MINOR PROJECT REPORT

Infrastructure Deployment & Basic Logging on Microsoft Azure

Student Details

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- **Group Number**: G29

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1. Introduction

This Minor Project focuses on deploying a **small-scale enterprise cloud infrastructure** using **Microsoft Azure**.
The project simulates a real-world company environment where students act as the **Infrastructure Team**, responsible for deploying servers, networking, and logging mechanisms.

This phase intentionally avoids any form of **security hardening** so that vulnerabilities and misconfigurations can later be exploited and mitigated during the **Major Project phase**.

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2. Project Objective

The objective of this project is to:

- Design and deploy a **functional mini-company infrastructure** on Microsoft Azure
- Deploy **three Linux-based virtual machines** with defined enterprise roles
- Configure **basic logging mechanisms** only
- Enable **centralized log collection using SIEM**
- Prepare an **intentionally unsecured environment** for cyber-attacks and SOC analysis

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3. Resource Group Configuration

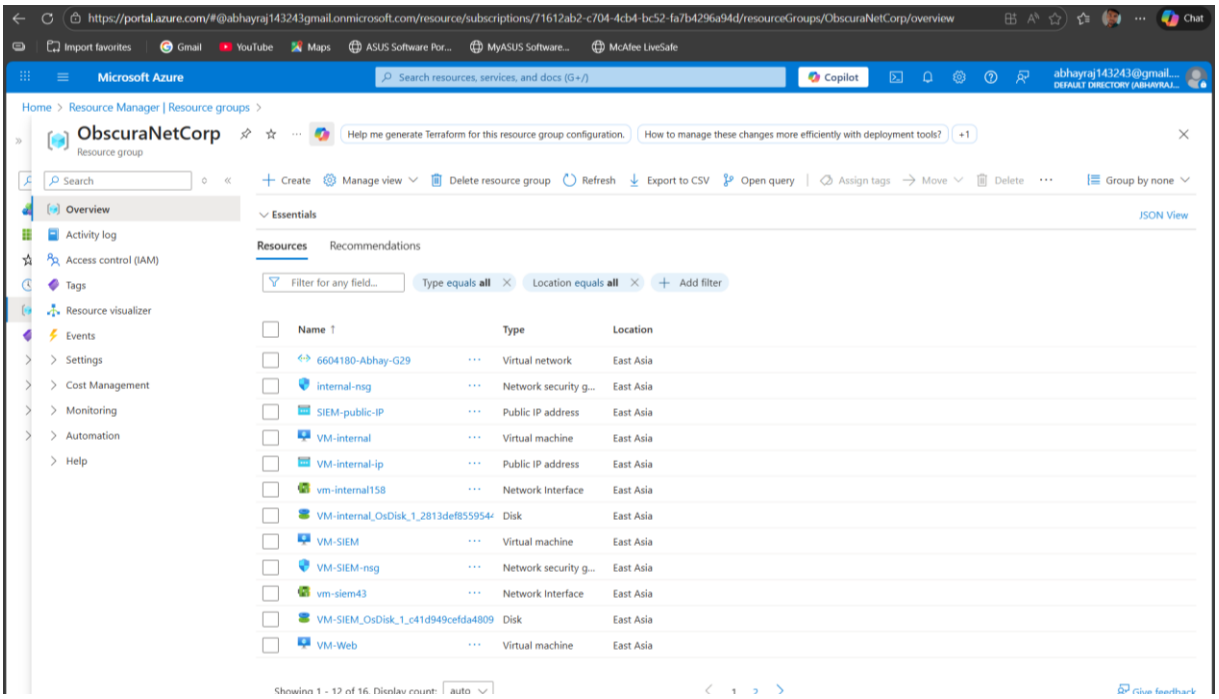
As per project compliance rules, **exactly one Azure Resource Group** was created.

- **Resource Group Name:** ObscuraNetCorp
- **Region:** Central India

All Azure resources including:

- Virtual Machines
- Virtual Network
- Subnets
- Network Security Groups
- Public IP addresses

were created **inside this Resource Group only.**



Azure Portal showing the Resource Group **ObscuraNetCorp** with student account name visible.

