



**Ganpat
University**

॥ विद्यया समाजोत्कर्षः ॥

**Institute of
Computer
Technology**

Name: Tushar Panchal

En.No: 21162101014

Sub: ITIM (IT Infrastructure & Management)

Branch: CBA

Batch:61

PRACTICAL 10

AIM : Suppose you have a hosted a site as -yourname.com, initially it was accessible on http only, but you want it to be accessible on 443 and for that you don't want to use any additional CA to be involved as the site will be accessed only by your company users. So how you are going to implement the same? Explain the same using proper screenshot.

» First login as a root user and install apache server and openssl:

```
[root@workstation student]# yum install httpd
Last metadata expiration check: 10:46:26 ago on Sun 25 Feb 2024 09:26:38 PM EST.
Package httpd-2.4.37-21.module+el8.2.0+5008+cca404a3.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@workstation student]#
```

```
[root@workstation student]# yum install mod_ssl openssl
Last metadata expiration check: 10:48:09 ago on Sun 25 Feb 2024 09:26:38 PM EST.
Package openssl-1:1.1.1c-15.el8.x86_64 is already installed.
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
mod_ssl x86_64 1:2.4.37-21.module+el8.2.0+5008+cca404a3
rhel-8.2-for-x86_64-appstream-rpms 132 k
Transaction Summary
=====
Install 1 Package
Total download size: 132 k
Installed size: 262 k
Is this ok [y/N]: y
Downloading Packages:
mod_ssl-2.4.37-21.module+el8.2.0+5008+cca404a3.x86_64.rpm 128 kB/s | 132 kB 00:01
-----
Total 128 kB/s | 132 kB 00:01
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Installing : mod_ssl-1:2.4.37-21.module+el8.2.0+5008+cca404a3.x86_64 1/1
1/1
```

Commands:

su root

yum install httpd

yum install mod_ssl openssl

1. **yum install httpd:** This command uses the yum package manager to install the Apache HTTP Server (httpd). Apache is a widely used web server that serves web content to users.
2. **yum install mod_ssl openssl:** This command installs the mod_ssl module for Apache, which provides support for SSL (Secure Sockets Layer) and TLS (Transport Layer

Security) protocols. Additionally, it installs the OpenSSL toolkit, which is a set of tools and libraries for handling secure communication over computer networks.

» Then start apache server & check status of it:

```
[root@workstation student]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@workstation student]# service httpd status
Redirecting to /bin/systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Mon 2024-02-26 09:28:33 EST; 41s ago
     Docs: man:httpd.service(8)
  Main PID: 9264 (httpd)
    Status: "Running, listening on: port 80"
   Tasks: 213 (limit: 36446)
  Memory: 29.0M
    CGroup: /system.slice/httpd.service
           └─9264 /usr/sbin/httpd -DFOREGROUND
             └─9324 /usr/sbin/httpd -DFOREGROUND
               └─9327 /usr/sbin/httpd -DFOREGROUND
                 └─9328 /usr/sbin/httpd -DFOREGROUND
                   └─9329 /usr/sbin/httpd -DFOREGROUND

Feb 26 09:28:33 workstation.lab.example.com systemd[1]: Starting The Apache HTTP Server...
Feb 26 09:28:33 workstation.lab.example.com systemd[1]: Started The Apache HTTP Server.
Feb 26 09:28:33 workstation.lab.example.com httpd[9264]: Server configured, listening on:
lines 1-18/18 (END)
```

Commands:

