Advanced DevOps Lab
Experiment 1A

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Aim: To develop a website and host it on your local machine and use a VM on AWS Cloud.

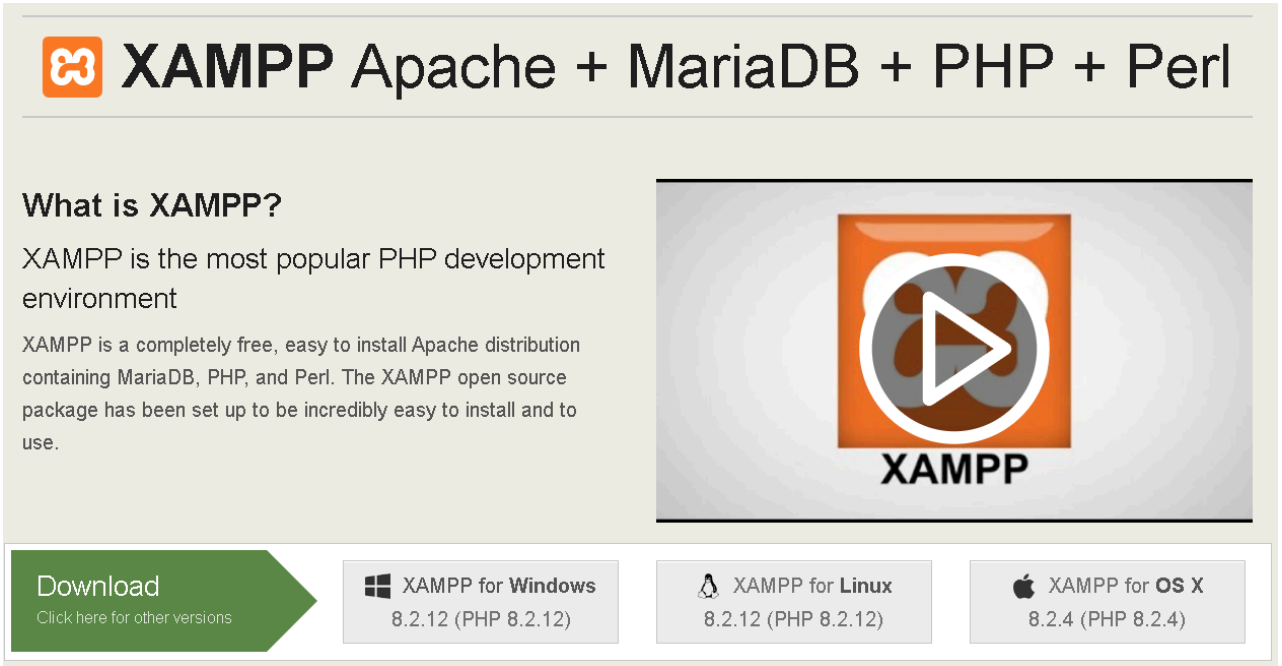
Theory and Prerequisites:

To host a website, we need its contents ready, preferably on a GitHub repository for easy fetching. In this example, we will host a portfolio website from this GitHub Repository. This repository has HTML and CSS, which means there are no build commands needed for hosting. If you are hosting a website using a Javascript framework, for example, the build command will be required for hosting it locally or on the Cloud.

Part 1: Hosting a website on localhost

Steps:

