Lab 2: Deploy a Virtual Machine Instance (IaaS), Configure a Web Server (PaaS), and Use a Software Application (SaaS) using GCP Free Tier

Objective

To demonstrate the use of Google Cloud Platform (GCP) Free Tier for deploying:

- A Virtual Machine (IaaS)
- A Web Server (PaaS)
- A Cloud-hosted Software Application (SaaS)

Software/Tools Required

- Google Cloud Platform (GCP) Free Tier Account
- Compute Engine (VM instance)
- Apache Web Server
- Web Browser (Chrome or Firefox)

Theory

IaaS – Infrastructure as a Service

- In IaaS, users get access to virtualized hardware resources such as VMs, networks, and storage.
- In this lab, we will launch a virtual machine instance using GCP Compute Engine.

PaaS – Platform as a Service

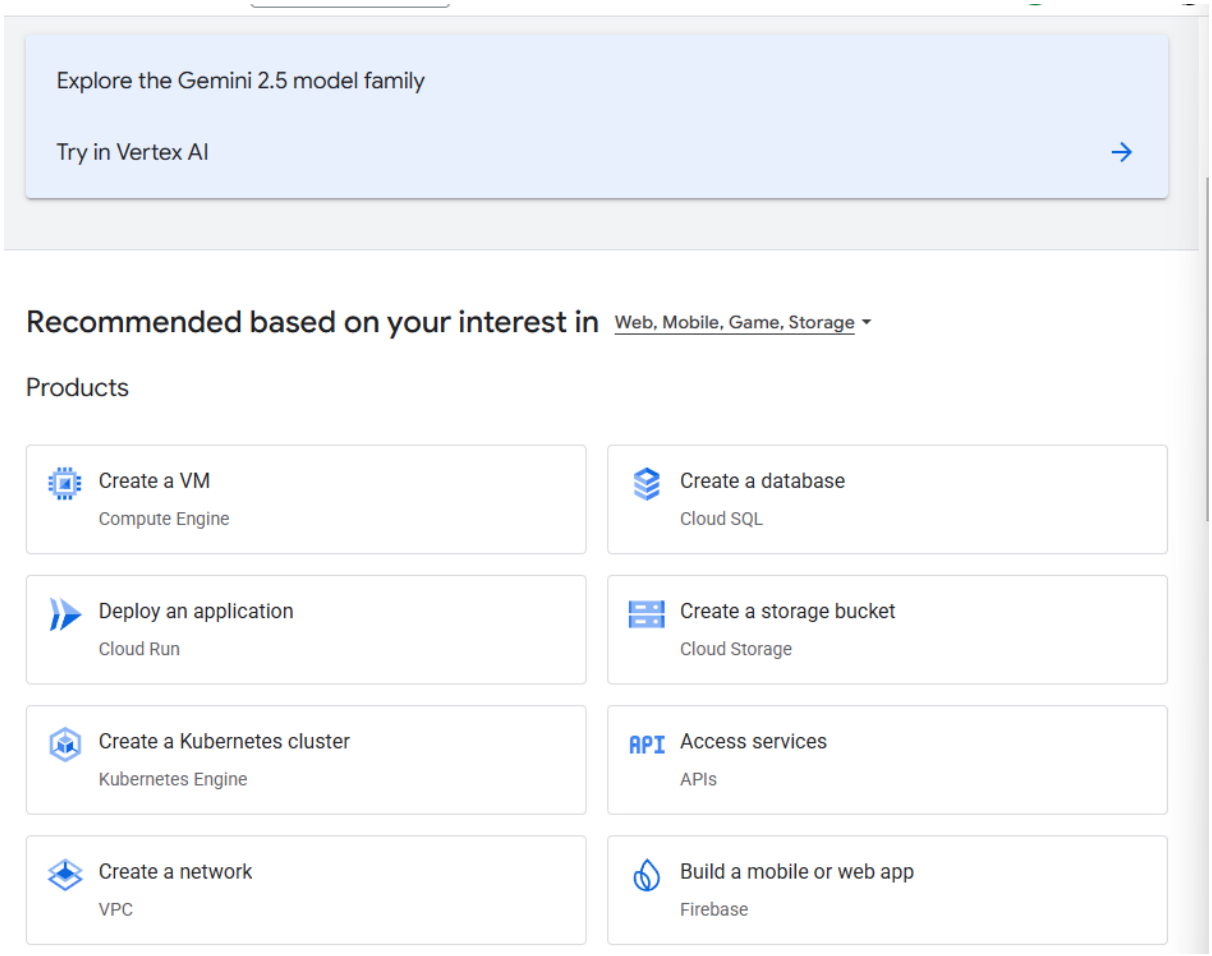
- In PaaS, cloud providers offer an environment for hosting applications without managing underlying OS.
- We will configure a web server (Apache) on the VM to host a basic web page.

