🧪 Lab: Deploy Azure Virtual Machine Scale Set (VMSS)

📌 Lab Goal

Deploy a VMSS with:

- Ubuntu Linux VMs

- A custom startup script to install a web server (Apache)

- Azure Load Balancer

- Autoscale rules (based on CPU)

🧱 Part 1: Create a Virtual Machine Scale Set

1. Log in to the Azure Portal

Go to: https://portal.azure.com

2. Search and open "Virtual Machine Scale Sets"

- Click **"Create"** > **"Virtual machine scale set"**

3. Basics Tab

Field	Value
Subscription	Your active subscription
Resource Group	VMSSLabRG (or create a new one)
Name	MyVMSS
Region	Choose a region with Availability Zones (e.g., East US)

Orchestration Mode	**Uniform** (default)
Image	Ubuntu Server 20.04 LTS
Authentication Type	Password or SSH public key
Username	`azureuser`
Password / SSH Key	Provide credentials

4. Instances Tab

Field	Value
Initial instance count	2
Availability Zone	Zone redundant (recommended)
VM Size	Standard B1s (cost-effective)

5. Disks Tab

- Use the default OS disk settings.

6. Networking Tab

Field	Value
Virtual network	Create new or use existing
Public IP address	Enable
Load balancing	Select **"Azure Load Balancer"**
Inbound ports	Allow **HTTP (80)** and **SSH (22)**

7. Management Tab

- Enable **Boot diagnostics** (optional)

- Leave the rest as default

---

8. Health Monitoring (Optional)

- Can add a **health probe** for HTTP (port 80)

---

9. Scaling Tab

- Enable **Autoscaling**

- Configure like:

    - **Minimum:** 2 instances

    - **Maximum:** 5 instances

    - **CPU threshold:** 70% (scale out) and 30% (scale in)

---

10. Advanced Tab

- Go to **"Custom data"** (cloud-init script)

Paste the following to install a web server and a test page:

```
#!/bin/bash
sudo apt-get update
sudo apt-get install -y apache2
echo "<h1>Welcome to Azure VM Scale Set!</h1>" | sudo tee /var/www/html/index.html
sudo systemctl start apache2
sudo systemctl enable apache2
```

---

11. Review + Create

- Review all settings and click **"Create"**

- Deployment takes 3–5 minutes

🌐 Part 2: Test the Web App

1. Go to your VMSS Overview

- Copy the **Public IP** from the **Load Balancer**

2. Open a browser

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

You should see:
✅ `Welcome to Azure VM Scale Set!`

📈 Part 3: Trigger Autoscaling (Optional)

You can simulate CPU load to test scaling (on a VM instance):

sudo apt install stress -y
stress --cpu 1 --timeout 300

This should cause the scale set to spin up additional instances once CPU exceeds 70%.

🧹 Clean Up (To Avoid Charges)

Delete the **resource group**: VMSSLabRG

az group delete --name VMSSLabRG --yes --no-wait

-

✅ Lab Summary

Task	Done
Deploy VMSS	✅
Install web app via startup script	✅
Configure Load Balancer	✅
Setup autoscaling	✅
Access public site	✅