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4. Network Architecture Design

4.1 Virtual Network Creation

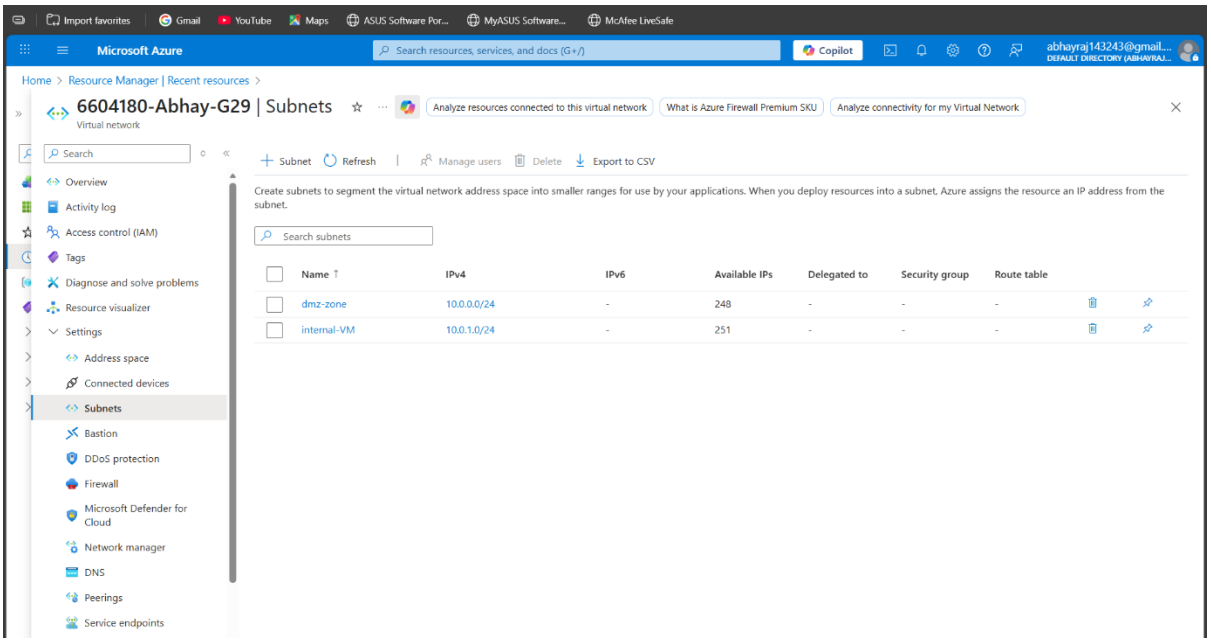
A Virtual Network was created to host the company infrastructure.

- **VNet Name:** obscura-Net-Corp-VNet
- **Address Space:** 10.0.0.0/16

4.2 Subnet Configuration

Two subnets were created to separate internal and external services.

Subnet Name	Address Range	Purpose
Inernal-Subnet	10.0.1.0/24	Internal services and SIEM
DMZ-Subnet	10.0.2.0/24	Public-facing web server



Virtual Network showing Internal and DMZ subnets under the Skygrid-Solutions resource group.

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5. Network Security Groups (Basic Configuration)

Basic Network Security Groups (NSGs) were created to allow required traffic **without any hardening**.