1. Downloading XAMPP.

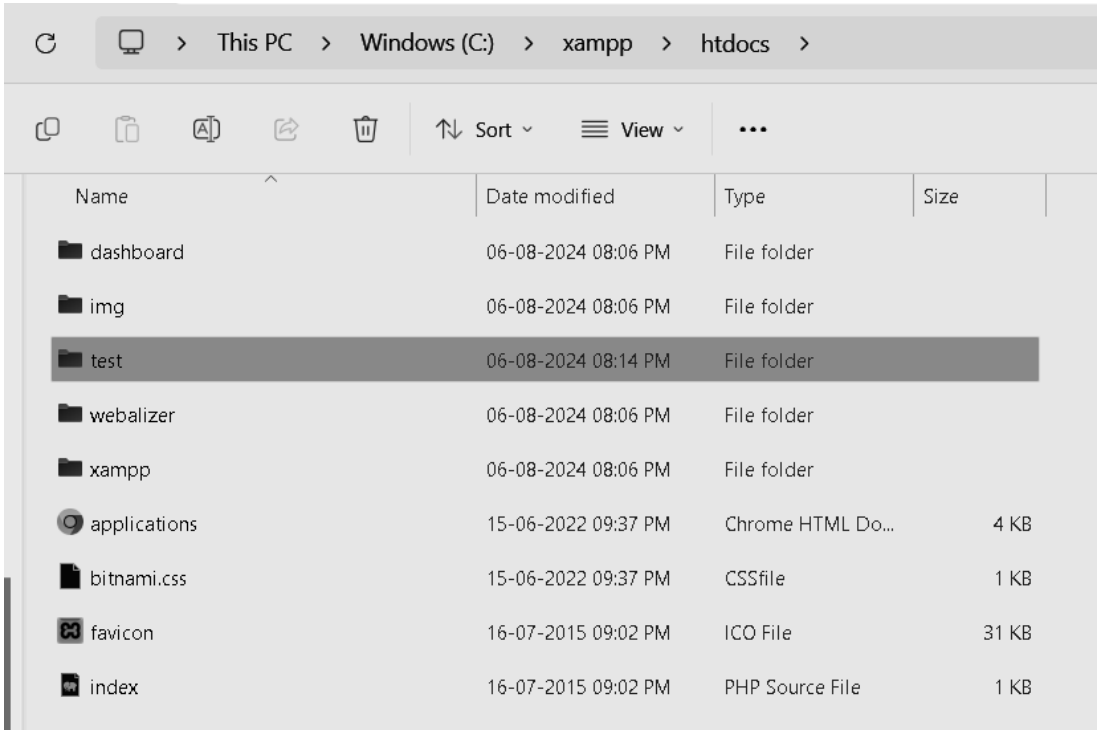


We need to install XAMPP, which creates an apache server for us on our local machine, on which we can host our website. You can also use applications like WAMP or MAM depending on your Operating System.

Please Note: Make sure you select Apache when you install XAMPP, so that you can use it with XAMPP later.

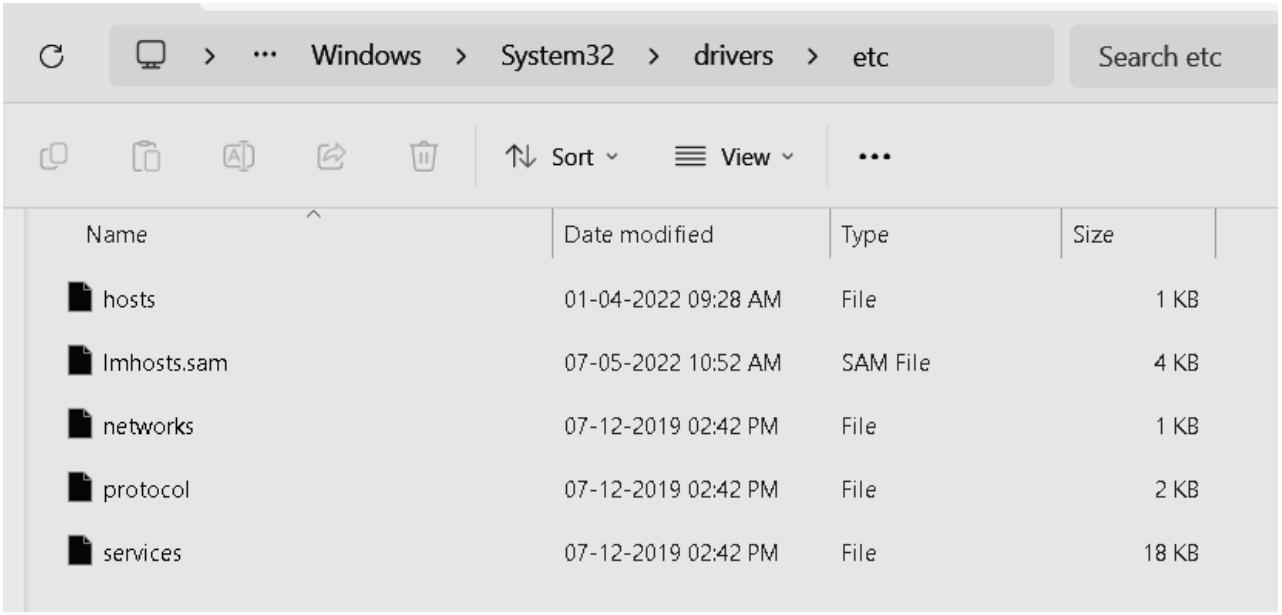
2. Dropping the Code folder in the **htdocs** folder

```
devpg@LAPTOP-7NM7ITJ2 MINGW64 /c/xampp/htdocs
$ git clone https://github.com/GaonkarDev/test.git
Cloning into 'test'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 13 (delta 1), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (13/13), 4.68 KiB | 958.00 KiB/s, done.
Resolving deltas: 100% (1/1), done.
```



