

Cloud Computing Project Report

Title:

Creating a Virtual Machine on Azure and Hosting a Static Website

Submitted by:

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Abstract

This project focuses on creating a Virtual Machine (VM) on Microsoft Azure and hosting a static website using HTML and CSS on the configured server. The objective is to provide hands-on experience in deploying cloud infrastructure and utilizing it for real-world applications, such as web hosting. The process involves setting up a Linux-based VM, installing a web server (Apache), and uploading a custom-designed static website to the cloud-hosted server. Optionally, domain configuration and SSL setup were explored to secure the hosted site.

Cloud computing plays a vital role in modern IT infrastructure by offering scalable, cost-effective, and highly available solutions. Hosting websites through cloud platforms eliminates the need for physical servers and ensures global accessibility.

The outcome of the project is a fully functional static website hosted on a cloud-based virtual machine, demonstrating the practical implementation of Infrastructure as a Service (IaaS) in the cloud computing domain.

Objective

The primary objectives of this project are as follows:

- To understand the process of creating and configuring a **Virtual Machine (VM)** on the **Microsoft Azure** cloud platform.
- To learn the deployment of a **static website** using **HTML and CSS** by hosting it on a cloud-based server.
- To gain **hands-on experience** with real-world cloud computing concepts such as remote server access, file deployment, and web server configuration.
- To explore optional advanced steps including the configuration of a **custom domain name** and **SSL certificate** for enabling secure HTTPS access.

This project aims to strengthen foundational knowledge in **Infrastructure as a Service (IaaS)** and demonstrate how cloud services can be leveraged for web hosting and scalable deployment.

Introduction

Basics of Cloud Computing

Cloud computing is the on-demand delivery of computing services—such as servers, storage, databases, networking, software, and analytics—over the internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale. Instead of owning their own computing infrastructure or data centers, companies can rent access to anything from applications to storage from a cloud service provider.

Cloud computing is typically offered in three main service models:

- **Infrastructure as a Service (IaaS)** – providing virtualized computing resources over the internet.
- **Platform as a Service (PaaS)** – delivering hardware and software tools over the internet.
- **Software as a Service (SaaS)** – delivering software applications over the internet on a subscription basis.

It allows users to scale resources up or down based on demand, pay only for what they use, and eliminate the costs and complexity of owning and maintaining physical servers.

What is a Virtual Machine (VM)?

A Virtual Machine (VM) is a software emulation of a physical computer that runs an operating system and applications just like a physical machine. It is created using virtualization technologies and is hosted on a physical server in a data centre.

Each VM includes its own virtual CPU, memory, storage, and network interface, allowing it to operate independently.

In the context of cloud computing, VMs are critical components of IaaS. Cloud platforms such as Azure, AWS, and Google Cloud allow users to create and configure VMs to run applications, host websites, and test software without the need for physical infrastructure.

Why Use Microsoft Azure?

Microsoft Azure is one of the leading cloud platforms, offering a wide range of services across computing, storage, networking, analytics, and artificial intelligence. It is trusted by enterprises, startups, and developers worldwide for building, deploying, and managing applications.

Key benefits of using Azure include:

- **User-friendly Interface:** Azure provides a simple and intuitive portal for managing resources.
- **Scalability:** Easily scale VMs based on demand.

- **Global Reach:** Azure has data centres around the world, ensuring high availability and low latency.
- **Integrated Services:** Seamless integration with databases, storage, AI, and security tools.
- **Free Tier Access:** Microsoft Azure offers a free tier with limited resources, allowing students and developers to experiment and learn.

In this project, Azure was chosen for its robust VM capabilities, support for Linux distributions, and ease of deployment for web-based applications.

Benefits of Hosting Websites on Cloud Virtual Machines (VMs)

Hosting websites on cloud-based Virtual Machines (VMs) offers several advantages compared to traditional on-premise or shared hosting solutions. These benefits include:

- **Scalability:** Cloud VMs can be easily scaled up or down based on traffic and resource requirements. This ensures your website performs well under varying loads without manual hardware upgrades.
- **High Availability:** Cloud platforms like Azure provide infrastructure redundancy and failover options that help ensure your website remains accessible even during hardware or network failures.
- **Global Reach:** With data centers located across the world, cloud providers allow you to host your website closer to your users, improving load times and user experience.
- **Cost Efficiency:** With a pay-as-you-go model, you only pay for the resources you use. This eliminates the need for large upfront investments in hardware and maintenance.
- **Security:** Cloud platforms offer built-in security features, such as firewalls, DDoS protection, and encrypted storage, helping to safeguard your website and data.
- **Customizability:** Unlike shared hosting, a VM provides full control over the server environment. You can configure the OS, web server, and software as needed.
- **Development and Testing Flexibility:** Developers can deploy and test updates in isolated environments on cloud VMs without affecting the live website.

