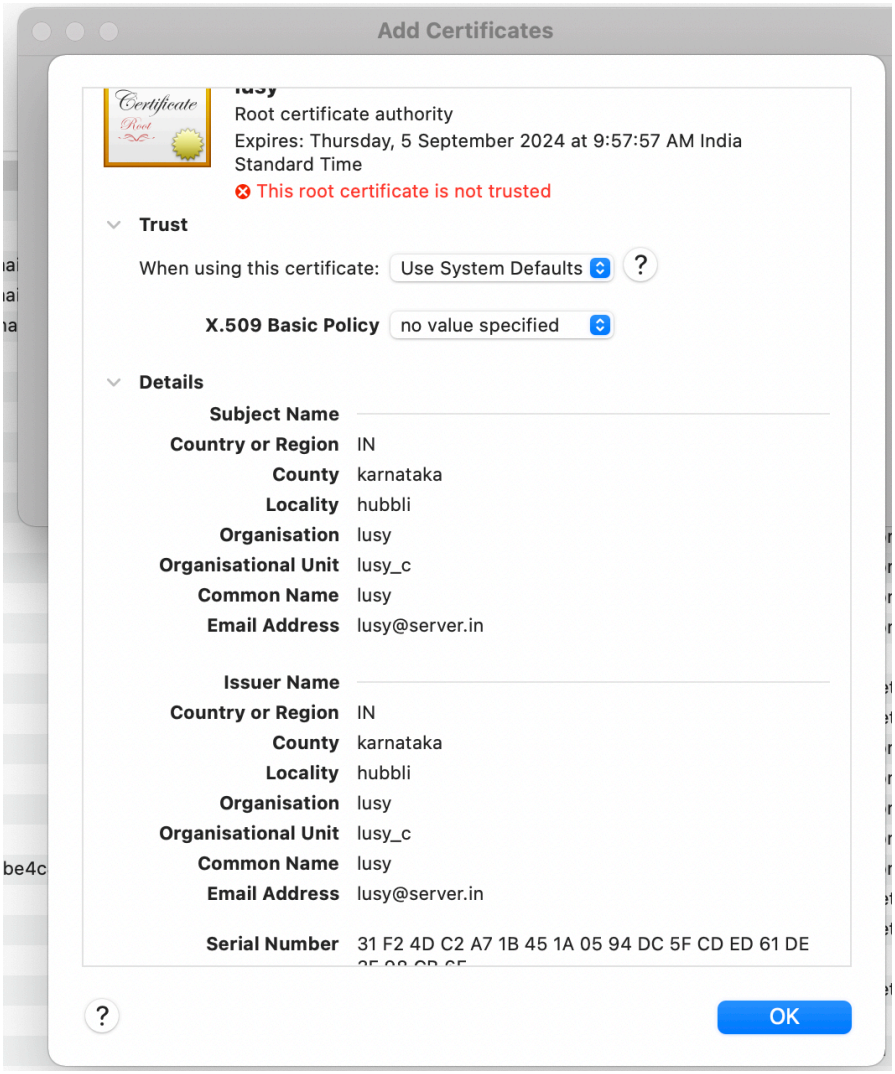
Public Key Info

Algorithm	RSA
Key Size	2048
Exponent	65537
Modulus	CE:33:A0:3A:C9:14:E0:27:54:DB:65:B9:41:75:B0:13:48:C3:73:D9:40:75:...