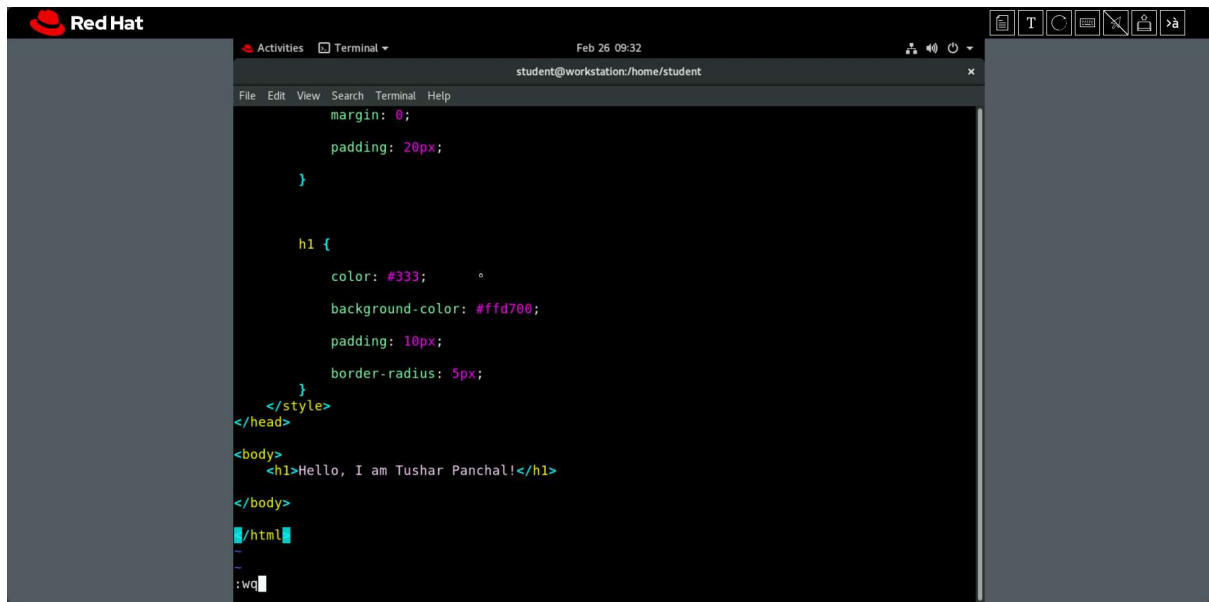
service httpd start

service httpd status

The commands you provided, **service httpd start** and **service httpd status**, are used to start the Apache HTTP Server and check its status on Linux systems that use the **service** command for service management.

» Creating html file for virtualhost :

```
[root@workstation student]# mkdir /var/www/html/tushar
[root@workstation student]# vim /var/www/html/tushar/index.html
[root@workstation student]#
```

A screenshot of a Red Hat terminal window. The terminal title bar shows 'Red Hat' and 'Activities Terminal'. The prompt is 'student@workstation/home/student'. The terminal content shows an HTML file being edited in vim. The code is as follows:

```
margin: 0;

padding: 20px;

}

h1 {
    color: #333;
    background-color: #ffd700;
    padding: 10px;
    border-radius: 5px;
}
</style>
</head>
<body>
  <h1>Hello, I am Tushar Panchal!</h1>
</body>
</html>
-
:wq
```

Commands :

