



# Vivekanand Education Society's Institute of Technology

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Hashu Advani Memorial Complex, Collector Colony, Chembur East, Mumbai - 400074.

## Department of Information Technology

A.Y. 2024-25

### Advance DevOps Lab Assignment 01

#### Aim:

Part 1 : To develop a website and host it on your local machine on a VM

Part 2 : To host the website developed as part 1 of Assignment 1 using AWS.

Roll No.	22
Name	Sarthak Harade
Class	D15B
Subject	Advance DevOps Lab
LO Mapped	LO1: To understand the fundamentals of Cloud Computing and be fully proficient with Cloud based DevOps solution deployment options to meet your business requirements.
Grade:	

- **AIM :** To develop a website and host it on your local machine on a VM Reference and hosting a static website on Amazon S3 (AWS).
- **THEORY :**

#### Introduction

In DevOps, this experiment involves developing a website using a tech stack including HTML, CSS, JavaScript, and frameworks like React or Angular, and backend technologies such as Node.js or Python. The website is first hosted on a local development environment, then transitioned to Amazon S3 for scalable cloud-based hosting. This approach highlights the advantages of both local and cloud environments.

#### Hosting on a Local Machine Using Xampp

##### Setting Up a Local Development Environment with XAMPP :

XAMPP is an open-source cross-platform web server solution stack package developed by Apache Friends. It includes:

- Apache: A widely-used web server software.
- MySQL/MariaDB: Database management systems.
- PHP: A server-side scripting language.
- Perl: A high-level programming language.

#### Pros :

- Complete control over the development environment.
- Useful for development and testing phases.

#### Cons :

- Limited scalability.
- Requires manual management of infrastructure and updates.

#### Hosting a Static Website on Amazon S3 (AWS)

A static website consists of fixed content with HTML files and does not require server-side processing.

This type of website is typically faster and easier to host.

#### Introduction to AWS S3

Amazon S3 (Simple Storage Service) is a scalable object storage service that provides a simple web

services interface to store and retrieve any amount of data at any time from anywhere on the web.

#### Pros :

- Highly scalable and cost-effective.
- Minimal management required.
- High availability and durability of data.

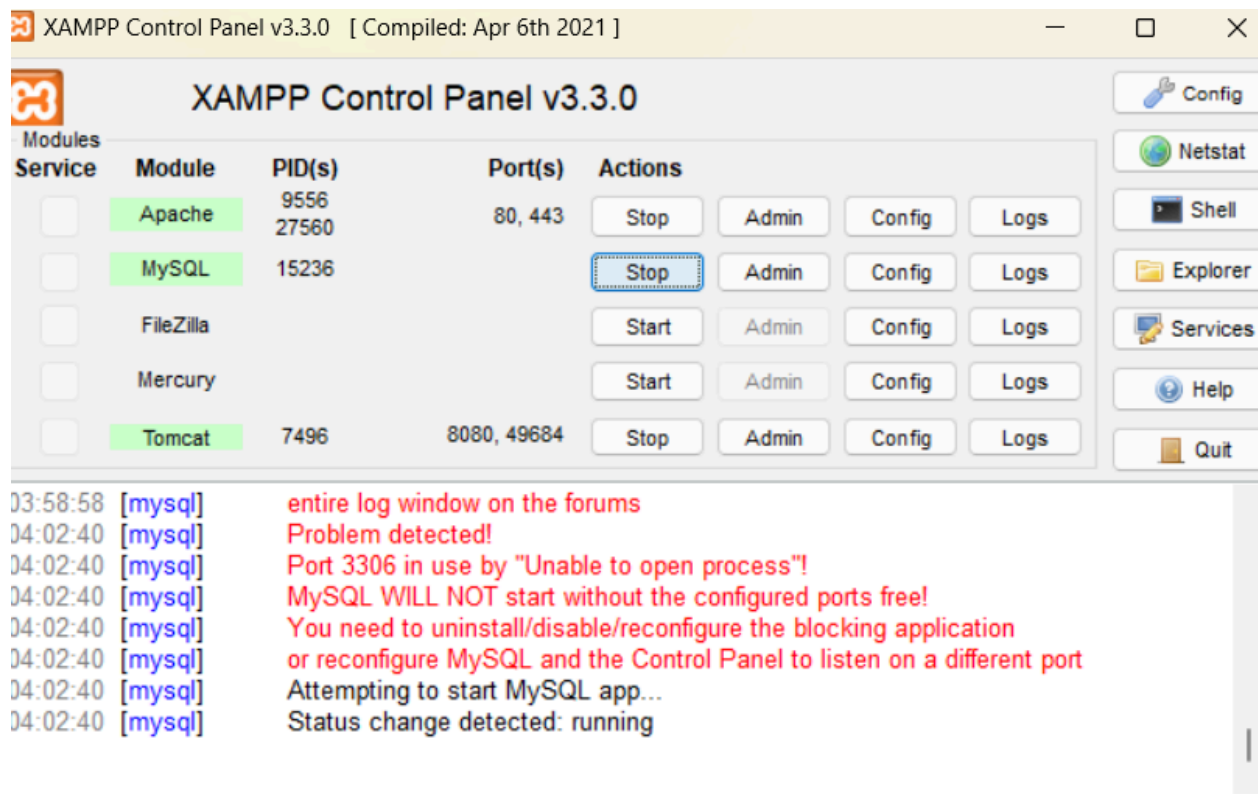
Cons :