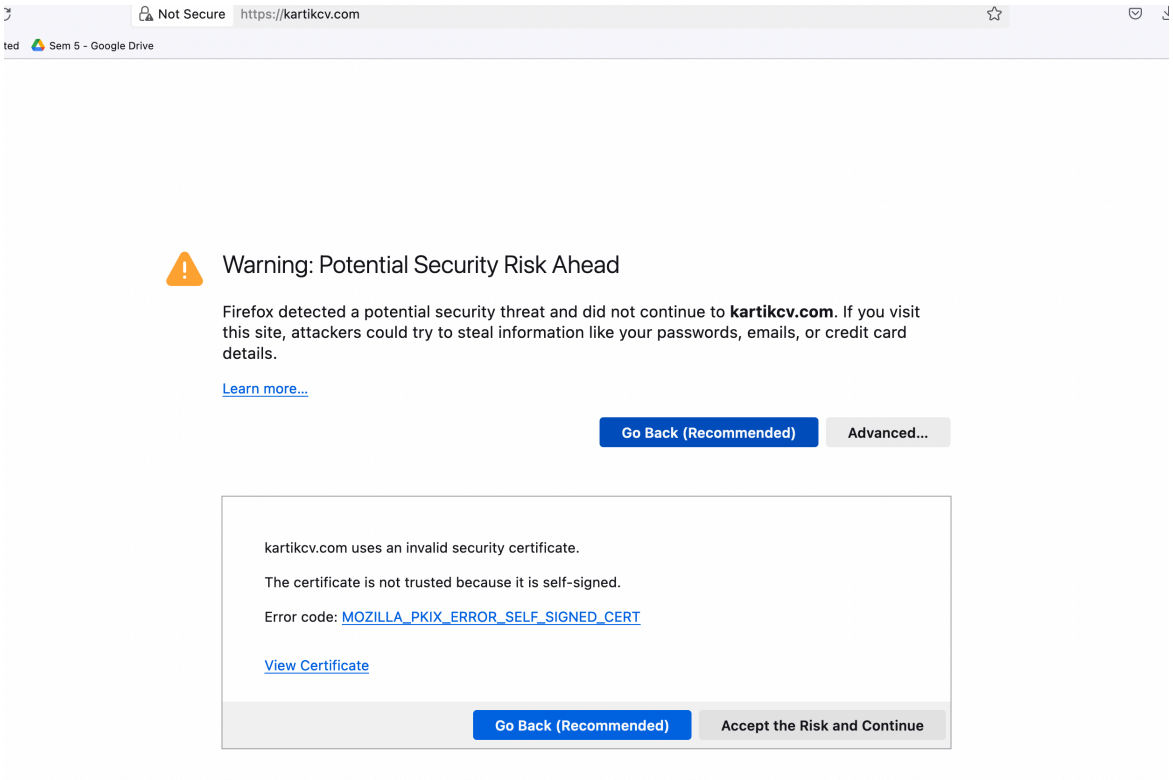


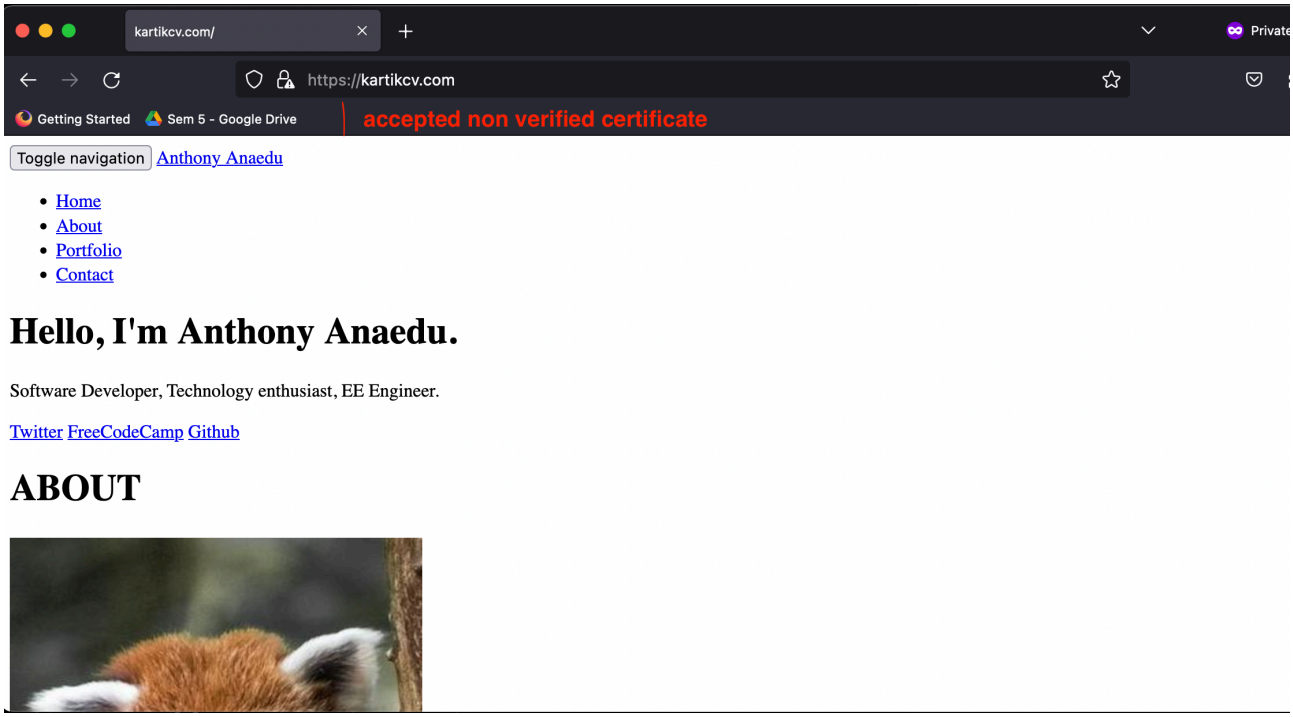
Step 8: you can Download the certificate to view it.