These benefits make cloud VMs an ideal choice for hosting websites in today's dynamic and digital-first landscape.

Methodology

This section outlines the step-by-step approach followed for hosting a **static website using Microsoft Azure Storage Account** instead of a full Virtual Machine and web server stack. Azure Storage provides a lightweight, cost-effective solution for deploying HTML/CSS-based websites without the overhead of managing servers.

1. Creating a Microsoft Azure Account

To get started, a Microsoft Azure Free Tier account was created.

Steps:

- Visit <https://azure.microsoft.com>
- Click on “**Start Free**” and sign in with an existing Microsoft account.
- Complete the identity verification via phone and a refundable debit/credit card transaction.
- Access the Azure Dashboard from <https://portal.azure.com>

2. Create a Virtual Machine (VM)

- In the Azure Portal, navigate to **Virtual Machines** and click **Create**.
- Choose an OS: **Ubuntu 20.04 LTS** (Linux) or **Windows Server 2019** (Windows).
- Set VM details:
 - Region (e.g., Central India)
 - Size (Free Tier eligible like B1s)
 - Authentication type (Password or SSH key)
 - Allow inbound ports: **HTTP (80)** and **SSH (22)** or **RDP (3389)** for Windows
- Click **Review + Create**, then **Create**

3. Connect to the Virtual Machine (VM)

Once the virtual machine is successfully deployed on Azure, you can connect to it remotely using either **SSH** (for Linux VMs) or **RDP** (Remote Desktop Protocol, for Windows VMs).

For Linux Virtual Machines: Connecting via SSH

Pre-requisites:

- Your VM must have **SSH (port 22)** allowed during creation.
- You must have noted down the **public IP address** of the VM.
- Use a terminal (Linux/Mac), **Windows Terminal**, or **PuTTY** (on Windows).

Steps:

1. Open your terminal or SSH client.
2. Type the following command (replace <your-public-ip> with actual IP):
3. If prompted:
 - Type yes to continue connecting (only the first time).
 - Enter the **password** you set during VM creation (if using password-based authentication).

Once authenticated, you will be logged into the **Ubuntu shell** of your Azure VM and can start executing commands like installing Apache, navigating directories, uploading website files, etc.

For Windows Virtual Machines: Connecting via RDP

Pre-requisites:

- Your VM must have **RDP (port 3389)** allowed during setup.
- A Windows machine with **Remote Desktop Connection** (RDP) installed (built-in in Windows).

Steps:

1. Open the **Azure Portal**, go to your Virtual Machine overview page.
2. Click “**Connect**” → **RDP** from the top menu.
3. A new panel will appear with:
 - **Public IP address**
 - Option to **Download RDP file**
4. Click “Download RDP file” and open it.
5. When prompted, enter:
 - **Username** (e.g., azureuser)
 - **Password** you set while creating the VM
6. Click “**Yes**” if a certificate warning appears.

4. Install Web Server

A web server is required to serve your HTML/CSS files to users accessing your website. Depending on your operating system, you'll install either **Apache (on Linux)** or **IIS (on Windows)**.

On Linux (Ubuntu): Installing Apache Web Server

Apache is a popular open-source HTTP server that is lightweight, easy to install, and ideal for hosting static websites.

Steps:

- 1. Update the package lists:**

```
sudo apt update
```

- 2. Install Apache2:**

```
sudo apt install apache2 -y
```

- 3. Verify the Apache service is running:**

```
sudo systemctl status apache2
```

You should see a green active (running) status. If not, you can start it manually:

```
sudo systemctl start apache2
```

- 4. Test Apache Installation:**

- Open a browser and enter your **VM's public IP address** (e.g., `http://20.204.130.101`)
- You should see the **Apache2 Ubuntu Default Page**, indicating that the web server is working.