- Limited to static content.
- Less control over the hosting environment compared to a VM

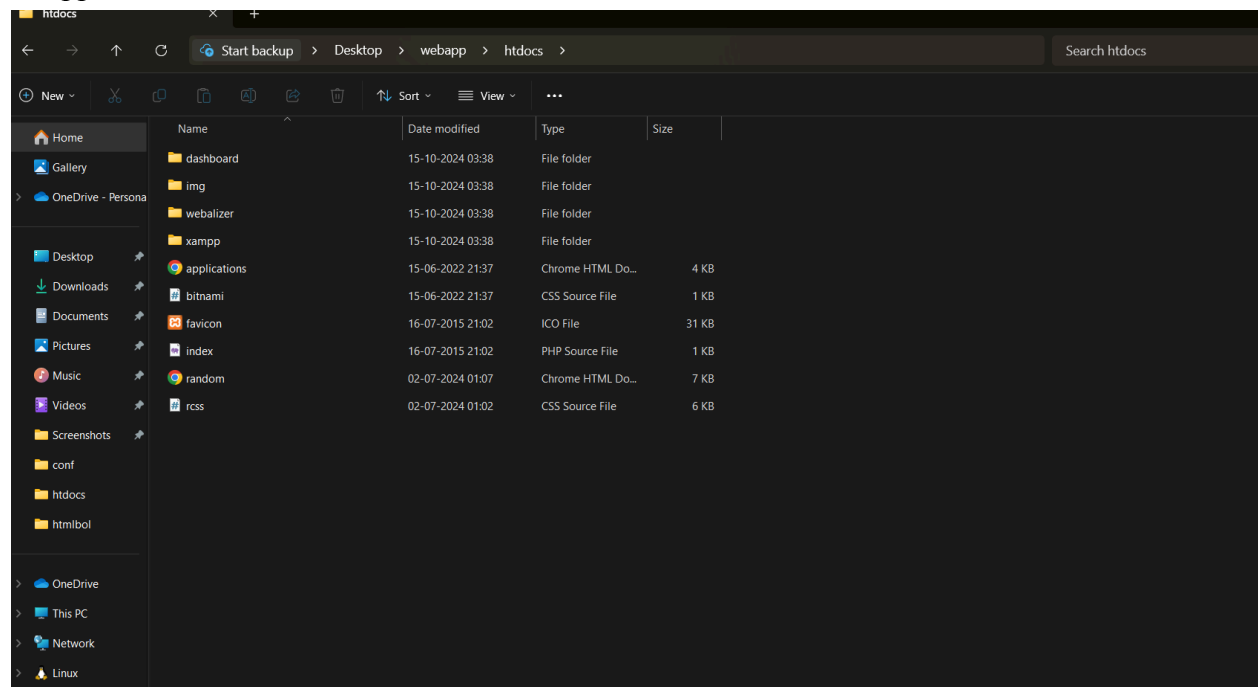
Aspect	Local Hosting (VM with XAMPP)	Cloud Hosting (AWS S3)
Performance	Works well for development but may struggle with high traffic in production.	Usually performs better with global access and fast content delivery.
Security	You're responsible for setting up and managing security.	AWS provides strong security features, reducing your management burden.
Accessibility	Only accessible on your local network unless configured otherwise.	Accessible from anywhere, great for public websites.
Cost	No extra hosting fees, but you handle all maintenance and updates.	Pay for what you use, which can be cost-effective but needs monitoring.
Deployment	Requires manual file transfers and updates.	Supports automated deployment with tools like AWS CodePipeline.
Continuous Integration	Less automated; may need custom scripts.	Easily integrates with CI/CD tools for automated updates.
Scalability	Limited; adding more servers is manual and complex.	Automatically adjusts to traffic changes and scales easily.
Maintenance	You handle all updates and server management.	AWS manages the infrastructure, so less manual work for you.