SaaS – Software as a Service

- SaaS provides ready-to-use software applications hosted in the cloud.
- For this lab, we will use a SaaS tool like Google Docs or Gmail directly from the browser, showing how cloud apps work without installation.

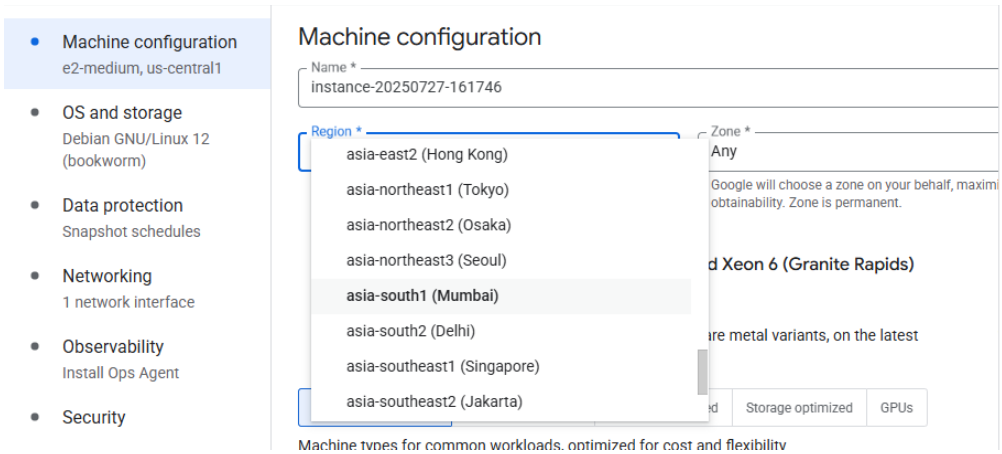
Deploy a Virtual Machine Instance (IaaS)