Go to the xampp root folder, then locate the htdocs folder, such that you are now in *xampp/htdocs*. Now, open the Terminal here and use the ***git clone*** command to clone your code folder in this directory.

3. Update the hosts file to serve localhost as your domain name (will work only on your local machine)



Open the notepad as administrator and open the **hosts** file in *Windows/System32/drivers/etc*. Change the filter to All Files to find the **hosts** file.

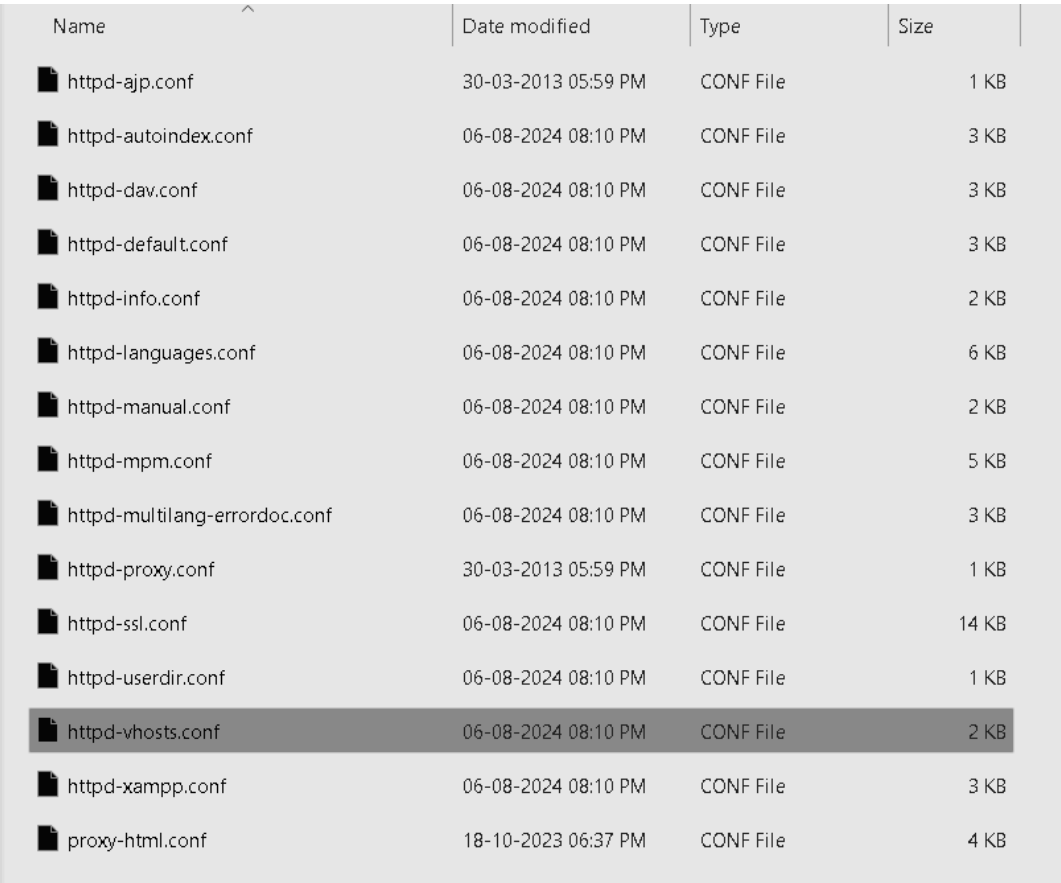
```
#
# For example:
#
#      102.54.94.97     rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

# localhost name resolution is handled within DNS itself.
#   127.0.0.1       localhost
#   ::1             localhost

127.0.0.1 localhost
127.0.0.1 devgaonkar.com
```

Then, on a new line, enter localhost and map it with your desired domain name, in my case, it is devgaonkar.com, as shown above.