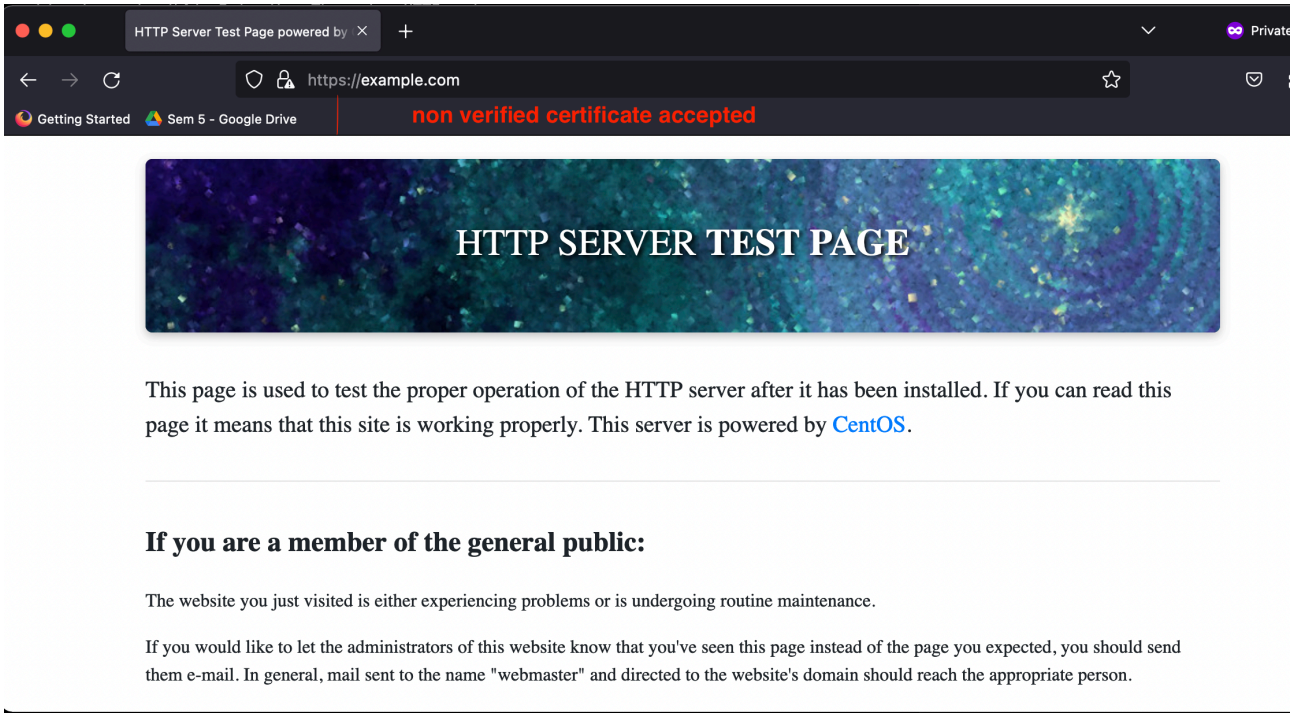


Step 9: accept and continue then you can see your page.





—TRY
(I have used another test page) just for check it.



Assignment 2 : Configure Firewall rules to prevent remote access.