Step 1: Open Google Cloud Console and click on Create a VM

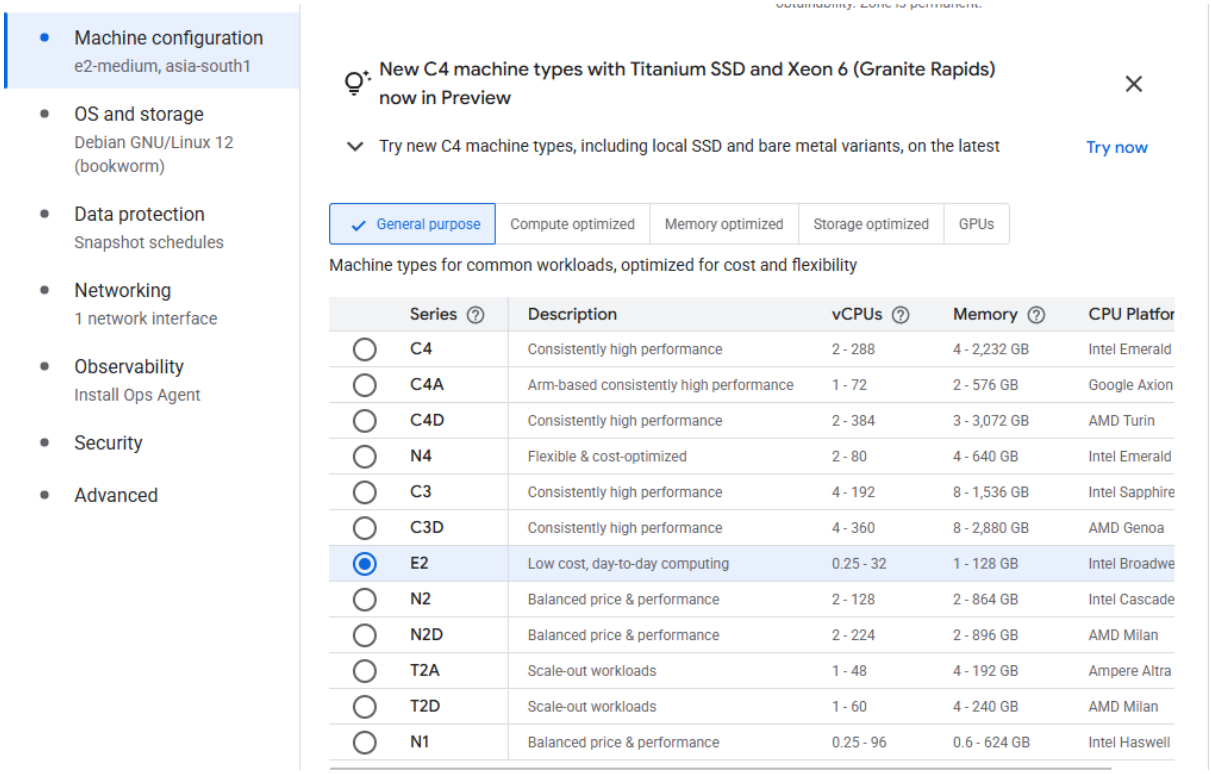


Step 2: Configure the VM

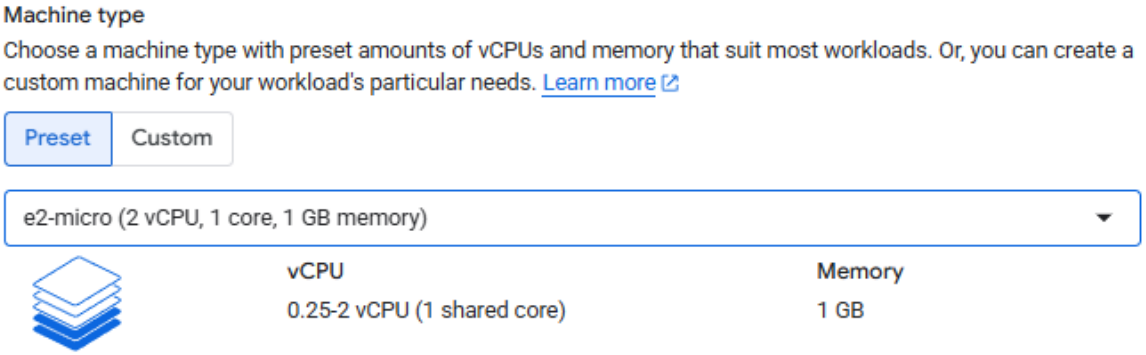
Select the Region to asia-northeast2 (Mumbai)



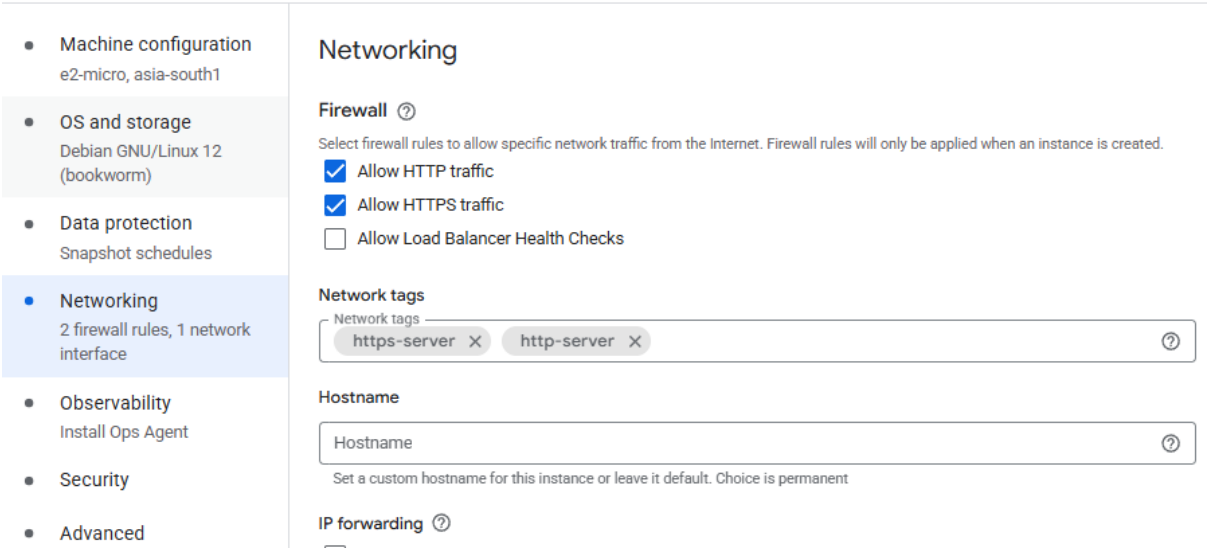
Step 3: Choose the machine series to E2



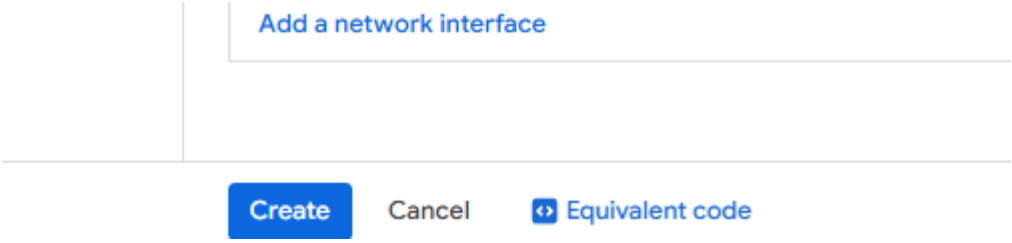
Step 4: Choose the machine type to e2-micro



