Web Lab-01: Apache Web Server Installation & Maintenance

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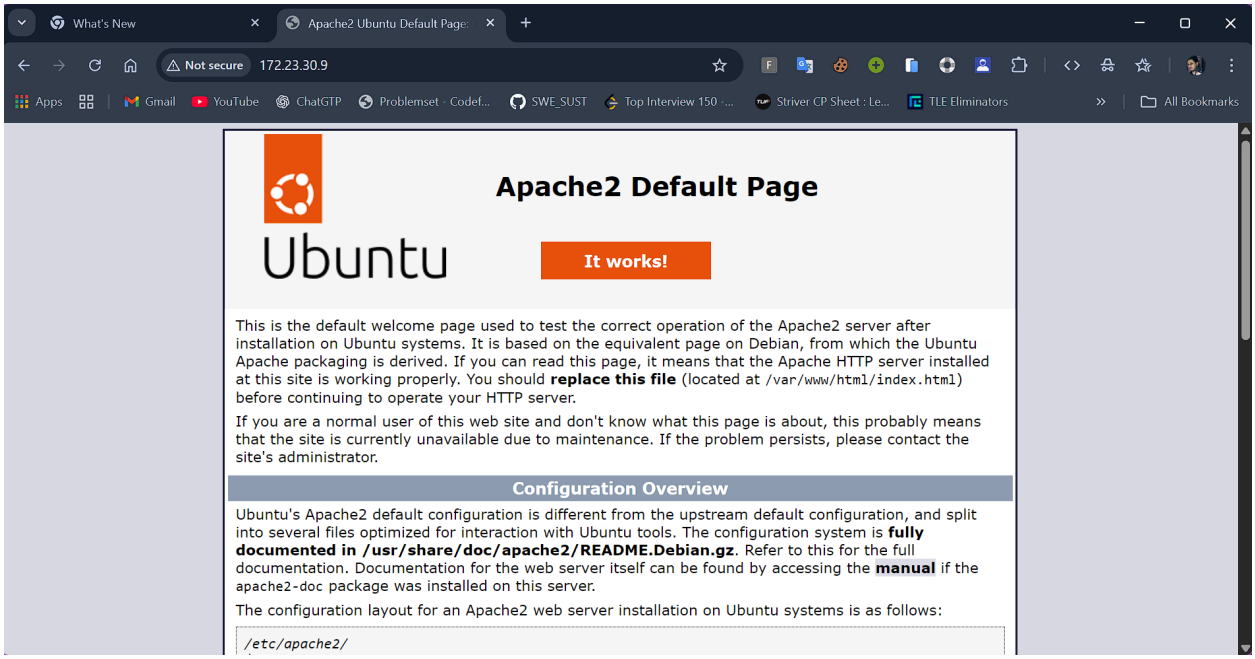
Checkpoint 1: Installed Apache Successfully

Commands:

```
sudo apt update
sudo apt install apache2 -y
sudo service apache2 start      # Start Apache
sudo service apache2 status     # Check Apache status
```

- 

To access it from Windows browser, visit:

```
http://172.23.30.9
```

Checkpoint 2: Configured Virtual Hosts for Multiple Domains

Step 1: Create directories for each domain

```
sudo mkdir -p /var/www/example.com/public_html
sudo mkdir -p /var/www/webserverlab.com/public_html
```

Step 2: Set permissions

```
sudo chown -R $USER:$USER /var/www/example.com/public_html
sudo chown -R $USER:$USER /var/www/webserverlab.com/public_html
```

Step 3: Create index.html files

```
echo "<h1>Welcome to Example.com</h1>" >
/var/www/example.com/public_html/index.html
echo "<h1>Welcome to WebserverLab.com</h1>" >
/var/www/webserverlab.com/public_html/index.html
```

Step 4: Create virtual host files

```
sudo nano /etc/apache2/sites-available/example.com.conf
```

Add:

```
<VirtualHost *:80>
    ServerAdmin admin@example.com
    ServerName example.com
    ServerAlias www.example.com
    DocumentRoot /var/www/example.com/public_html
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Similarly, for `webserverlab.com`:

```
sudo nano /etc/apache2/sites-available/webserverlab.com.conf
```

Add:

```
<VirtualHost *:80>
```

```
    ServerAdmin admin@webserverlab.com
    ServerName webserverlab.com
    ServerAlias www.webserverlab.com
    DocumentRoot /var/www/webserverlab.com/public_html
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

Step 5: Enable virtual hosts

```
sudo a2ensite example.com.conf
sudo a2ensite webserverlab.com.conf
sudo a2dissite 000-default.conf   # disable default site if desired
sudo service apache2 reload
```

Step 6: Update Windows hosts file to test domains

- Open `C:\Windows\System32\drivers\etc\hosts` as administrator.
- Add:

```
127.0.0.1 example.com
127.0.0.1 webserverlab.com
```

- Now you can access the domains from Windows browser:

```
http://example.com
http://webserverlab.com
```

Checkpoint 3: Observed Behavior with Enabled/Disabled Sites

- **Observation:** After enabling only `example.com` and disabling default site, both `http://webserverlab.com` and `http://127.0.0.1` showed `example.com` content.

- **Reason:** Apache uses the first enabled virtual host as a fallback for unmatched requests.