Internal Subnet NSG

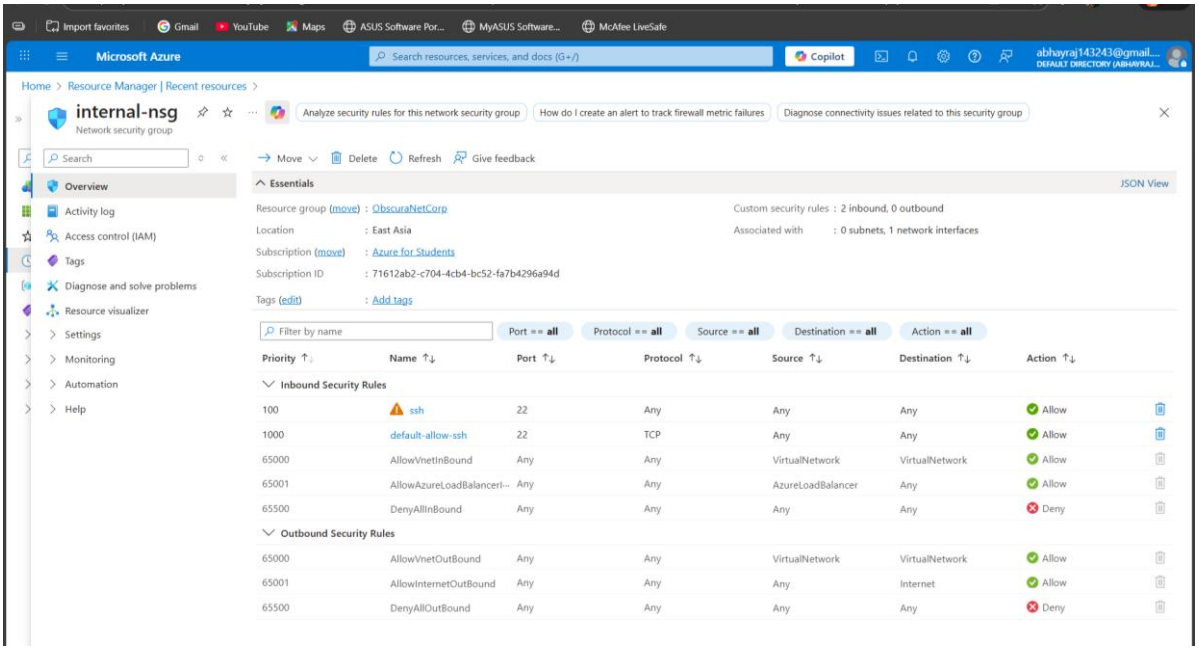
- SSH (Port 22) – Allowed from any source
- All outbound traffic – Allowed

DMZ Subnet NSG

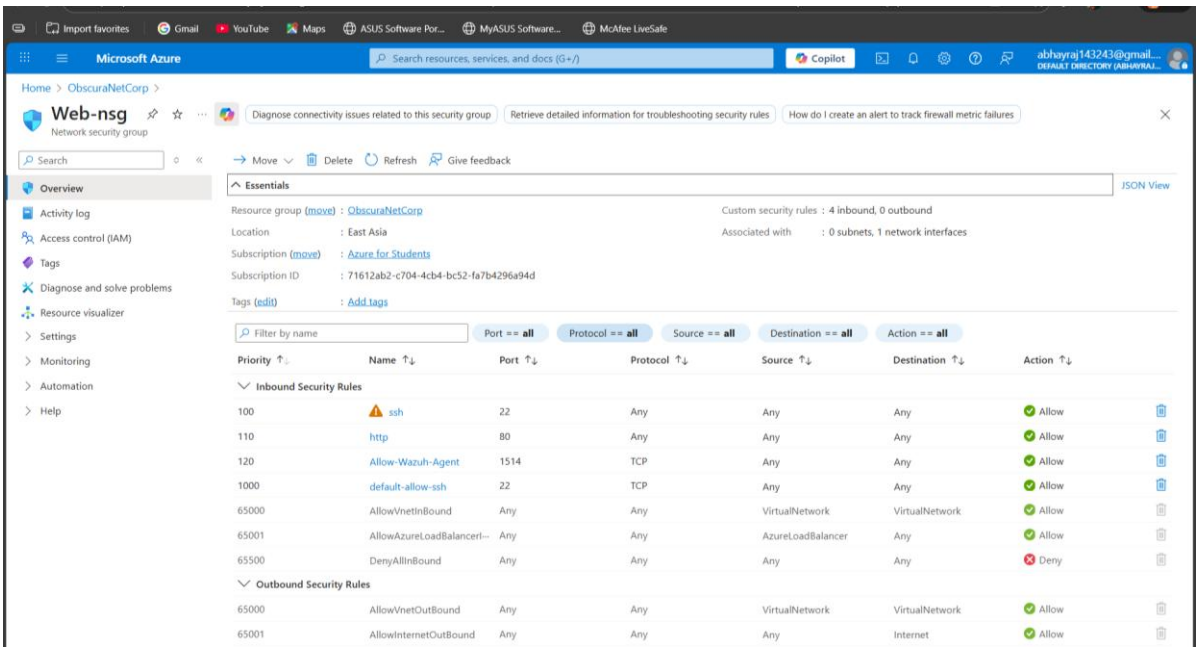
- SSH (Port 22) – Allowed
- HTTP (Port 80) – Allowed
- HTTPS (Port 443) – Allowed

- All outbound traffic – Allowed

No restrictive firewall rules were applied.