1: Install the firewall into your terminal, run these commands in your terminal sudo yum install -y epel-release

```
lusy@localhost.localdomain /etc/nginx/conf.d (0.628s)
sudo yum install -y epel-release
Last metadata expiration check: 2:30:45 ago on Wed 06 Sep 2023 10:28:16 AM IST.
Package epel-release-9-7.el9.noarch is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

2.sudo yum install -y ufw

```
lusy@localhost.localdomain /etc/nginx/conf.d (0.479s)
sudo yum install -y ufw
Last metadata expiration check: 2:31:20 ago on Wed 06 Sep 2023 10:28:16 AM IST.
Package ufw-0.35-24.el9.noarch is already installed.
Dependencies resolved.
Nothing to do.
Complete!
```

3.Check the status of ufw using "sudo ufw status" (Inactive)

```
lusy@localhost.localdomain /etc/nginx/conf.d (0.131s)
sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
SSH                        ALLOW       Anywhere
224.0.0.251 mDNS           ALLOW       Anywhere
SSH (v6)                   ALLOW       Anywhere (v6)
ff02::fb mDNS              ALLOW       Anywhere (v6)
```

4.Enable the ufw using the command "sudo ufw enable"

```
lusy@localhost.localdomain /etc/nginx/conf.d (3.888s)
sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
```

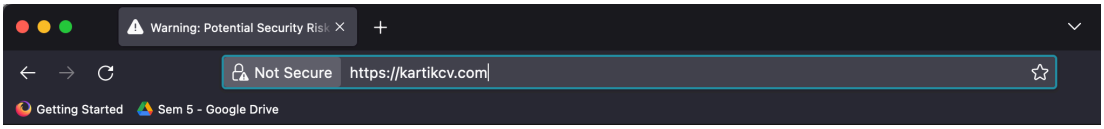
5.Check the status of ufw using "sudo ufw status" (Active)

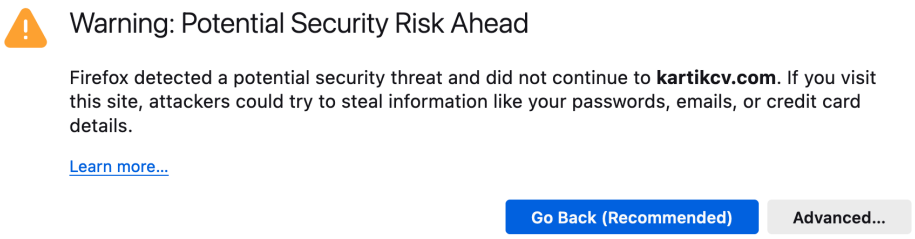
```
lusy@localhost.localdomain /etc/nginx/conf.d (0.296s)
sudo ufw deny from 192.168.43.23
Rule added

lusy@localhost.localdomain /etc/nginx/conf.d (0.272s)
sudo ufw deny 80
Rule added
Rule added (v6)
```

6. (Try to access your server (nginx) from the machine where the Ip address is blocked the site can't be reached error should display

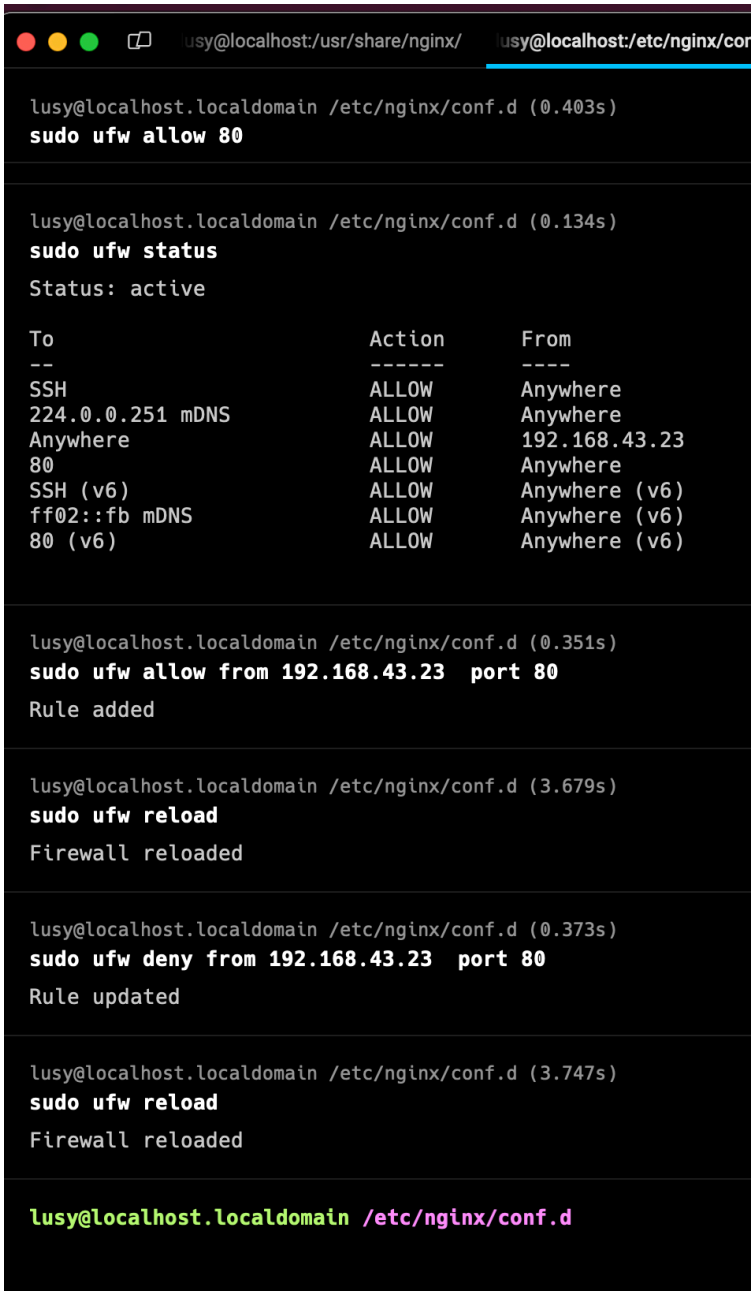
```
lusy@localhost.localdomain /etc/nginx/conf.d (0.296s)
sudo ufw deny from 192.168.43.23
Rule added