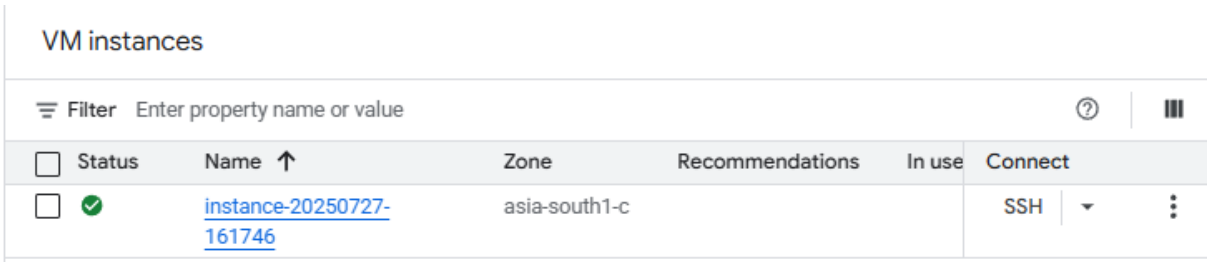
Step 5: Go to Networking option and allow both http and https traffic



Step 6: Click on create

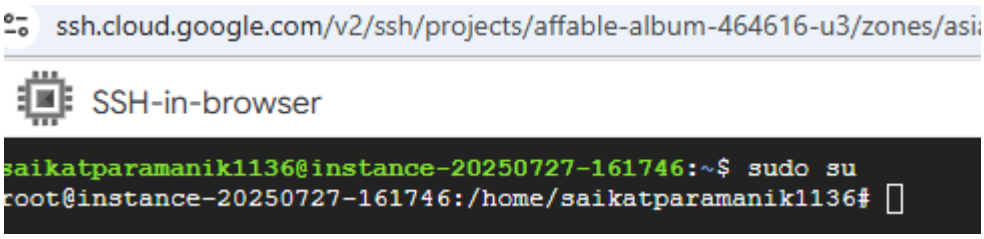


Step 7: Click on SSH to connect linux VM



Step 8: Go to superuser mode

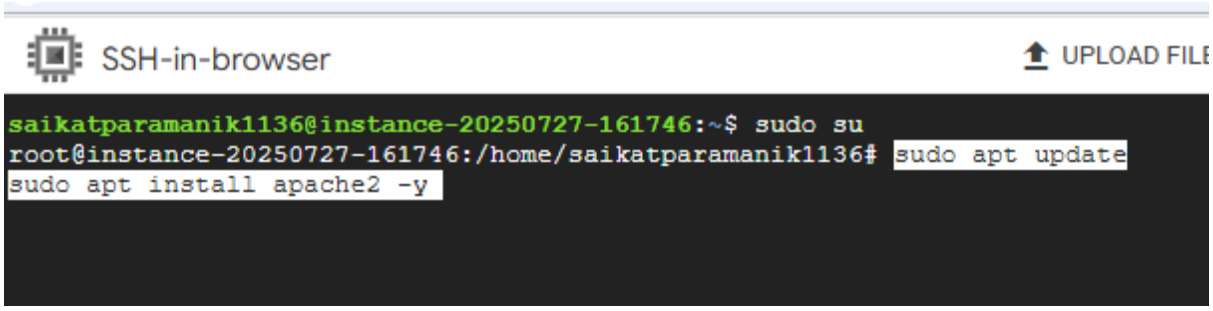
Command: sudo su



Step 9: Install Apache web server (PaaS)