Apache is now installed and serving content from `/var/www/html`.

On Windows Server: Installing IIS (Internet Information Services)

IIS is the built-in web server for Windows Server and supports hosting both static and dynamic content.

Steps:

- 1. Log in to your Windows VM via RDP.**
- 2. Open Server Manager** (usually opens by default on login).
- 3. Click on:**

Manage → Add Roles and Features

4. In the “**Add Roles and Features Wizard**”:
 - Click **Next** through the prompts until you reach “**Server Roles**”.
 - **Check the box** for:

Web Server (IIS)

5. Proceed through the rest of the wizard and click **Install**.
6. Once the installation is complete, IIS will be running automatically.
7. **Test IIS Installation:**
 - Open a browser on your local machine.
 - Visit your VM’s **public IP address** (e.g., `http://20.204.130.101`)
 - You should see the **default IIS Welcome page**.

5. Develop the Website

In this step, we will **create the website content** (HTML and CSS) and **transfer** those files to the respective **web directories** on the server to be hosted.

Step 1: Create Your Website Files

Step 2: Transfer Files to the Server

For Linux (Ubuntu + Apache):

Directory to place files: `/var/www/html/`

Steps:

1. **Delete the default Apache file:**

```
sudo rm /var/www/html/index.html
```

2. **Create a new index.html file using nano:**

```
sudo nano /var/www/html/index.html
```

- Paste the HTML content.
- Save using `Ctrl + O`, press `Enter`, then exit with `Ctrl + X`.

3. **Create style.css in the same directory:**

```
sudo nano /var/www/html/style.css
```

- Paste the CSS content.

- Save and exit.

4. **Verify File Permissions (optional):**

```
sudo chmod 755 /var/www/html/index.html
```

```
sudo chmod 755 /var/www/html/style.css
```

5. **Access the Website:**

Open your browser and go to:

`http://<your-public-ip>`

For Windows Server (IIS):

Directory to place files:

`C:\inetpub\wwwroot\`

Steps:

1. Connect to your VM using **Remote Desktop (RDP)**.
2. Open **File Explorer** and navigate to:

`C:\inetpub\wwwroot\`

3. **Delete** the existing `iisstart.htm` file if present.
4. **Create a new file named** `index.html` and paste the HTML content.
5. Create a file named `style.css` and paste the CSS content.
6. Open the VM's **public IP address** in your browser:

`http://<your-public-ip>`

You should now see your custom website in action!

6. Verify Hosting

Once the static website files (`index.html`, `style.css`, etc.) have been placed in the appropriate web directory and the web server is running, it's time to verify whether the website is live and accessible over the internet.

For Linux (Apache on Ubuntu VM):

1. **Ensure Apache is running:**

```
sudo systemctl status apache2
```

You should see a message indicating that the Apache service is active (running). If not, start it with:

sudo systemctl start apache2

2. Verify in Browser:

- Open any web browser.
- Type the **Public IP address** of your VM in the address bar:

http://<your-public-ip>

- Example:

http://20.204.130.101

- If the HTML and CSS were set up correctly, your custom website page should be displayed.

For Windows Server (IIS):

1. Ensure IIS is running:

- IIS starts automatically after installation. You can verify this from **Services** or by accessing:

http://localhost

within the VM.

2. Access the Website:

- Open a browser on your **local machine** and type the VM's **public IP**:

http://<your-public-ip>

- The custom HTML page should load, styled using your style.css file.

CODE

1. HTML Code – web1.html

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8" />

  <meta name="viewport" content="width=device-width, initial-scale=1.0" />

  <title>Tech Academy | Learn with Us</title>

  <link rel="stylesheet" href="style.css" />

  <link
href="https://fonts.googleapis.com/css2?family=Poppins:wght@400;600;700&display=swap"
rel="stylesheet">