## Hosting on a Local Machine Using Xampp

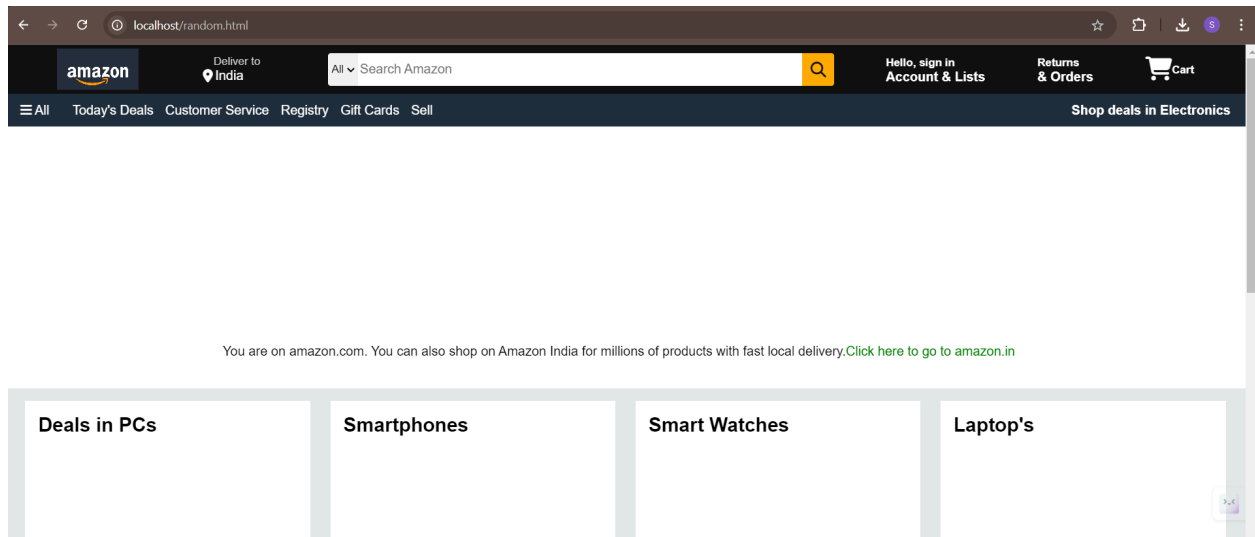
1. Download, Install and Launch Xampp. Start the actions of Apache and MySQL



2. Create an index.html and its corresponding css file. Save both files in an appropriate folder as xampp => htdocs => random.html.

