# Lab : Setting Up Azure and GitHub for AIOps Projects

## Objective

In this lab, you will prepare a foundational environment to support your AIOps development workflow. Specifically, you will:  
- Log in to Microsoft Azure using credentials provided by the trainer  
- Use Azure Cloud Shell (Bash) to provision:  
 - Resource Group  
 - Virtual Network and Subnet  
 - Public IP Address  
 - Azure Bastion Host  
 - Network Interface Card  
- Create a virtual machine  
- Access the VM using Azure Bastion  
- Install developer tools  
- Create a GitHub account and private repository  
- Clone the repository into the VM and push code

## Credentials

Use the Azure username and password provided by the trainer to log into the Azure portal.  
You will create your own GitHub account using a personal or institutional email address.

## Instructions

### Step 1: Open Azure Cloud Shell (Bash)

1. Go to https://portal.azure.com  
2. Sign in using the Azure credentials provided by the trainer.  
3. Click the Cloud Shell icon ( >\_ ) in the top menu.  
4. Select Bash when prompted.  
5. If this is your first time, create a storage account using default options.

### Step 2: Create a Virtual Network and Subnet

Command:

az network vnet create \

--resource-group aiops \

--name AIOps-VNet \

--location eastus \

--address-prefix 10.0.0.0/16 \

--subnet-name AIOps-Subnet \

--subnet-prefix 10.0.0.0/24

Explanation:

Creates a virtual network and subnet for the VM to communicate securely.

### Step 4: Create a dedicated subnet for Azure Bastion (must be named 'AzureBastionSubnet') Command:

az network vnet subnet create \

--resource-group aiops \

--vnet-name AIOps-VNet \

--name AzureBastionSubnet \

--address-prefix 10.0.1.0/27

### Step 5: Create a public IP address for the Bastion host

Command:

az network public-ip create \

--resource-group aiops \

--name AIOps-Bastion-PublicIP \

--sku Standard \

--location eastus

### Step 6: Create the Azure Bastion host

Command:

az network bastion create \

--resource-group aiops \

--name AIOps-BastionHost \

--location eastus \

--vnet-name AIOps-VNet \

--public-ip-address AIOps-Bastion-PublicIP

Explanation:

Creates the Azure Bastion host that allows browser-based access to your VM.

### Step 7: Create a NIC for the VM

Command:

az network nic create \

--resource-group aiops \

--name AIOps-NIC \

--location eastus \

--vnet-name AIOps-VNet \

--subnet AIOps-Subnet

### Step 8: Create the VM (password-based login)

Command:

az vm create \

--resource-group aiops \

--name aiops-dev-vm-1 \

--nics AIOps-NIC \

--location eastus \

--image Ubuntu2204 \

--admin-username azureuser \

--admin-password 'azureuser123!' \

--size Standard\_D2s\_v3 \

--no-wait

### Step 9: Enable Azure Bastion Access

Command:

No command required — done via Azure Portal

Explanation:

Once Bastion is provisioned, connect to the VM:  
- Go to Virtual Machines > aiops-dev-vm-<yourGitHubUsername>  
- Click 'Connect' > 'Bastion'  
- Enter credentials and use browser-based SSH

## Step 9: Install Developer Tools in the VM

### Update package list

Command:

sudo apt update

Explanation:

Refreshes the package index.

### Upgrade packages

Command:

sudo apt upgrade -y

Explanation:

Updates all existing packages.

### Install Git

Command:

sudo apt install git -y

Explanation:

Installs Git version control.

### Check Git version

Command:

git --version

Explanation:

Verifies Git installation.

### Install Python and tools

Command:

sudo apt install python3 python3-pip python3-venv -y

Explanation:

Installs Python and pip.

### Check versions

Command:

python3 --version  
pip3 --version

Explanation:

Verifies Python and pip.

### Install Docker

Command:

sudo apt install docker.io -y

Explanation:

Installs Docker runtime.

### Enable Docker

Command:

sudo systemctl start docker  
sudo systemctl enable docker

Explanation:

Starts and enables Docker service.

### Docker permissions

Command:

sudo usermod -aG docker azureuser

Explanation:

Allows running Docker without sudo.

## Step 10: Create Your GitHub Account and Repository

Go to https://github.com, sign up with your details, and verify your email address.

### Create a Private GitHub Repository

- Click the '+' icon > New repository  
- Repository name: aiops-lab-<yourGitHubUsername>  
- Description: Repository for AIOps Labs  
- Set to Private  
- Initialize with README and Python .gitignore  
- Click 'Create repository'

### Clone Repository into the VM

In your VM terminal:

cd ~  
git clone https://github.com/<yourGitHubUsername>/aiops-lab-<yourGitHubUsername>.git  
cd aiops-lab-<yourGitHubUsername>

### Add and Push a Test File

#### Create file

echo 'print("Hello from AIOps VM")' > hello.py

#### Add file

git add hello.py

#### Set identity

git config --global user.name "Your Name"  
git config --global user.email "you@example.com"

#### Commit file

git commit -m "Initial test file"

#### Push file

git push origin main

## Lab Completion Checklist

By completing this lab, you have:  
- Logged into Azure and launched Cloud Shell  
- Created all required infrastructure via CLI  
- Deployed a VM and connected via Bastion  
- Installed Git, Python, Docker  
- Created a GitHub account and repository  
- Cloned, modified, and pushed code to GitHub