</head>

<body>

  <header class="navbar">

    <div class="logo">

      <span>Tech Academy</span>

    </div>

    <ul class="nav-list">

      <li><a href="#web">Web Tech</a></li>

      <li><a href="#program">C Programming</a></li>

      <li><a href="#courses">Courses</a></li>

      <li><a href="#contact">Contact</a></li>

    </ul>

    <div class="rightnav">

      <input type="text" id="search" placeholder="Search..." />

      <button class="btn btn-sm" onclick="searchContent()">Search</button>

    </div>

  </body>

</html>
```

</header>

<main>

<section class="section firstsection" id="web">

<div class="box-main">

<div class="firsthalf">

<h1 class="text-big">Web Technology</h1>

<p class="text-small">

Web technologies include HTML, CSS, JavaScript, and modern frameworks like React, Angular, and Vue. They are essential in creating interactive, responsive web apps.

</p>

</div>

<div class="secondhalf">

</div>

</div>

</section>

<section class="section secondsection" id="program">

<div class="box-main">

<div class="firsthalf">

<h1 class="text-big">C Programming</h1>

<p class="text-small">

C is a foundational language used in systems programming. It's fast, low-level, and ideal for learning memory management and core logic design.

</p>

</div>

<div class="secondhalf">


```
        </div>
    </div>
</section>

<section class="section thirdsection" id="courses">
    <div class="courses-container">
        <h2 class="sectionTag text-big">Courses Offered</h2>
        <div class="card-grid">
            <div class="course-card">
                <h3>HTML & CSS</h3>
                <p>Learn the building blocks of modern websites.</p>
            </div>
            <div class="course-card">
                <h3>C Programming</h3>
                <p>Master low-level, efficient code design.</p>
            </div>
            <div class="course-card">
                <h3>Java</h3>
                <p>Create scalable applications using object-oriented programming.</p>
            </div>
        </div>
    </div>
</section>

<section class="section contact-section" id="contact">
    <div class="contact-form">
        <h2 class="sectionTag text-big">Contact Us</h2>
        <form>
            <input type="text" placeholder="Your Name" required />
            <input type="email" placeholder="Your Email" required />
        </form>
    </div>
</section>
```

```
<textarea placeholder="Your Message" required></textarea>

<button class="btn">Send Message</button>

</form>

</div>

</section>

</main>


<footer class="background">

  <p class="text-footer">© 2025 Tech Academy | All rights reserved</p>

</footer>


<script>

function searchContent() {

  const input = document.getElementById('search').value.toLowerCase();

  if (input.includes('c')) {

    window.location.href = "#program";

  } else if (input.includes('web')) {

    window.location.href = "#web";

  } else if (input.includes('course')) {

    window.location.href = "#courses";

  } else if (input.includes('contact')) {

    window.location.href = "#contact";

  } else {

    alert("No matching section found!");

  }

}

</script>

</body>

</html>
```

2. CSS Code – style.css

```
/* Reset & Font */
* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}
body {
  font-family: 'Poppins', sans-serif;
  background-color: #f8f9fa;
  color: #333;
}
/* Navbar */
.navbar {
  display: flex;
  justify-content: space-between;
  align-items: center;
  padding: 15px 40px;
  background-color: #212529;
  color: white;
  position: sticky;
  top: 0;
  z-index: 1000;
}
.logo {
  display: flex;
  align-items: center;
  gap: 10px;
}
```

```
.logo img {  
    width: 40px;  
}  
.logo span {  
    font-size: 22px;  
    font-weight: 600;  
}  
.nav-list {  
    display: flex;  
    list-style: none;  
    gap: 25px;  
}  
.nav-list li a {  
    text-decoration: none;  
    color: white;  
    font-weight: 500;  
    transition: color 0.3s ease;  
}  
.nav-list li a:hover {  
    color: #00adb5;  
}  
.rightnav {  
    display: flex;  
    gap: 10px;  
}  
.rightnav input {  
    padding: 6px 10px;  
    border-radius: 5px;  
    border: 1px solid #ccc;  
}
```



```
.btn {  
  padding: 6px 15px;  
  background-color: #00adb5;  
  border: none;  
  border-radius: 5px;  
  color: white;  
  cursor: pointer;  
  transition: background 0.3s ease;  
}
```

```
.btn:hover {  
  background-color: #007f88;  
}
```

```
/* Section Styles */
```

```
.section {  
  padding: 80px 20px;  
}
```

```
.box-main {  
  max-width: 1100px;  
  margin: auto;  
  display: flex;  
  flex-wrap: wrap;  
  justify-content: space-between;  
  align-items: center;  
  gap: 30px;  
}
```