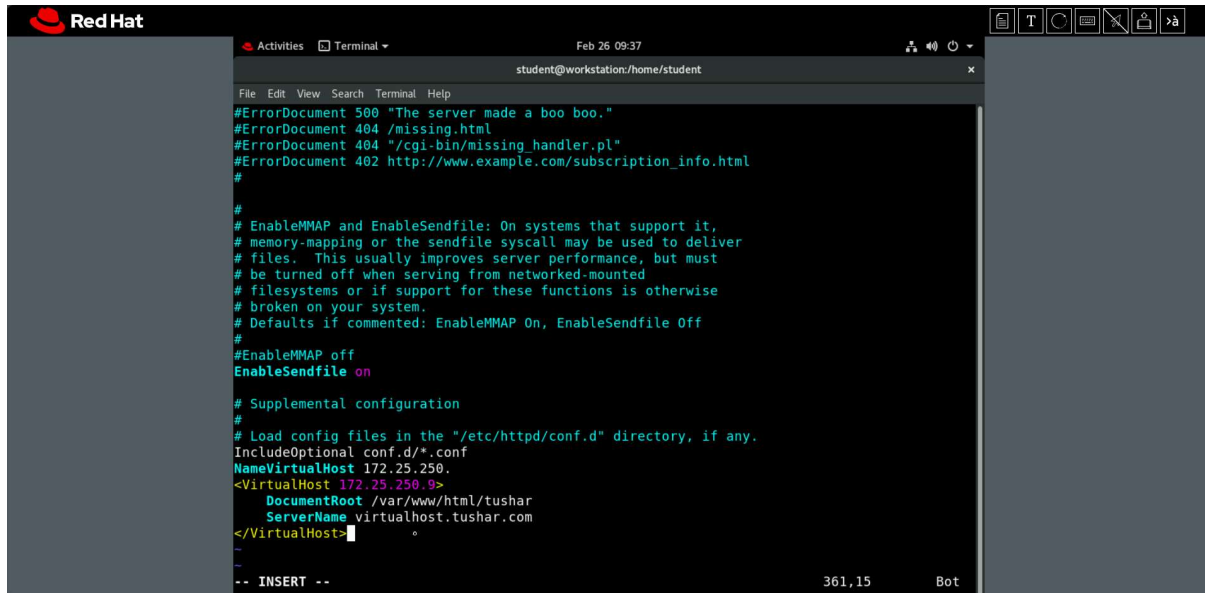
`mkdir /var/www/html/tushar`

This command creates a directory named **tushar** inside **/var/www/html/**.

`vim /var/www/html/tushar/index.html`

This will open the **vim** editor for the **index.html** file. If the file doesn't exist, **vim** will create it.

» **Now we to make our directory available on the virtual host open `/etc/httpd/conf/httpd.conf` file and enter the following details :**



```

#ErrorDocument 500 "The server made a boo boo."
#ErrorDocument 404 /missing.html
#ErrorDocument 404 "/cgi-bin/missing_handler.pl"
#ErrorDocument 402 http://www.example.com/subscription_info.html
#
#
# EnableMMAP and EnableSendfile: On systems that support it,
# memory-mapping or the sendfile syscall may be used to deliver
# files. This usually improves server performance, but must
# be turned off when serving from networked-mounted
# filesystems or if support for these functions is otherwise
# broken on your system.
# Defaults if commented: EnableMMAP On, EnableSendfile Off
#
#EnableMMAP off
#EnableSendfile on

# Supplemental configuration
#
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf
NameVirtualHost 172.25.250.
<VirtualHost 172.25.250.9>
    DocumentRoot /var/www/html/tushar
    ServerName virtualhost.tushar.com
</VirtualHost>
-- INSERT --
  
```

command: `vim /etc/httpd/conf/httpd.conf`

Add this in httpd.conf file as shown below :

```

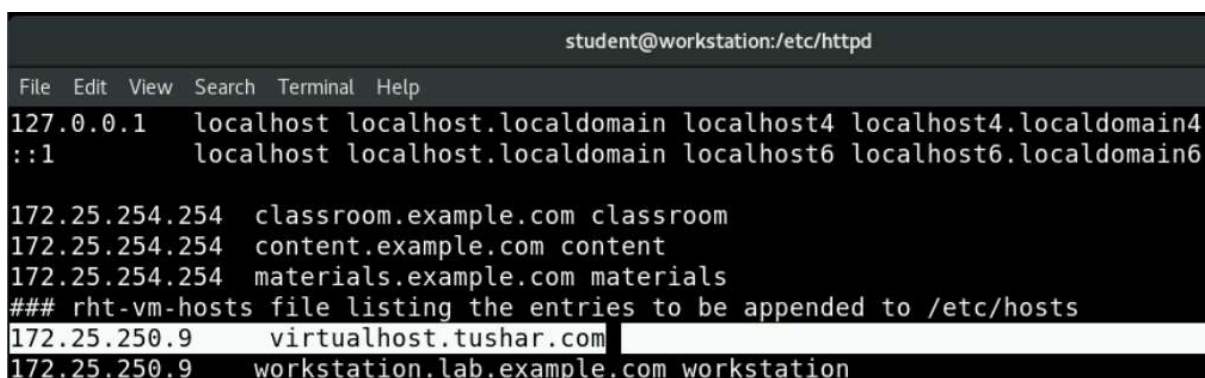
NameVirtualHost 172.25.250.9
<VirtualHost 172.25.250.9>
    DocumentRoot /var/www/html/tushar
    ServerName virtualhost.tushar.com
</VirtualHost>
  
```

» **Add the hosts in `/etc/hosts` file :**

command: `vim /etc/hosts`

add this line :