4. Update the httpd-vhosts.conf file



Name	Date modified	Type	Size
httpd-ajp.conf	30-03-2013 05:59 PM	CONF File	1 KB
httpd-autoindex.conf	06-08-2024 08:10 PM	CONF File	3 KB
httpd-dav.conf	06-08-2024 08:10 PM	CONF File	3 KB
httpd-default.conf	06-08-2024 08:10 PM	CONF File	3 KB
httpd-info.conf	06-08-2024 08:10 PM	CONF File	2 KB
httpd-languages.conf	06-08-2024 08:10 PM	CONF File	6 KB
httpd-manual.conf	06-08-2024 08:10 PM	CONF File	2 KB
httpd-mpm.conf	06-08-2024 08:10 PM	CONF File	5 KB
httpd-multilang-errordoc.conf	06-08-2024 08:10 PM	CONF File	3 KB
httpd-proxy.conf	30-03-2013 05:59 PM	CONF File	1 KB
httpd-ssl.conf	06-08-2024 08:10 PM	CONF File	14 KB
httpd-userdir.conf	06-08-2024 08:10 PM	CONF File	1 KB
httpd-vhosts.conf	06-08-2024 08:10 PM	CONF File	2 KB
httpd-xampp.conf	06-08-2024 08:10 PM	CONF File	3 KB
proxy-html.conf	18-10-2023 06:37 PM	CONF File	4 KB

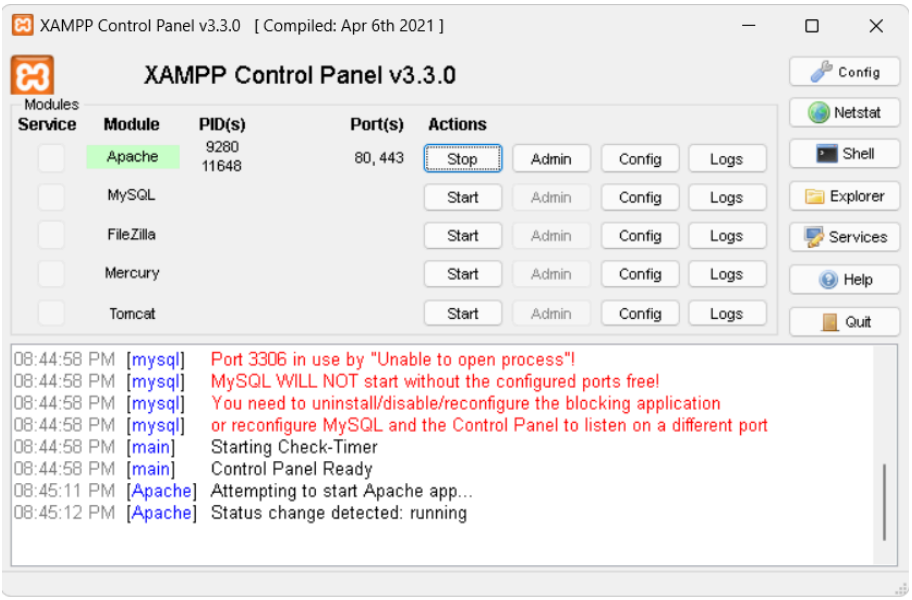
Locate the httpd-vhosts.conf file in xampp/apache/conf/extra. Open this file with your desired text editor, in my case, VSCode.

```
##<VirtualHost *:80>
    ##ServerAdmin webmaster@dummy-host2.example.com
    ##DocumentRoot "C:/xampp/htdocs/dummy-host2.example.com"
    ##ServerName dummy-host2.example.com
    ##ErrorLog "logs/dummy-host2.example.com-error.log"
    ##CustomLog "logs/dummy-host2.example.com-access.log" common
##</VirtualHost>

<VirtualHost *:80>
    DocumentRoot "C:/xampp/htdocs/test"
    ServerName devgaonkar.com
</VirtualHost>
```

All the code in this file is commented out. Copy the last VirtualHost set which is commented out and paste it out, like so. Inside this tag, make the Document root mapped to the website folder, like so. Change the server name to the mapped domain name, as you did in the hosts folder.
Note: This could be the root folder for you. In my case, I have my HTML in the test folder.