```
.firsthalf, .secondhalf {  
  flex: 1 1 45%;  
}
```

```
.text-big {
    font-size: 32px;
    color: #00adb5;
    margin-bottom: 20px;
}

.text-small {
    font-size: 18px;
    line-height: 1.6;
    color: #555;
}

.secondhalf img {
    max-width: 100%;
    border-radius: 10px;
}

.sectionTag {
    text-align: center;
    margin-bottom: 40px;
}

/* Course Cards */

.card-grid {
    display: flex;
    gap: 20px;
    flex-wrap: wrap;
    justify-content: center;
}

.course-card {
    background-color: #fff;
    padding: 25px;
    border-radius: 12px;
    box-shadow: 0 6px 16px rgba(0, 0, 0, 0.1);
}
```

```
width: 260px;

transition: transform 0.3s ease-in-out;

text-align: center;
}

.course-card:hover {
    transform: translateY(-8px);
}
```

```
/* Contact */

.contact-form {
    max-width: 600px;
    margin: auto;
}
```

```
.contact-form input,
.contact-form textarea {
    width: 100%;
    margin: 10px 0;
    padding: 12px;
    font-size: 16px;
    border-radius: 6px;
    border: 1px solid #ccc;
}
```

```
.contact-form button {
    margin-top: 10px;
    width: 100%;
    padding: 12px;
    background-color: #00adb5;
    color: white;
    border: none;
    border-radius: 6px;
```

```

font-size: 16px;

cursor: pointer;
}

/* Footer */

footer {

background-color: #212529;

color: white;

text-align: center;

padding: 20px;

font-size: 14px;

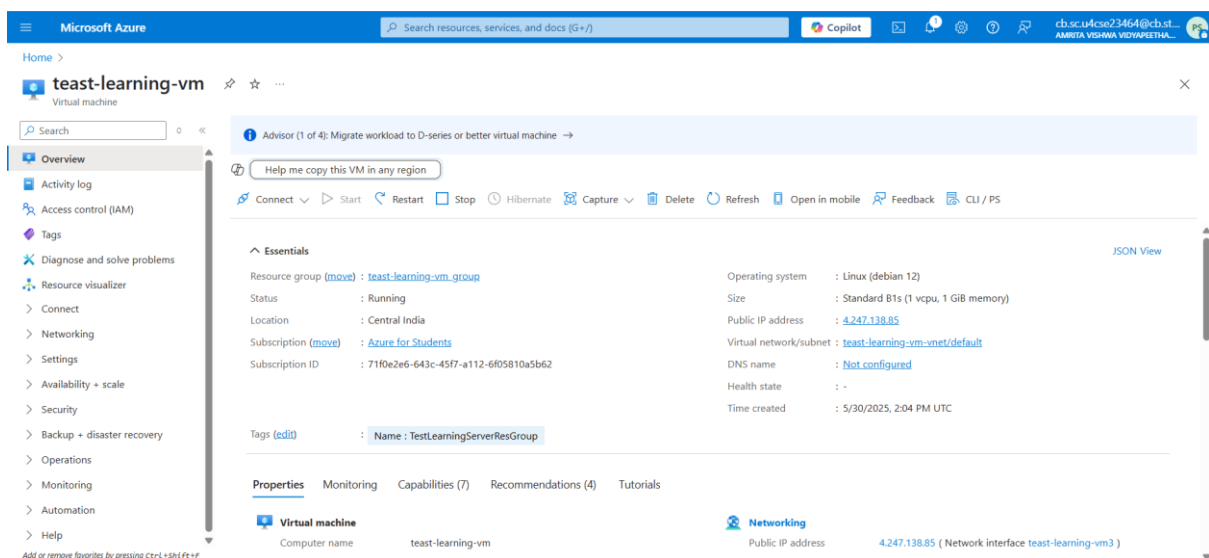
}

```

Screenshots

Below are the screenshots demonstrating the project:

I. Created VM



The screenshot displays the Azure portal interface for a virtual machine named 'test-learning-vm'. The left sidebar shows the navigation menu with 'Overview' selected. The main content area is divided into two sections: 'Essentials' and 'Properties'.

Essentials:

- Resource group (move): [test-learning-vm-group](#)
- Status: Running
- Location: Central India
- Subscription (move): [Azure for Students](#)
- Subscription ID: 71f0e2e6-643c-45f7-a112-6f05810a5b62
- Operating system: Linux (debian 12)
- Size: Standard B1s (1 vcpu, 1 GiB memory)
- Public IP address: [4.247.138.85](#)
- Virtual network/subnet: [test-learning-vm-vnet/default](#)
- DNS name: [Not configured](#)
- Health state: -
- Time created: 5/30/2025, 2:04 PM UTC
- Tags (edit): Name: TestLearningServerResGroup

Properties:

- Virtual machine:**
 - Computer name: test-learning-vm
- Networking:**
 - Public IP address: [4.247.138.85](#) (Network interface: [test-learning-vm3](#))

Microsoft Azure

Search resources, services, and docs (5+)

Copilot

cb.scufcse23464@cb.st... AMRITA VISHWA VIDYAPEETHA...

Home >

teast-learning-vm Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

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Advisor (1 of 13): All network ports should be restricted on network security groups associated to your virtual machine →

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Properties Monitoring Capabilities (7) Recommendations (13) Tutorials

Virtual machine

Computer name	teast-learning-vm
Operating system	Linux (debian 12)
VM generation	V2
VM architecture	x64
Agent status	Ready
Agent version	2.7.3.0
Hibernation	Disabled
Host group	-
Host	-
Proximity placement group	-
Colocation status	N/A
Capacity reservation group	-
Disk controller type	SCSI

Networking

Public IP address	4.247.138.85 (Network interface teast-learning-vm3)
Public IP address (IPv6)	-
Private IP address	10.0.0.4
Private IP address (IPv6)	-
Virtual network/subnet	teast-learning-vm-vnet/default
DNS name	Configure

Size

Size	Standard B1s
vCPUs	1
RAM	1 GiB

Source image details

Source image publisher	debian
------------------------	--------

Microsoft Azure

Search resources, services, and docs (5+)

Copilot

cb.scufcse23464@cb.st... AMRITA VISHWA VIDYAPEETHA...

Home >

teast-learning-vm Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Add or remove favorites by pressing Ctrl+Shift+F

Advisor (1 of 13): Use Azure Capacity Reservation for virtual machine (VM) →

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Properties **Monitoring** Capabilities (7) Recommendations (13) Tutorials

Upgrade your Virtual Machine monitoring with VM Insights. [Learn more](#)

Show data for: Last 24 hours

Health events 2 events

Azure outages No issues

Alerts

Enable recommended alert rules

Get notified on important monitoring events by enabling commonly used alert rules or creating your own custom rules.

II. Uploading Files