`172.25.250.9 virtualhost.tushar.com`

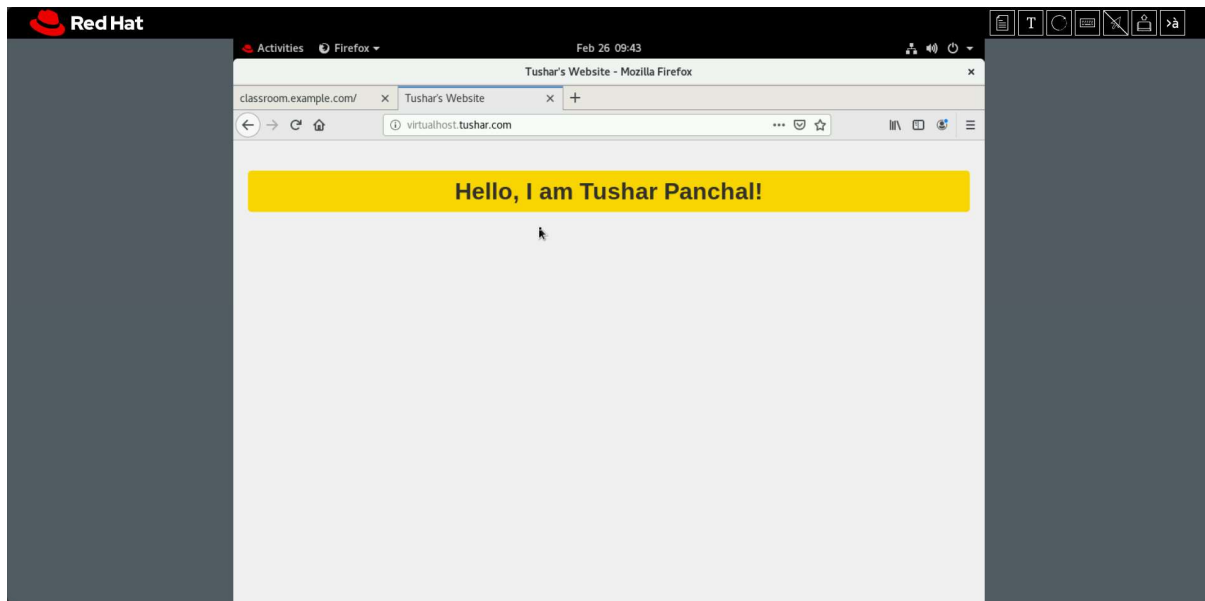


```

student@workstation:/etc/httpd
File Edit View Search Terminal Help
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6

172.25.254.254 classroom.example.com classroom
172.25.254.254 content.example.com content
172.25.254.254 materials.example.com materials
### rhs-vm-hosts file listing the entries to be appended to /etc/hosts
172.25.250.9 virtualhost.tushar.com
172.25.250.9 workstation.lab.example.com workstation
  
```

» **We can see virtualhost output :**



» **Next we need to generate ssl certificate :**

command :

```
openssl req -x509 -nodes -newkey rsa:2048 -keyout
/var/www/html/tushar/tushar.key -out /var/www/html/tushar/tushar.crt
[root@workstation ~]# openssl req -x509 -nodes -newkey rsa:2048 -keyout /var/www/html/tushar/
r/tushar.key -out /var/www/html/tushar/tushar.crt
Generating a RSA private key
.....+++++
.....+++++
writing new private key to '/var/www/html/tushar/tushar.key'
-----
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]:State or Province Name (full name) []:IN
Locality Name (eg, city) [Default City]:GUJARAT
Organization Name (eg, company) [Default Company Ltd]:GUNI
Organizational Unit Name (eg, section) []:ICT
Common Name (eg, your name or your server's hostname) []:GUNI_ICT
Email Address []:tusharpanchal21@gnu.ac.in
[root@workstation ~]#
```

as you can see here our certificate has been generated :

```
[root@workstation ~]# cd /var/www/html/tushar
[root@workstation tushar]# ls
index.html  tushar.crt  tushar.key
[root@workstation tushar]#
```


Add this in httpd.conf file:

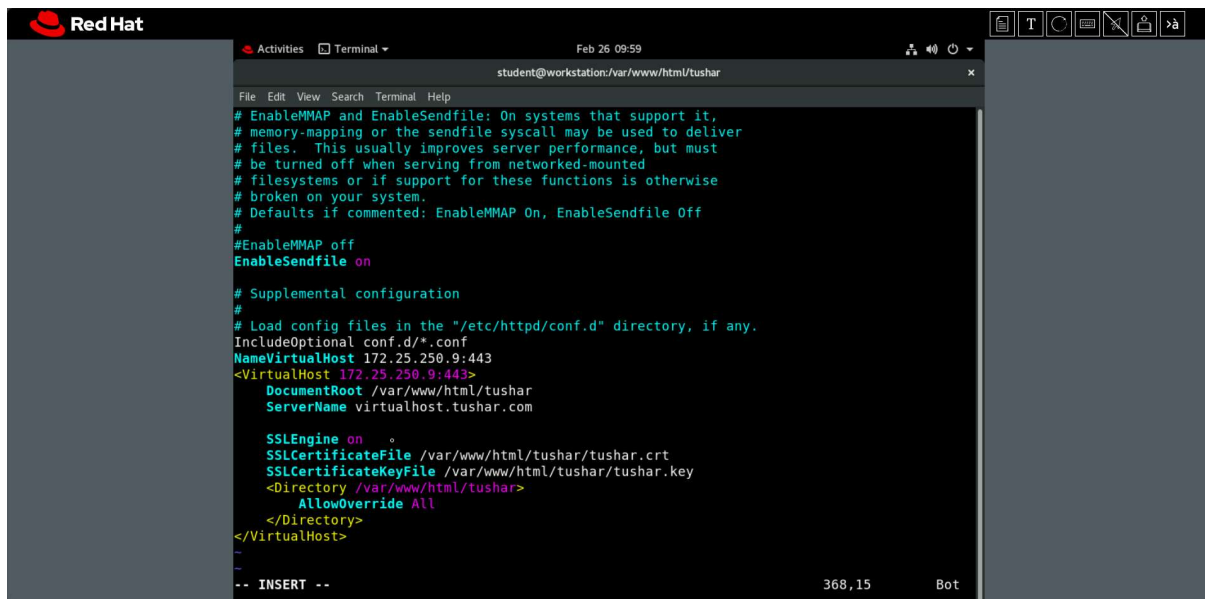
```
NameVirtualHost 172.25.250.9:443

<VirtualHost 172.25.250.9:443>
    DocumentRoot /var/www/html/tushar
    ServerName virtualhost.tushar.com

    SSLEngine on
    SSLCertificateFile /var/www/html/tushar/tushar.crt
    SSLCertificateKeyFile /var/www/html/tushar/tushar.key

    <Directory /var/www/html/tushar>
        AllowOverride All
    </Directory>
</VirtualHost>
```

command: `vim /etc/httpd/conf/httpd.conf`



```
Red Hat
Activities Terminal Feb 26 09:59
student@workstation:/var/www/html/tushar

File Edit View Search Terminal Help
# EnableMMAP and EnableSendfile: On systems that support it,
# memory-mapping or the sendfile syscall may be used to deliver
# files. This usually improves server performance, but must
# be turned off when serving from networked-mounted
# filesystems or if support for these functions is otherwise
# broken on your system.
# Defaults if commented: EnableMMAP On, EnableSendfile Off
#
#EnableMMAP off
#EnableSendfile on

# Supplemental configuration
#
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf
NameVirtualHost 172.25.250.9:443
<VirtualHost 172.25.250.9:443>
    DocumentRoot /var/www/html/tushar
    ServerName virtualhost.tushar.com

    SSLEngine on
    SSLCertificateFile /var/www/html/tushar/tushar.crt
    SSLCertificateKeyFile /var/www/html/tushar/tushar.key
    <Directory /var/www/html/tushar>
        AllowOverride All
    </Directory>
</VirtualHost>
-- INSERT -- 368,15 Bot
```