lusy@localhost.localdomain /etc/nginx/conf.d (0.272s)
sudo ufw deny 80
Rule added
Rule added (v6)
```

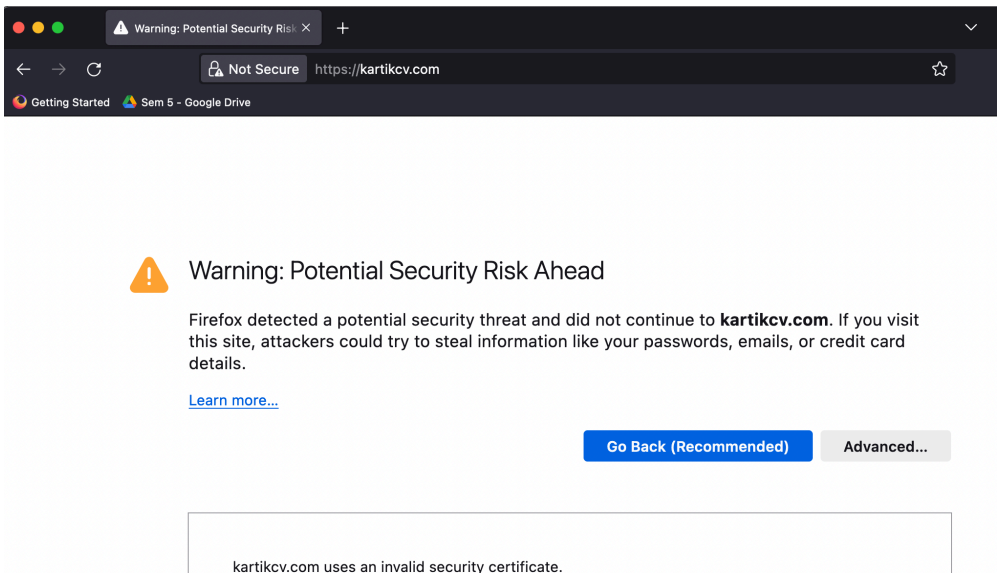
7.(Now if you try to access the server it should allow)





8.Deny a port number using command " sudo ufw deny portnumber" (rule added (Try to access the port from outside it should be blocked)




Warning: Potential Security Risk
Not Secure
https://kartikcv.com
Getting Started
Sem 5 - Google Drive
Warning: Potential Security Risk Ahead
Firefox detected a potential security threat and did not continue to kartikcv.com. If you visit this site, attackers could try to steal information like your passwords, emails, or credit card details.
Learn more...
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Advanced...
kartikcv.com uses an invalid security certificate.