```
C:\Users\paris>ssh SystemAdminadi@4.247.138.85
SystemAdminadi@4.247.138.85's password:
Linux teast-learning-vm 6.1.0-37-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6
.1.140-1 (2025-05-22) x86_64
```

The programs included with the Debian GNU/Linux system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

Last login: Fri May 30 16:21:08 2025 from 152.57.160.46

```
SystemAdminadi@teast-learning-vm:~$ sudo nano /var/www/html/index.html
SystemAdminadi@teast-learning-vm:~$ sudo nano /var/www/html/style.css
SystemAdminadi@teast-learning-vm:~$ |
```

```
GNU nano 7.2 index.html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Tech Academy | Learn with Us</title>
  <link rel="stylesheet" href="style.css" />
  <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@400;600;700&display=swap" rel="stylesheet">
</head>
<body>

  <header class="navbar">
    <div class="logo">
      
      <span>Tech Academy</span>
    </div>
    <ul class="nav-list">
      <li><a href="#web">Web Tech</a></li>
      <li><a href="#program">C Programming</a></li>
      <li><a href="#courses">Courses</a></li>
      <li><a href="#contact">Contact</a></li>
    </ul>
    <div class="rightnav">
      <input type="text" id="search" placeholder="Search..." />
      <button class="btn btn-sm onclick="searchContent()">Search</button>
    </div>
  </header>

  <main>
    <section class="section firstsection" id="web">
      <div class="box-main">
        <div class="firsthalf">
          <h1 class="text-big">Web Technology</h1>
          <p class="text-small">
            Web technologies include HTML, CSS, JavaScript, and modern frameworks like React, Angular, and Vue. They are essential in creating
          </p>
        </div>
      </div>
    </section>
  </main>
</body>
</html>
```