Internal-NSG showing unrestricted inbound and outbound access.



DMZ-NSG showing unrestricted inbound and outbound access.

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6. Virtual Machine Deployment

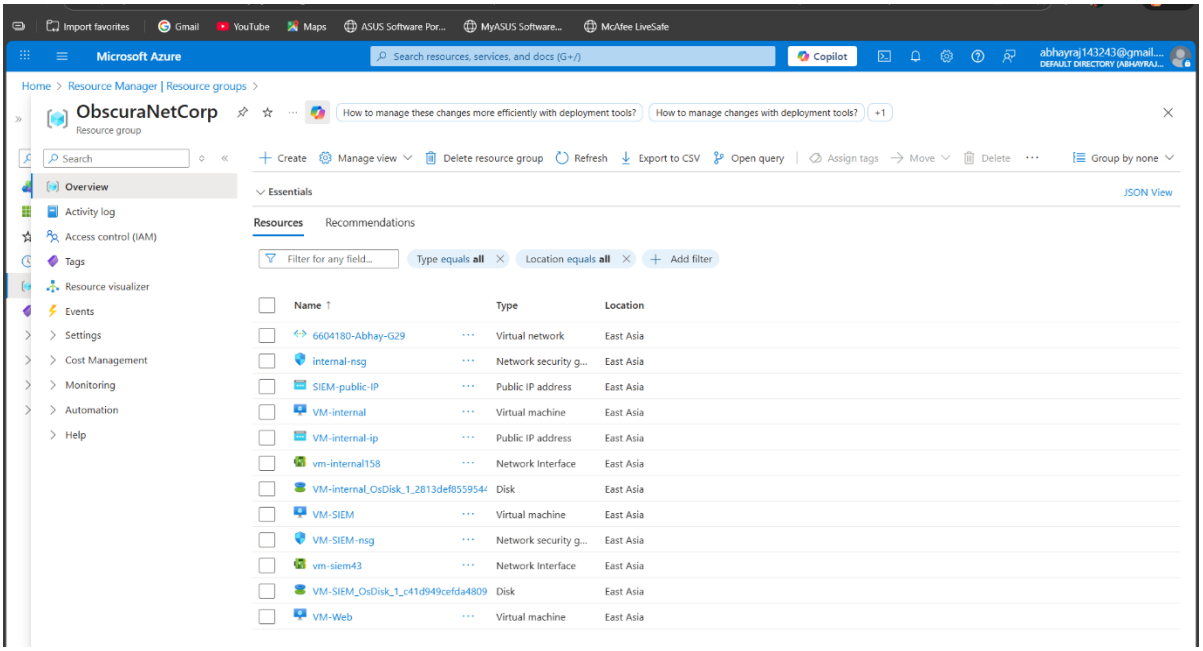
Exactly **three Linux virtual machines** were deployed as required.

6.1 Common VM Configuration

- Operating System: Ubuntu 22.04 LTS
- Authentication: Username and Password
- Public IP Address: Enabled
- Resource Group: ObscuraNetCorp

6.2 VM Inventory

VM Name	OS	Purpose	Private IP	Subnet	Size
VM-Internal-Server	Ubuntu	FreeIPA + File Server	10.0.1.x	Internal	B1s
VM-Web-Server	Ubuntu	Web Server	10.0.2.x	DMZ	B1s
VM-SIEM	Ubuntu	SIEM + Analyst	10.0.1.x	Internal	B2s



Azure Portal showing all three virtual machines deployed in the correct subnets.