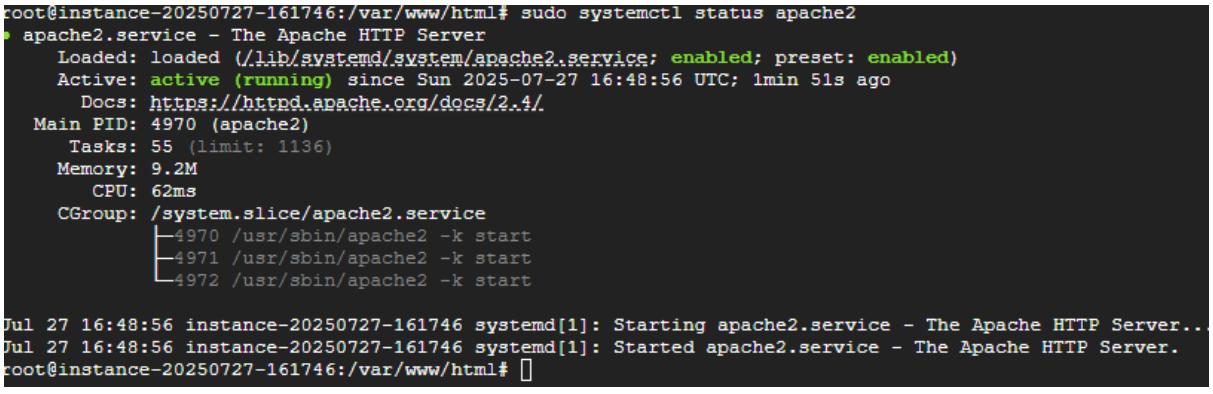
Command : sudo apt update

sudo apt install apache2 -y



Step 10: Make sure that apache is running

Command: sudo systemctl status apache2



Step 11: Copy external IP of the VM

VM instances

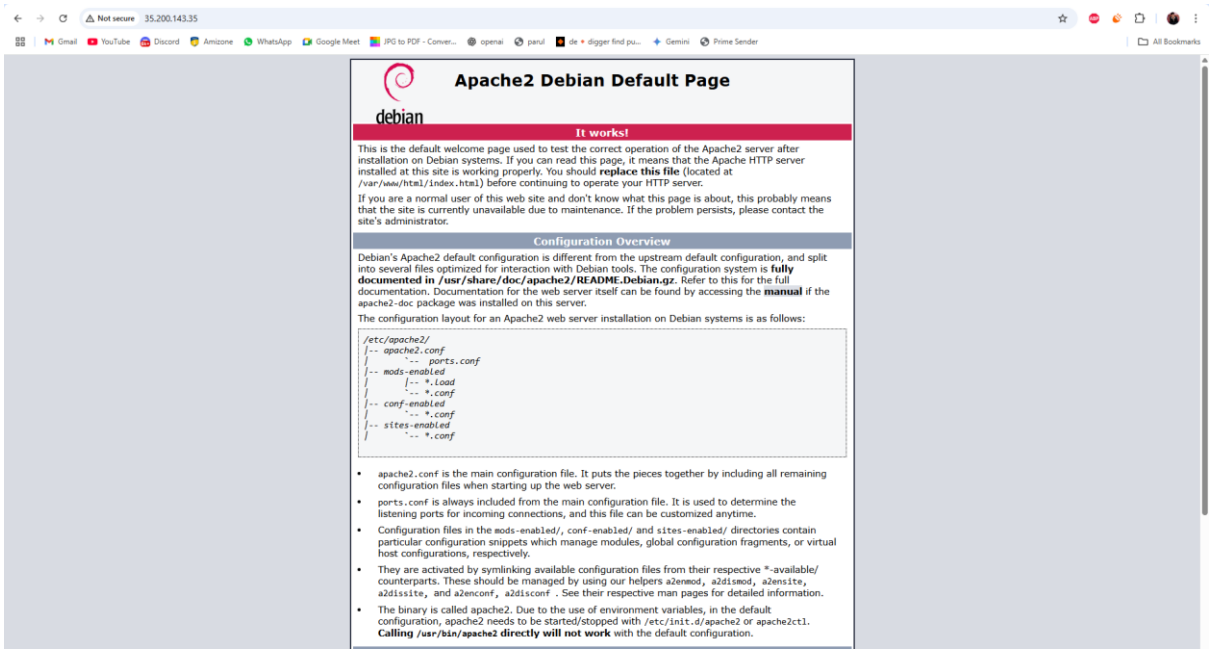
Filter Enter property name or value

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP
✓	instance-20250727-161746	asia-south1-c			10.160.0.3 (nic0)	35.200.143.35 (nic0)

Related actions

Step 12: Paste external IP on web - browser

Result:



Step 13: Use a Software Application (SaaS)

Open a SaaS Application

Example: Google Docs

Visit: https://docs.google.com

click Blank Document to create a new document.

You can also open:

- **Gmail → https://mail.google.com**
- **Google Drive → https://drive.google.com**
- **Google Meet → https://meet.google.com**