```
GNU nano 7.2 style.css
/* Reset & Font */
* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}

body {
  font-family: 'Poppins', sans-serif;
  background-color: #f8f9fa;
  color: #333;
}


/* Navbar */
.navbar {
  display: flex;
  justify-content: space-between;
  align-items: center;
  padding: 15px 40px;
  background-color: #212529;
  color: white;
  position: sticky;
  top: 0;
  z-index: 1000;
}

.logo {
  display: flex;
  align-items: center;
  gap: 10px;
}

.logo img {
  width: 40px;
}

.logo span {
  font-weight: bold;
  font-size: 1.2em;
}
```

III. Reach the IP 4.247.138.85


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Web Technology

Web technologies include HTML, CSS, JavaScript, and modern frameworks like React, Angular, and Vue. They are essential in creating interactive, responsive web apps.


**Tech Academy**

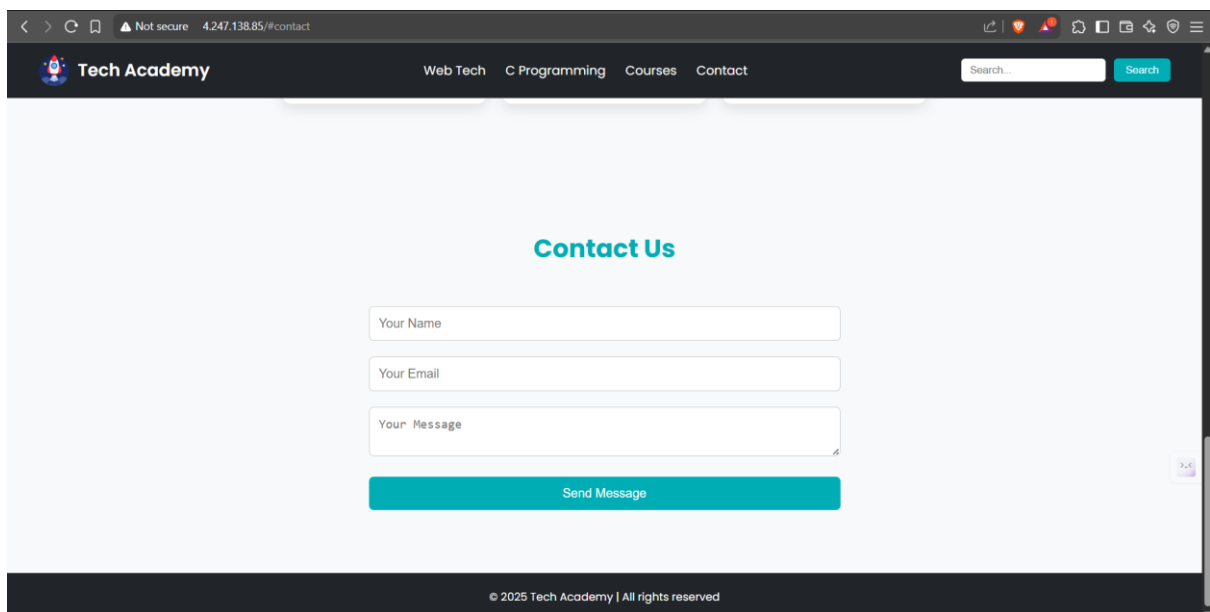
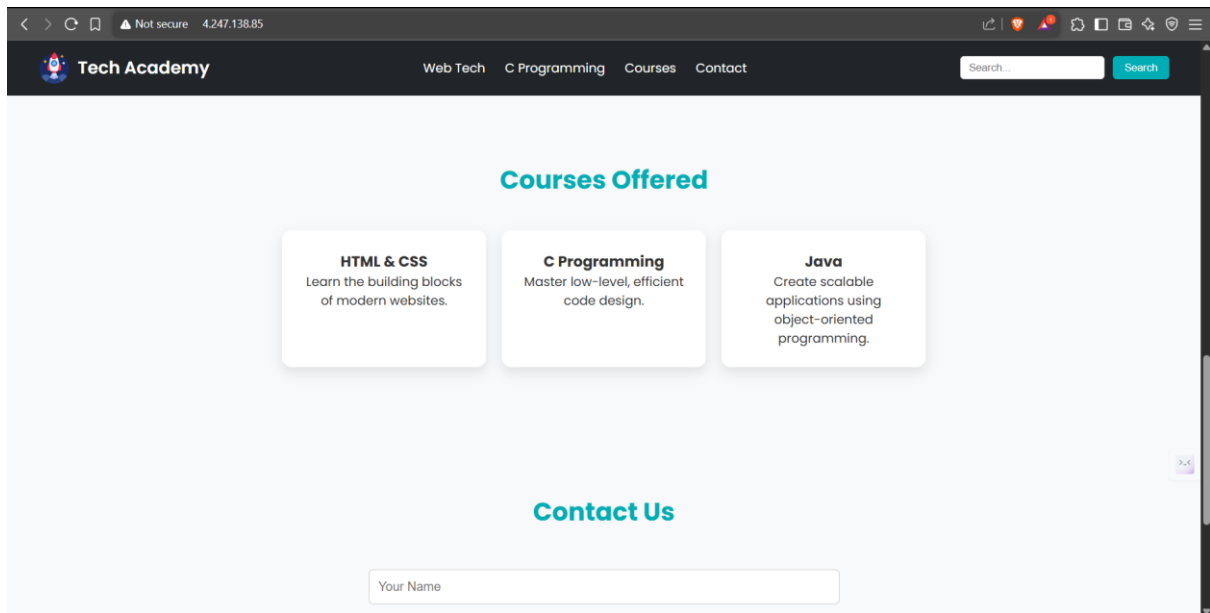
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Search...

C Programming

C is a foundational language used in systems programming. It's fast, low-level, and ideal for learning memory management and core logic design.





Conclusion

This project provided a comprehensive hands-on experience with Microsoft Azure, covering two major deployment strategies for static websites: using Azure **Storage Accounts** and **Virtual Machines (VMs)**. It demonstrated how to host a basic HTML and CSS website on the cloud, both through a PaaS (Platform as a Service) model using Blob Storage and an IaaS (Infrastructure as a Service) model using a self-managed Ubuntu VM.

The VM-based method allowed the manual configuration of an Apache server, while the Storage Account approach offered faster, serverless hosting. Overall, this project helped bridge theoretical cloud computing knowledge with practical implementation, highlighting Azure's flexibility in supporting various hosting approaches.

What I Learned

- How to create and configure a **Microsoft Azure account** with a free subscription.
- How to launch and set up a **Virtual Machine** on Azure with a public IP.