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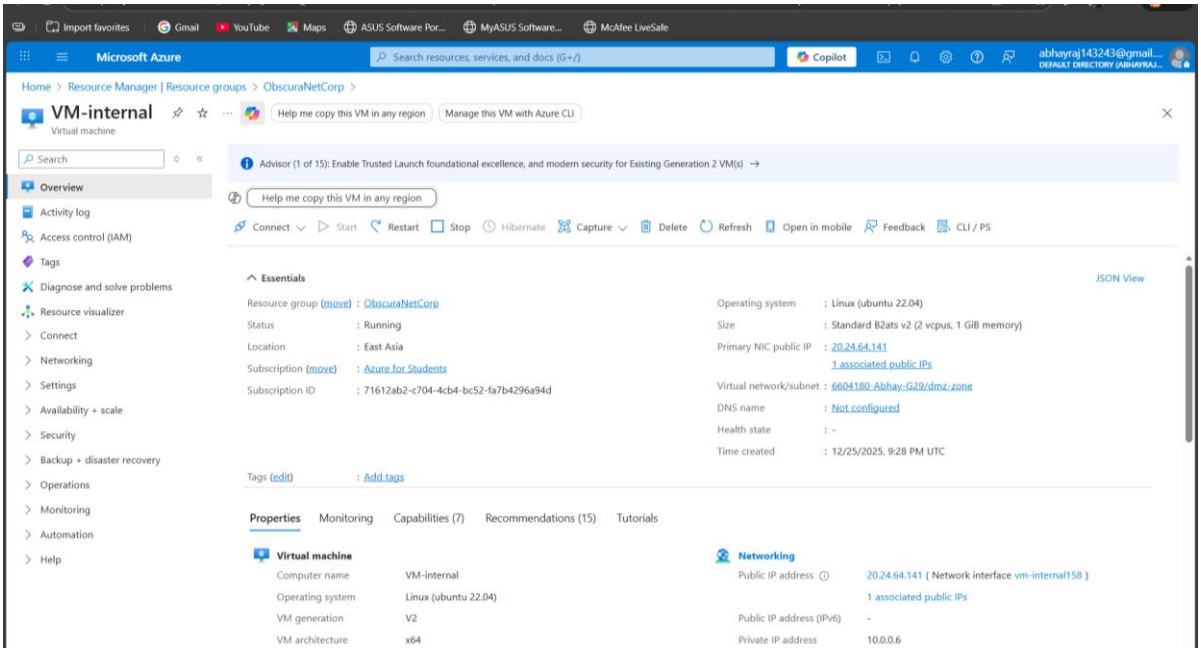
7. Server Roles and Configuration

7.1 VM 1 – Internal Server

Roles Implemented:

- FreeIPA (LDAP + Kerberos)
- Samba File Server
- Internal service hosting

This server simulates corporate **identity management and internal file services**.



7.2 VM 2 – Web Server (DMZ)

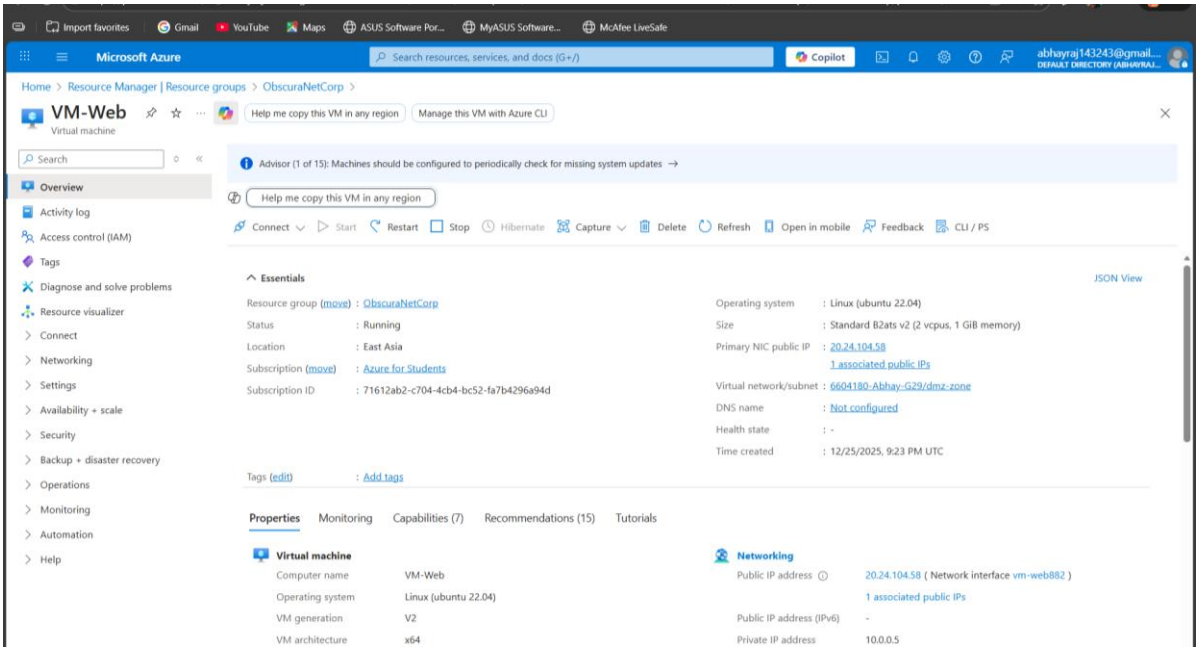
Roles Implemented:

- Apache Web Server
- Static web page hosting

The web server generates:

- Access logs
- Error logs

This server represents an **external-facing application server**.