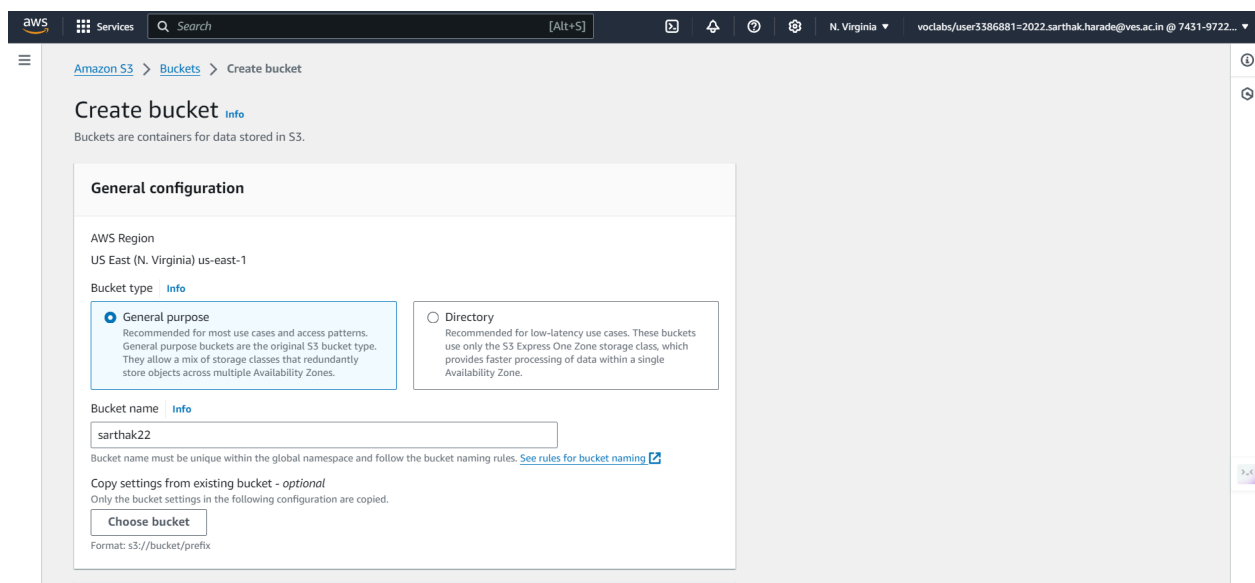


3. Go to any browser and search for `http://localhost/random.html`

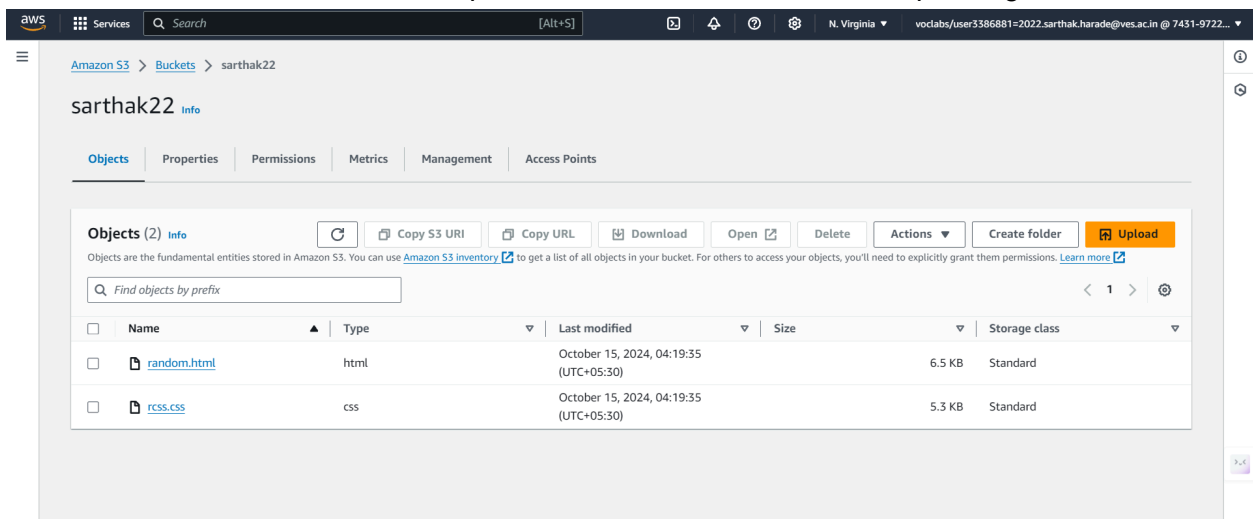


### Hosting a Static Website on Amazon S3 (AWS)

1. Go to AWS academy website. Solve the Module Knowledge Check. Launch AWS Academy Learner Lab and click on AWS beside the green logo. (logo will become green once the start lab is clicked.)
2. Search for S3 and create a bucket.



