Task-1:Creating Two Resource groups using Azure CLI.

Solution: Command: az group create --name WEBRG. --location Eastus

```
mohammadsufiyan@MacBook-Air ~ % az group create --name WEBRG  --location eastus
{
  "id": "/subscriptions/6b05fa10-33a6-41a2-a3e2-4f930813f6ae/resourceGroups/WEBRG",
  "location": "eastus",
  "managedBy": null,
  "name": "WEBRG",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
[mohammadsufiyan@MacBook-Air ~ % az group create --name SCRG  --location Southcentralus
{
  "id": "/subscriptions/6b05fa10-33a6-41a2-a3e2-4f930813f6ae/resourceGroups/SCRG",
  "location": "southcentralus",
  "managedBy": null,
  "name": "SCRG",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
mohammadsufiyan@MacBook-Air ~ %
```

Task-2:- Creating two Virtual " WEBVNET & SCVNET " networks using Azure CLI:

Solution: Command: az network vnet create --name WEBVNET --resource-group WEBRG --subnet-name default

az network vnet create --name SCVNET —resource-group SCRG --subnet-name default

```
mohammadsufiyan@MacBook-Air ~ % az network vnet create --name WEBVNET --resource-group WEBRG --subnet-name default
```
```
{
  "newVNet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.0.0.0/16"
      ]
    },
    "bgpCommunities": null,
    "ddosProtectionPlan": null,
    "dhcpOptions": {
      "dnsServers": []
    },
    "enableDdosProtection": false,
    "enableVmProtection": null,
    "etag": "W/\"5cf038bc-148b-4b20-bb4e-9ed55b0dffd4\"",
    "extendedLocation": null,
    "flowTimeoutInMinutes": null,
    "id": "/subscriptions/6b05fa10-33a6-41a2-a3e2-4f930813f6ae/resourceGroups/WEBRG/providers/Microsoft.Network/virtualNetworks/WEBVNET",
    "ipAllocations": null,
    "location": "eastus",
    "name": "WEBVNET",
    "provisioningState": "Succeeded",
    "resourceGroup": "WEBRG",
    "resourceGuid": "95203650-3a85-4497-862e-8b5058fae99c",
    "subnets": [
      {
        "addressPrefix": "10.0.0.0/24",
        "addressPrefixes": null,
        "applicationGatewayIpConfigurations": null,
        "delegations": [],
        "etag": "W/\"5cf038bc-148b-4b20-bb4e-9ed55b0dffd4\"",
        "id": "/subscriptions/6b05fa10-33a6-41a2-a3e2-4f930813f6ae/resourceGroups/WEBRG/providers/Microsoft.Network/virtualNetworks/WEBVNET/subnets/default",
        "ipAllocations": null,
        "ipConfigurationProfiles": null,
        "ipConfigurations": null,
        "name": "default",
        "natGateway": null,
        "networkSecurityGroup": null,
        "privateEndpointNetworkPolicies": "Enabled",
        "privateEndpoints": null,
        "privateLinkServiceNetworkPolicies": "Enabled",
        "provisioningState": "Succeeded",
        "purpose": null,
        "resourceGroup": "WEBRG",
        "resourceNavigationLinks": null,
        "routeTable": null,
        "serviceAssociationLinks": null,
        "serviceEndpointPolicies": null,
        "serviceEndpoints": null,
        "type": "Microsoft.Network/virtualNetworks/subnets"
      }
    ],
    "tags": {},
    "type": "Microsoft.Network/virtualNetworks",
    "virtualNetworkPeerings": []
  }
}
```

Task-3: Creating two windows servers " VWEBV001 & VWEBV0002 " using Azure CLI and installed IIS in EastUS Region.