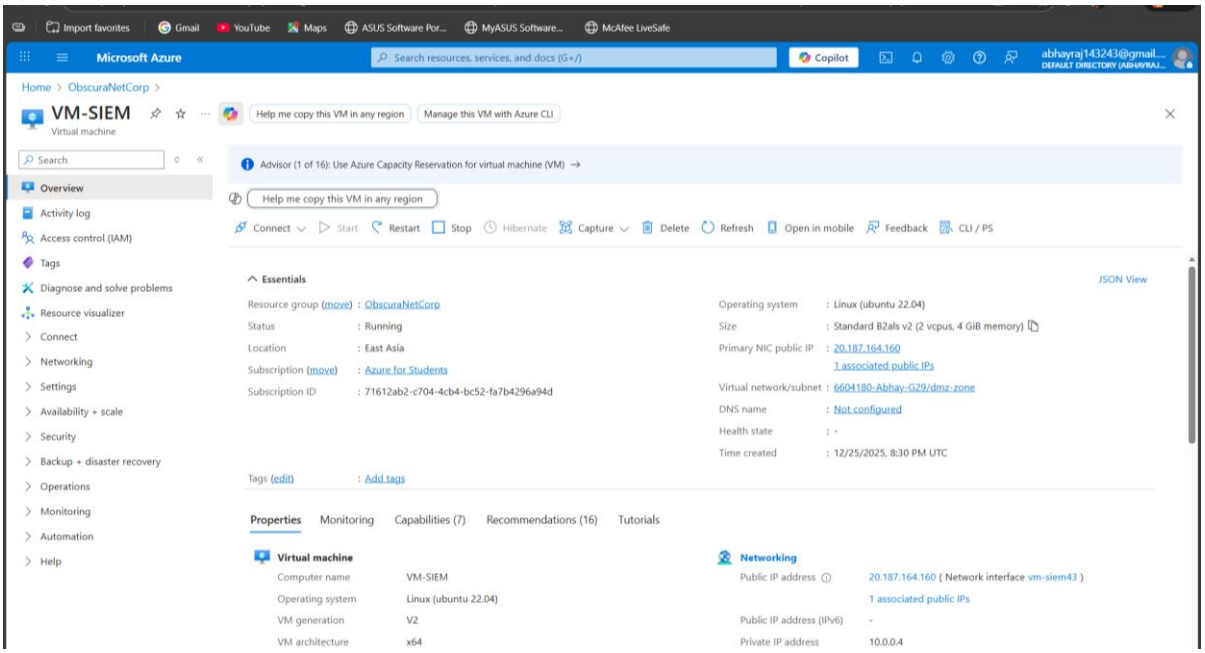


7.3 VM 3 – SIEM + Analyst Workstation

Roles Implemented:

- Wazuh SIEM
- Centralized log monitoring and analysis

This server acts as the **Security Operations Center (SOC)** workstation.



8. Conclusion

This Minor Project successfully demonstrates the deployment of a basic enterprise-style cloud infrastructure using Microsoft Azure. A structured virtual network was designed with separated Internal and DMZ subnets to simulate a real corporate environment. Three Linux-based virtual machines were deployed with clearly defined roles, including identity management, web hosting, and centralized monitoring.

Only basic logging and monitoring mechanisms were implemented, and no security hardening was applied intentionally. This created a vulnerable but realistic environment that is suitable for conducting cyber-attack simulations, SOC monitoring exercises, and defensive security testing in the Major Project phase.

- Cloud infrastructure deployment
- Linux server roles
- Network segmentation
- Centralized logging using SIEM

Declaration

I declare that this project has been completed by me using my Azure Student Account, and all screenshots submitted clearly show my name and resource group as required.