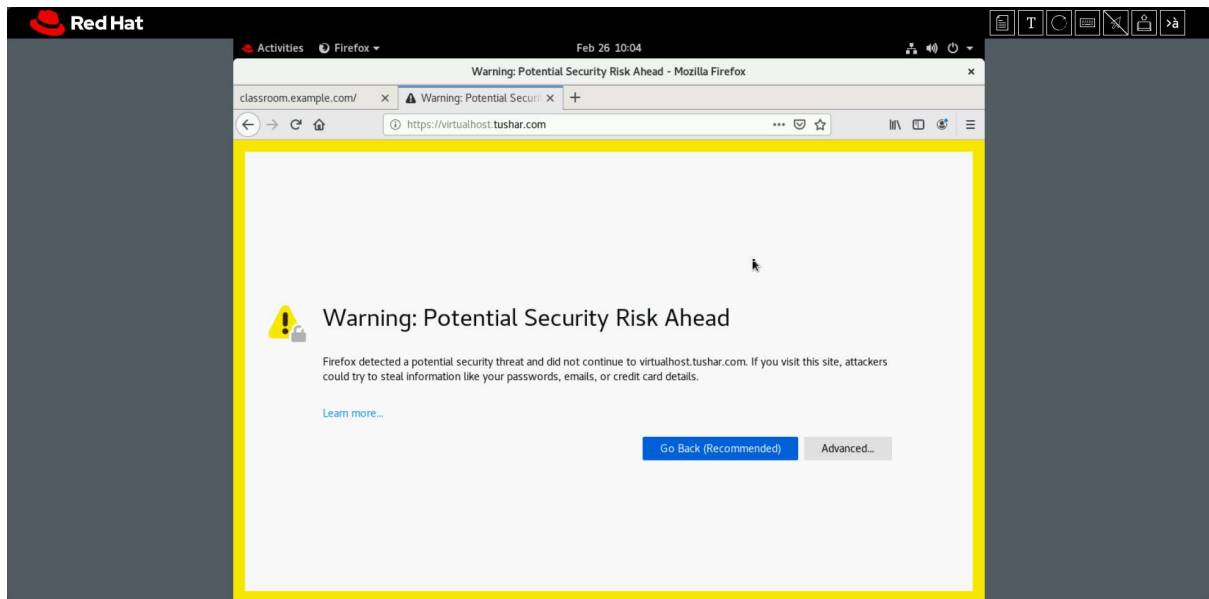
➤ **After that restart apache server to make changes :**

Commands :

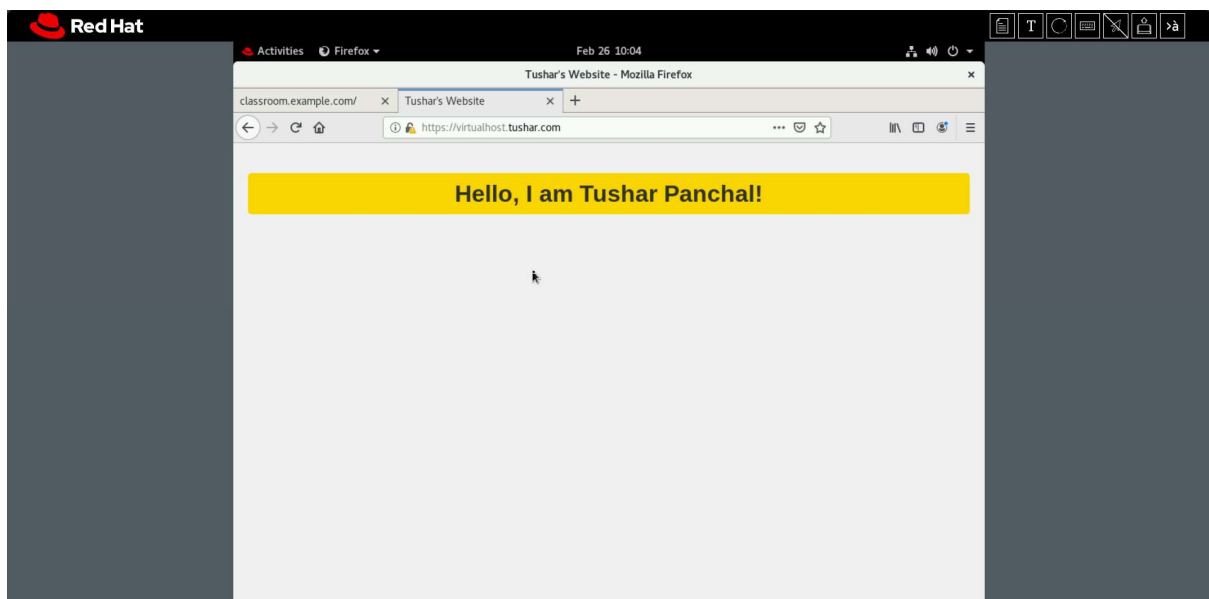
service httpd restart

```
[root@workstation tushar]# vim /etc/httpd/conf/httpd.conf
[root@workstationRoot tushar]# service httpd restart
Redirecting to /bin/systemctl restart httpd.service
[root@workstation tushar]#
```

» **We can enter virtualhost as https:// after that we can see warning:**



» **Now we can access website by https :**



» Here you can see details of my certificate :