Solution: To create VM with Availibity Zone:

az vm create --resource-group WEBRG --name VWEBV001 --image win2016datacenter --admin-username WEBUSSER1 -- zone 2

To Open port 80:
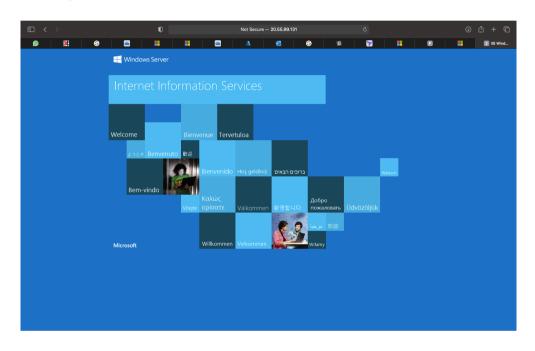
az vm open-port --port 80 --resource-group WEBRG --name VWEBV001

```
mohammadsufiyan@MacBook-Air ~ % az vm create --resource-group WEBRG --name VWEBV001 --image win2016datacenter   --admin-username  WEBUSSER1 --zone 2
Admin Password:
Confirm Admin Password:
{
  "fqdns": "",
  "id": "/subscriptions/6b05fa10-33a6-41a2-a3e2-4f930813f6ae/resourceGroups/WEBRG/providers/Microsoft.Compute/virtualMachines/VWEBV001",
  "location": "eastus",
  "macAddress": "00-0D-3A-9A-87-FB",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "20.55.99.131",
  "resourceGroup": "WEBRG",
  "zones": "2"
}
mohammadsufiyan@MacBook-Air ~ % az vm open-port --port 80 --resource-group WEBRG --name VWEBV001
{
  "defaultSecurityRules": [
    {
      "access": "Allow",
      "description": "Allow inbound traffic from all VMs in VNET",
      "destinationAddressPrefix": "VirtualNetwork",
      "destinationAddressPrefixes": [],
      "destinationApplicationSecurityGroups": null,
```

Installing IIS on the box:

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\WEBUSSER1> Install-WindowsFeature -name Web-Server -IncludeManagementTools

Success Restart Needed Exit Code     Feature Result
------- -------------- ---------     --------------
True    No             Success       {Common HTTP Features, Default Document, D...