- Installing and managing a **web server** (Apache on Ubuntu) and deploying static HTML/CSS content.
- How to use **Azure Storage Accounts** to enable static website hosting without provisioning a server.
- How to upload website files using the \$web container in blob storage.
- Understanding **public access**, endpoint URLs, and **secure HTTPS** connections via Azure.
- (Optional) Configuring a **custom domain** using Freenom and securing the site using **Certbot and Let's Encrypt**.

Challenges Faced

- Navigating the Azure portal and understanding the differences between VM-based and storage-based hosting.
- SSH/RDP access issues and port configuration when connecting to VMs.
- Adjusting directory permissions in Ubuntu to allow Apache access.
- Ensuring **correct MIME types and file structure** when uploading to the \$web container.
- Dealing with **DNS propagation delays** while setting up the custom domain.
- Learning **Certbot usage** for SSL setup required extra research and experimentation.

Benefits of Azure-based Deployment

- **Two deployment models:** Choice between complete control with a VM or ease-of-use with static blob hosting.

- **No maintenance** needed in storage-based model — serverless and cost-efficient.
- **Built-in HTTPS support** with storage accounts and options for SSL on VMs.
- **Highly scalable** and globally distributed hosting with Azure's Content Delivery Network (CDN).
- Seamless integration with **GitHub**, **DevOps**, and CI/CD tools for automatic updates.
- **Educational value**: A real-world learning experience on how web apps are deployed in production.

Real-World Use Cases of Static Hosting

- **Personal portfolios** or student profiles hosted online.
- **Product landing pages** or digital marketing sites.
- **Documentation websites** for open-source projects.
- Hosting the **frontend of Single Page Applications (SPAs)** like React or Angular.
- Quickly deploying **Minimum Viable Products (MVPs)** or prototypes for demos.

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