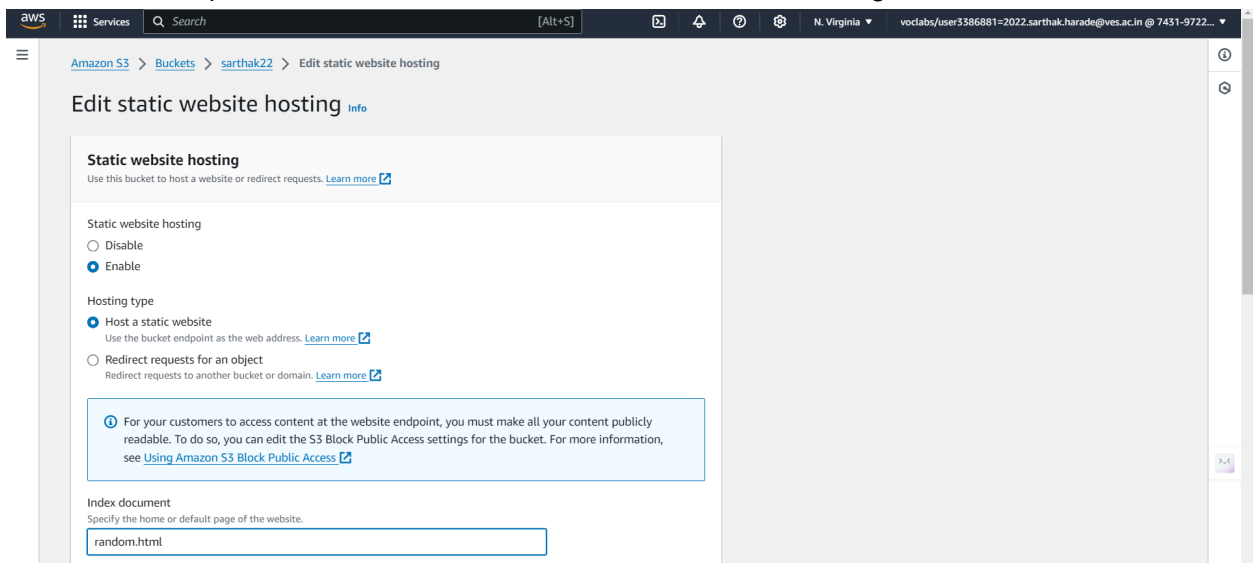
### 3. Click on the created bucket and upload the index.html and its corresponding css



The screenshot shows the Amazon S3 console interface for a bucket named 'sarthak22'. The 'Objects' tab is selected, displaying a table of objects. The table has columns for Name, Type, Last modified, Size, and Storage class. Two objects are listed: 'random.html' (6.5 KB, Standard storage class) and 'rcss.css' (5.3 KB, Standard storage class). Both objects were last modified on October 15, 2024, at 04:19:35 (UTC+05:30). The interface includes navigation tabs for Objects, Properties, Permissions, Metrics, Management, and Access Points. Action buttons like 'Copy S3 URI', 'Copy URL', 'Download', 'Open', 'Delete', 'Actions', 'Create folder', and 'Upload' are visible at the top of the object list.

Name	Type	Last modified	Size	Storage class
random.html	html	October 15, 2024, 04:19:35 (UTC+05:30)	6.5 KB	Standard
rcss.css	css	October 15, 2024, 04:19:35 (UTC+05:30)	5.3 KB	Standard

### 4. Go to the Properties section and enable the static website hosting.



The screenshot shows the 'Edit static website hosting' configuration page in the Amazon S3 console for the 'sarthak22' bucket. The 'Static website hosting' section is active, with the 'Enable' radio button selected. Under 'Hosting type', the 'Host a static website' option is selected. A blue information box states: 'For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see Using Amazon S3 Block Public Access.' The 'Index document' field is set to 'random.html'.