PS C:\Users\WEBUSSER1> _
```
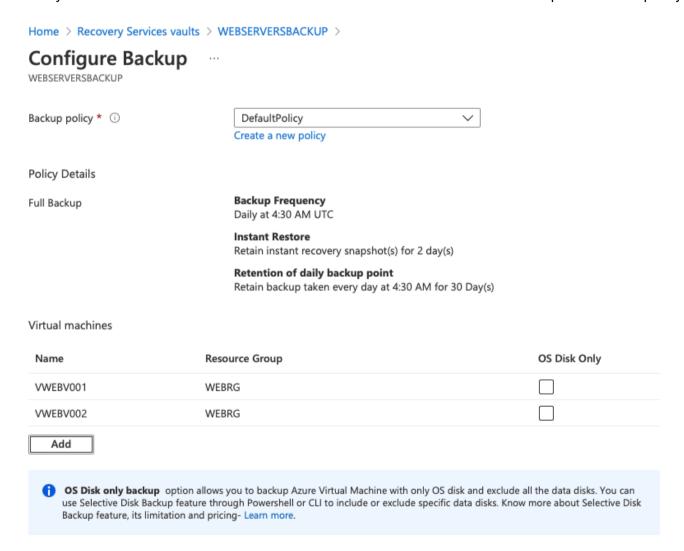
"Install-WindowsFeature -name Web-Server -IncludeManagementTools" from Powershell console on the box.

Similarly Created for other VM - VWEBV002 and also JUMP SERVER IN DIFFERENT REGION:
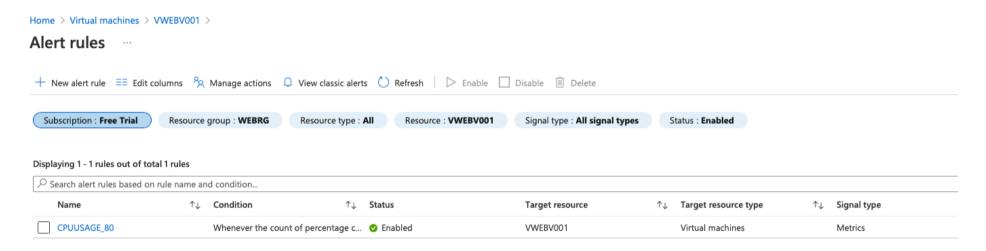
Task-4:Created Backup for WEBServers:

Solution: From recovery Services Vault I have created a vault and added two web servers to backup with default policy.

Configure Backup ...
WEBSERVERSBACKUP

Backup policy * ⓘ

DefaultPolicy ⌄

Create a new policy

Policy Details

Full Backup

Backup Frequency
Daily at 4:30 AM UTC

Instant Restore
Retain instant recovery snapshot(s) for 2 day(s)

Retention of daily backup point
Retain backup taken every day at 4:30 AM for 30 Day(s)

Virtual machines

Name	Resource Group	OS Disk Only
VWEBV001	WEBRG	☐
VWEBV002	WEBRG	☐

[Add]

ⓘ **OS Disk only backup** option allows you to backup Azure Virtual Machine with only OS disk and exclude all the data disks. You can use Selective Disk Backup feature through Powershell or CLI to include or exclude specific data disks. Know more about Selective Disk Backup feature, its limitation and pricing- Learn more.
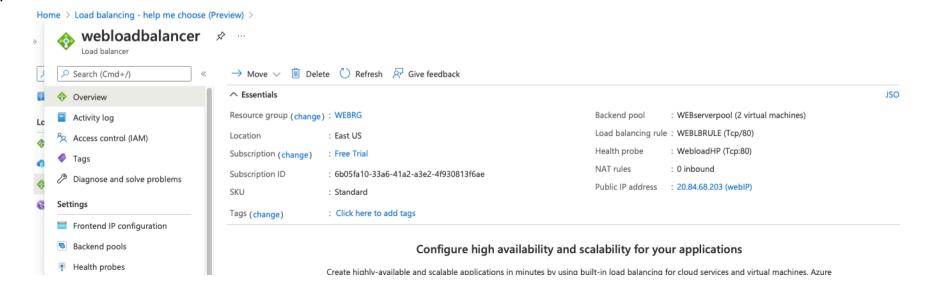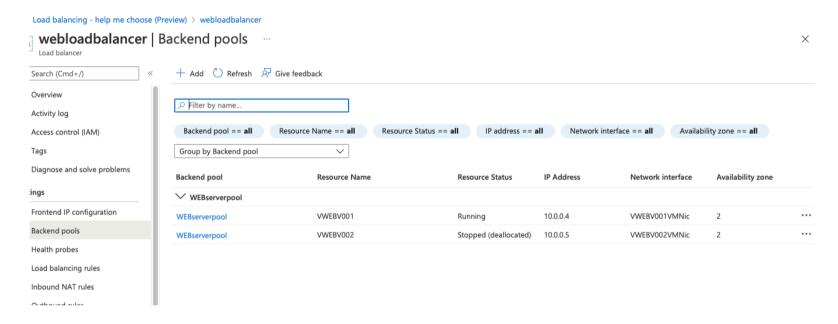
Task-5: Created CPU Usage Alert on two web servers:

Solution:

Task:6: Created Load Balancer for web servers:
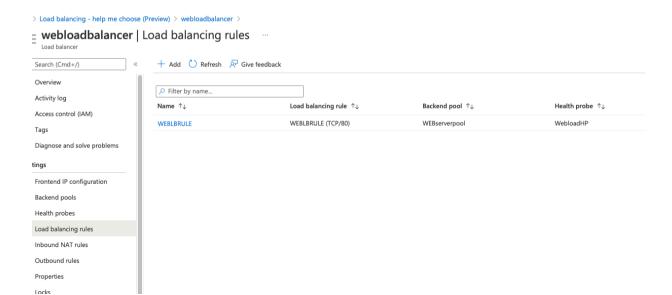
Solution:

Backend Pool:
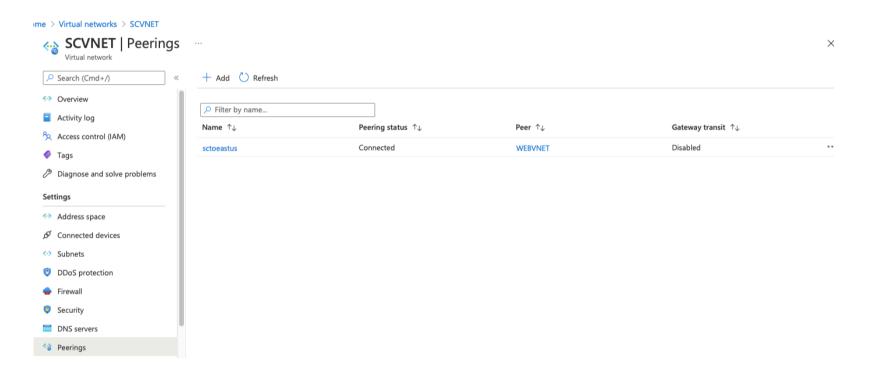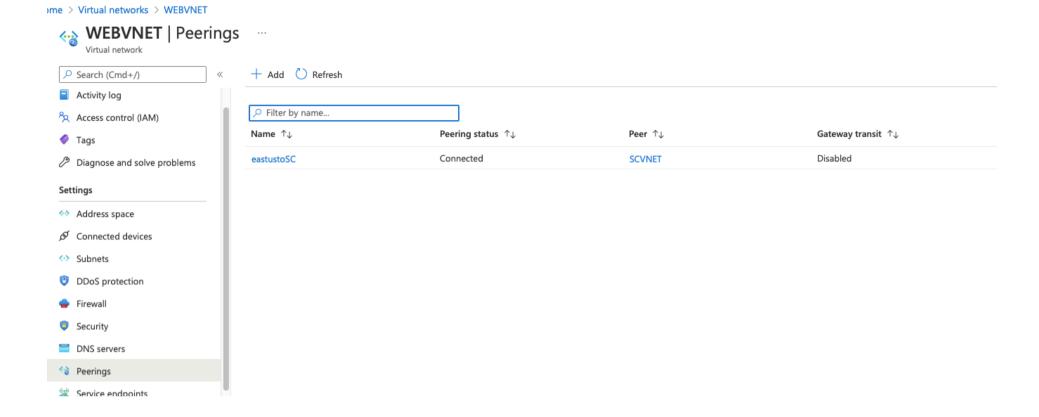

Loadbalancer rules:

Task-7: VNet peering to connect between two regions:

Solution: Created peering network between subnets of eastus and south central US:

WEBVNET | Peerings
Virtual network

🔍 Search (Cmd+/)

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Settings

- Address space
- Connected devices
- Subnets
- DDoS protection
- Firewall
- Security
- DNS servers
- Peerings
- Service endpoints

Name ↑↓	Peering status ↑↓	Peer ↑↓	Gateway transit ↑↓
eastustoSC	Connected	SCVNET	Disabled

Filter by name...

For Jump server to communicate:

> Virtual networks > jumpRG-vnet

jumpRG-vnet | Peerings
Virtual network

+ Add   ↻ Refresh

Search (Cmd+/)

- DNS servers
- Peerings
- Service endpoints
- Private endpoints
- Properties
- Locks

Monitoring

- Alerts

Filter by name...

Name ↑↓	Peering status ↑↓	Peer ↑↓	Gateway transit ↑↓
JumpTOEASTUS	Connected	WEBVNET	Disabled
JUMPTOSC	Connected	SCVNET	Disabled

Task-8: Created Storage account in zone -redundant storage for residency in case of data centre failure
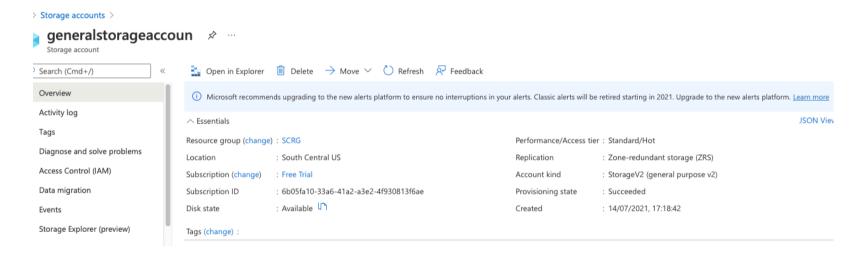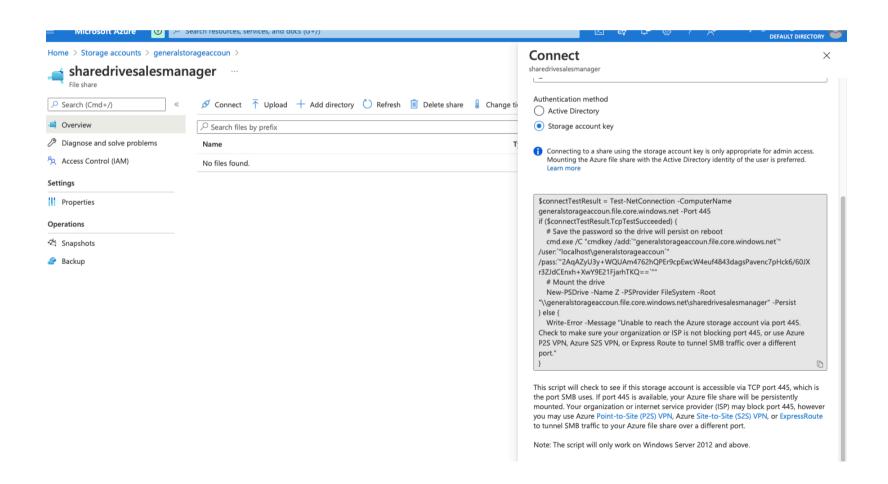
Solution:

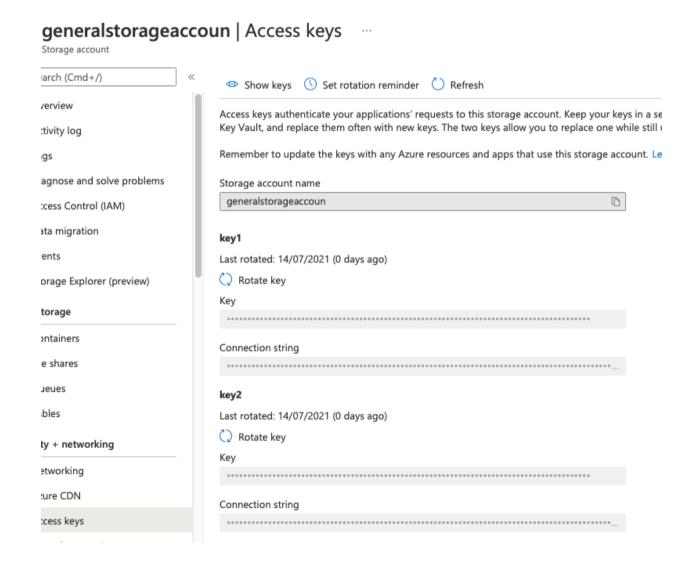Task-9: Created a fileshare for salesmanager to access files:

Solution:

We can mount the drive in respective system , using the commands below:

Task 10: The storage should be accessible by applications with secure access. provide access urls and keys

Solution: After creating storage account , we can share access keys with whichever application has to read data .

2.If we need to share any particular file , then URL from properties will work.

generalstorageaccoun | Access keys
Storage account

arch (Cmd+/)	«

/erview

ctivity log

igs

agnose and solve problems

ccess Control (IAM)

ata migration

ents

orage Explorer (preview)

torage

ontainers

e shares

queues

bles

ty + networking

etworking

ure CDN

ccess keys

👁 Show keys   🕐 Set rotation reminder   🔄 Refresh

Access keys authenticate your applications' requests to this storage account. Keep your keys in a se
Key Vault, and replace them often with new keys. The two keys allow you to replace one while still u

Remember to update the keys with any Azure resources and apps that use this storage account. Le

Storage account name

generalstorageaccoun	📋

key1

Last rotated: 14/07/2021 (0 days ago)

🔄 Rotate key

Key

••

Connection string

•••...

key2

Last rotated: 14/07/2021 (0 days ago)

🔄 Rotate key

Key

••

Connection string

•••...

Task-11: Created two Users Backup_Admin and Vmadmin:

Solution: Created. Users in AD and roles at subscription level for VM admin and RG level for backup admin to meet the condition.