5. Open the XAMPP control panel and start the apache server



6. Open up your domain name on your browser

Hello Dev!

This is test website for Advance DevOps.

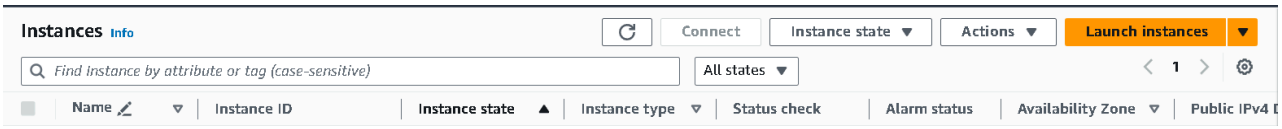
That's it, you have successfully hosted your website locally on your machine. If you have a static IP, you can do this publicly, except you need to buy a domain name for mapping it so that you can make the website public. You can still use services like ngrok to share this website temporarily with your friends, family or colleagues, etc.

Part 2: Hosting a website on a Cloud VM (AWS EC2 Instance)

To host our website on Cloud, we need to set up a Virtual Machine, in AWS EC2, in this case. You'd need an AWS free tier account to proceed.

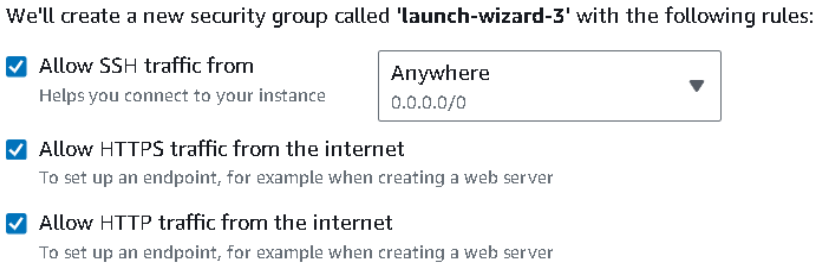
Steps:

1. Open up EC2 Console and Launch a new Instance



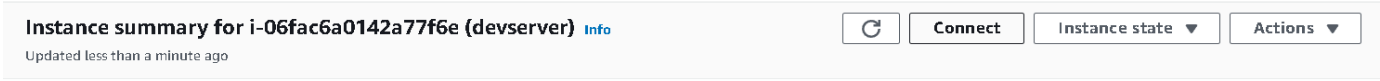
Proceed with everything default.

In Security groups, add these rules so that you can visit the website from anywhere.



Review the changes and launch. Create and download a Keypair file if asked for.

2. Connect to the instance to access the CLI



Click on the Connect button on the top right.

Use EC2 instance connect to directly access the machine on a CLI, opened on the browser.

3. Install Git and HTTPD

Use the following commands to install git and httpd.

```
sudo yum install git -y
sudo yum install httpd -y
```

4. Set up the GitHub Repository to host the website

   Go to var/www/html and clone the GitHub Repository.

```
cd var/www/html
git clone https://github.com/GaonkarDev/test
```

```
[ec2-user@ip-172-31-16-183 html]$ sudo git clone https://github.com/GaonkarDev/test.git
Cloning into 'test'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 13 (delta 1), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (13/13), 4.68 KiB | 4.68 MiB/s, done.
Resolving deltas: 100% (1/1), done.
[ec2-user@ip-172-31-16-183 html]$
```

5. Move all files inside the folder out to the html folder.

```
[ec2-user@ip-172-31-16-183 html]$ sudo mv test/* .
```

   Type the **ls** command just to confirm you have all your html files inside the html directory.

```
[ec2-user@ip-172-31-16-183 html]$ ls
README.md  index.html  test
```

6. Start the httpd server

```
[ec2-user@ip-172-31-16-183 html]$ sudo service httpd start
```

7. View your website

   Create a new tab on your browser and go to the public IP address of your EC2 instance to confirm your website is live. You can find the Public IP address inside the Networking tab of your EC2 console.

Hello Dev!

This is test website for Advance DevOps.

   Your website is live!

Conclusion:

In this experiment, we learned how to host our websites locally on our machines and on AWS EC2 Instances (Cloud).