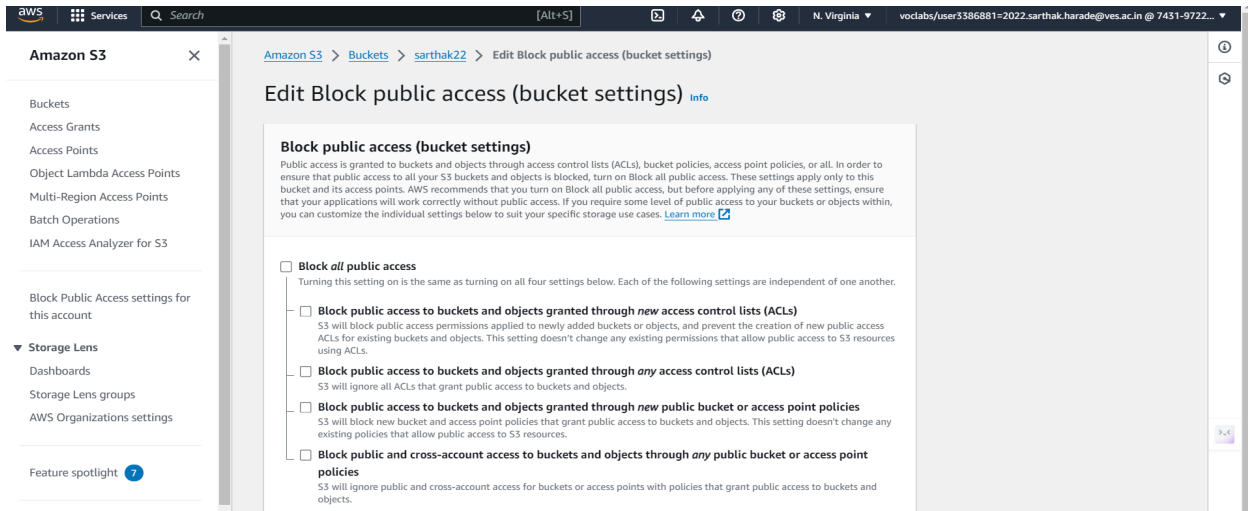
**Static website hosting**  
Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting  
☐ Disable  
☒ Enable

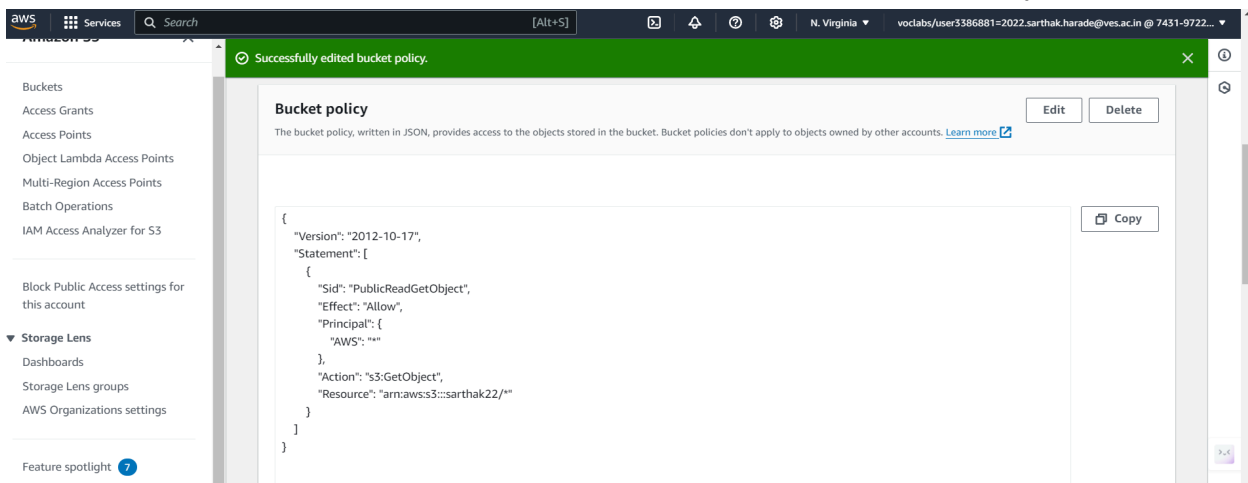
Hosting type  
☒ Host a static website  
Use the bucket endpoint as the web address. [Learn more](#)  
☐ Redirect requests for an object  
Redirect requests to another bucket or domain. [Learn more](#)

**Index document**  
Specify the home or default page of the website.  
random.html

### 5. Unselect the (main) option of Block public access. (By default, it is selected while creating the bucket). It gives public access to use our website.



## 6. Go to the permission section in the new created bucket and edit bucket policy



## 7. Go to the Objects section and select the index.html file. Then the Copy URL option will get activated. Click on it and paste it on the new tab.



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- **CONCLUSION** : This experiment demonstrates the process of developing a website and the flexibility of hosting it on different platforms. Hosting on a local VM provides insights into infrastructure management, while hosting on AWS S3 showcases the benefits of cloud-based solutions. Understanding both approaches equips one with the skills to choose the appropriate hosting solution based on the project requirements and scalability needs.