Checkpoint 4: Setting Up Multiple Virtual Hosts

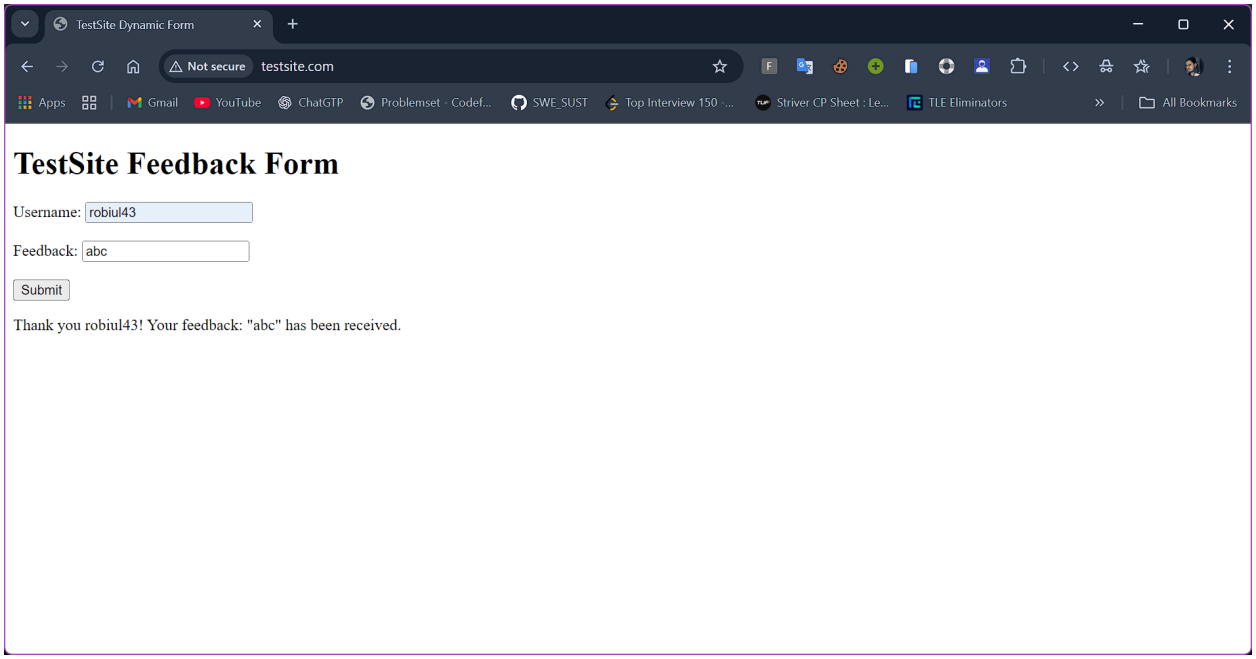
- Configured multiple virtual hosts (`example.com`, `webserverlab.com`).
- Verified configuration:

```
apache2ctl configtest
sudo service apache2 restart
```

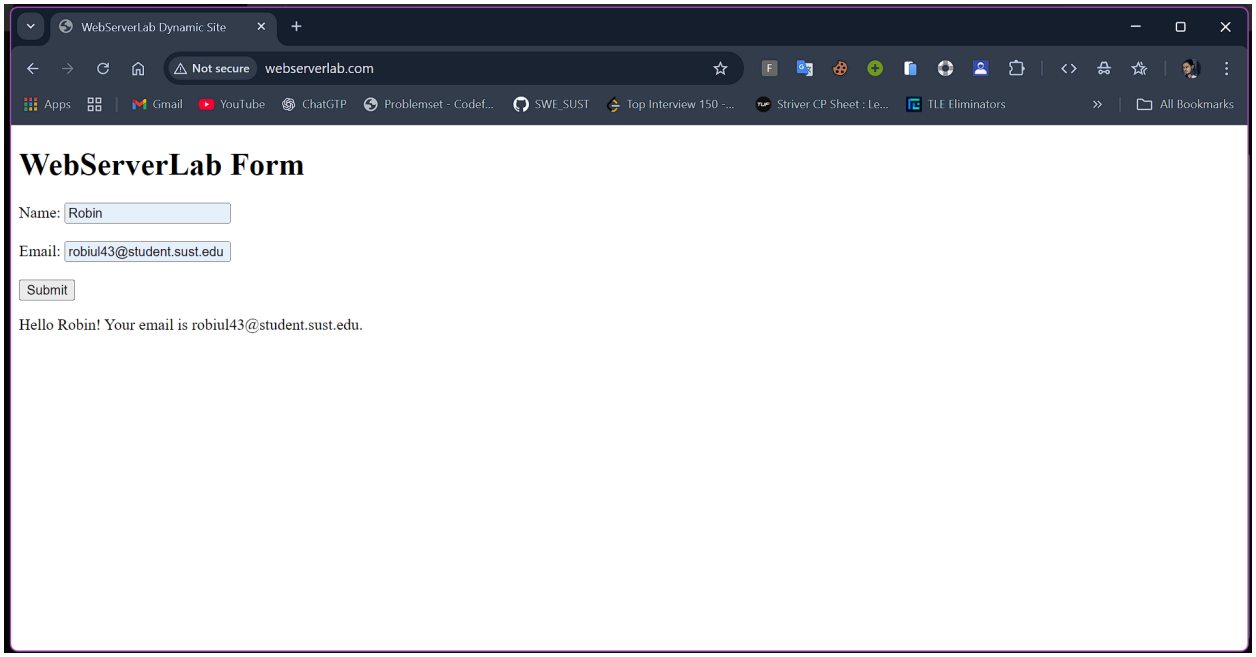
- Browsers show the correct content per domain.

Checkpoint 5: Created Two Dynamic Websites

Example Form (testsite.com)



Example Form (`webserverlab.com`)



Manage Apache Service

In WSL, use:

```
sudo service apache2 stop
sudo service apache2 start
sudo service apache2 restart
```

For persistent start on boot (optional):

```
sudo systemctl enable apache2
```

Add local domain to Windows hosts file

In **Windows**, open:

```
C:\Windows\System32\drivers\etc\hosts
```