

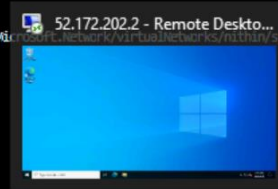
3) Create a windows vm using CLI.

account list and resource group creation

```
nithin [ ~ ]$ az account list
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "c7a81446-f2d1-4a4a-ae18-9c83d8f1ee33",
    "id": "9492d944-6c8c-4990-bb4e-f700ea5a2147",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Azure Pass - Sponsorship",
    "state": "Enabled",
    "tenantId": "c7a81446-f2d1-4a4a-ae18-9c83d8f1ee33",
    "user": {
      "cloudShellID": true,
      "name": "live.com\\nithin.namburi10703@outlook.com",
      "type": "user"
    }
  }
]
nithin [ ~ ]$ az group create --name nithin --location centralindia
{
  "id": "/subscriptions/9492d944-6c8c-4990-bb4e-f700ea5a2147/resourceGroups/nithin",
  "location": "centralindia",
  "managedBy": null,
  "name": "nithin",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
nithin [ ~ ]$ az network vnet create --resource-group training --name training --subnet-name trainingsubnet
```

Creating subnet

```
nithin [ ~ ]$ az network vnet create --resource-group nithin --name nithin --subnet-name nithinsubnet
{
  "newVnet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.0.0.0/16"
      ]
    },
    "enableDdosProtection": false,
    "etag": "W/\"fe5b85b5-d8b3-4432-a716-c7d459bf3ce\"\"",
    "id": "/subscriptions/9492d944-6c8c-4990-bb4e-f700ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/virtualNetworks/nithin",
    "location": "centralindia",
    "name": "nithin",
    "provisioningState": "Succeeded",
    "resourceGroup": "nithin",
    "resourceGuid": "946661a3-9cb2-4d87-a527-3efd6f04f457",
    "subnets": [
      {
        "addressPrefix": "10.0.0.0/24",
        "delegations": [],
        "etag": "W/\"fe5b85b5-d8b3-4432-a716-c7d459bf3ce\"\"",
        "id": "/subscriptions/9492d944-6c8c-4990-bb4e-f700ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/virtualNetworks/nithin/subnets/nithinsubnet",
        "name": "nithinsubnet",
        "privateEndpointNetworkPolicies": "Disabled",
        "privateLinkServiceNetworkPolicies": "Enabled",
        "provisioningState": "Succeeded",
        "resourceGroup": "nithin",
        "type": "Microsoft.Network/virtualNetworks/subnets"
      }
    ]
  },
}
```



Creating Public IP for the VM

```
nithin [ ~ ]$ az network public-ip create --resource-group nithin --name nithinpublicip
[coming breaking change] In the coming release, the default behavior will be changed as follows when sku is Standard and zone is not provided: For zonal regions, you will get a non zone-redundant IP indicated by zones:null.
{
  "publicIp": {
    "ddosSettings": {
      "protectionMode": "VirtualNetworkInherited"
    },
    "etag": "W/\"ea3329d4-81a7-4796-8d6d-9cde28ecb9ce\"",
    "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f700ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/publicIPAddresses/nithinpublicip",
    "idleTimeoutInMinutes": 4,
    "ipAddress": "52.172.282.2",
    "ipTags": [],
    "location": "centralindia",
    "name": "nithinpublicip",
    "provisioningState": "Succeeded",
    "publicIpAddressVersion": "IPv4",
    "publicIpAllocationMethod": "Static",
    "resourceGroup": "nithin",
    "resourceId": "99144028-2fa9-414d-b5cc-d973ae0cc377",
    "sku": {
      "name": "Standard",
      "tier": "Regional"
    },
    "type": "Microsoft.Network/publicIPAddresses"
  }
}
nithin [ ~ ]$ az network nsg create --resource-group nithin --name nithinsecuritygroup
{
  "NewNSG": {
    "defaultSecurityRules": [
      {
        "access": "Allow",
        "description": "Allow inbound traffic from all VMs in VNET",
        "destinationAddressPrefix": "VirtualNetwork",

```

Creating the network security group

```
nithin [ ~ ]$ az network nsg create --resource-group nithin --name nithinsecuritygroup
{
  "NewNSG": {
    "defaultSecurityRules": [
      {
        "access": "Allow",
        "description": "Allow inbound traffic from all VMs in VNET",
        "destinationAddressPrefix": "VirtualNetwork",
        "destinationAddressPrefixes": [],
        "destinationPortRanges": "*",
        "destinationPortRanges": [],
        "direction": "Inbound",
        "etag": "W/\"a953aca5-b8d8-4eda-b288-8ab0fcc211f9\"",
        "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f700ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/networkSecurityGroups/nithinsecuritygroup/defaultSecurityRules/AllowVnetInbound",
        "name": "AllowVnetInbound",
        "priority": 65000,
        "protocol": "*",
        "provisioningState": "Succeeded",
        "resourceGroup": "nithin",
        "sourceAddressPrefix": "VirtualNetwork",
        "sourceAddressPrefixes": [],
        "sourcePortRanges": "*",
        "sourcePortRanges": [],
        "type": "Microsoft.Network/networkSecurityGroups/defaultSecurityRules"
      },
      {
        "access": "Allow",
        "description": "Allow inbound traffic from azure load balancer",

```

Creating the Nic card

```
nithin [ ~ ]$ az network nic create --resource-group nithin --name nithinnic --vnet-name nithin --subnet nithinsubnet --network-security-group nithinsecuritygroup --public-ip-address nithinpublicip
{
  "NewNIC": {
    "auxiliaryMode": "None",
    "auxiliarySKU": "None",
    "disableTcpStateTracking": false,
    "dnsSettings": {
      "appliedDnsServers": [],
      "dnsServers": [],
      "internalDomainNameSuffix": "unqwnffstsdutjjh14w8thukh.rx.internal.cloudapp.net"
    },
    "enableAcceleratedNetworking": false,
    "enableIPForwarding": false,
    "etag": "W/\"95549d81-1118-4fd8-a5c7-bb57673485b2\"",
    "hostedWorkloads": [],
    "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f708ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/networkInterfaces/nithinnic",
    "ipConfigurations": [
      {
        "etag": "W/\"95549d81-1118-4fd8-a5c7-bb57673485b2\"",
        "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f708ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/networkInterfaces/nithinnic/ipConfigurations/ipconfig1",
        "name": "ipconfig1",
        "primary": true,
        "privateIpAddress": "10.0.0.4",
        "privateIpAddressVersion": "IPv4",
        "privateIPAllocationMethod": "Dynamic",
        "provisioningState": "Succeeded",
        "publicIpAddress": {
          "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f708ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/publicIPAddresses/nithinpublicip",
          "resourceGroup": "nithin"
        }
      }
    ]
  }
}
```

VM creation

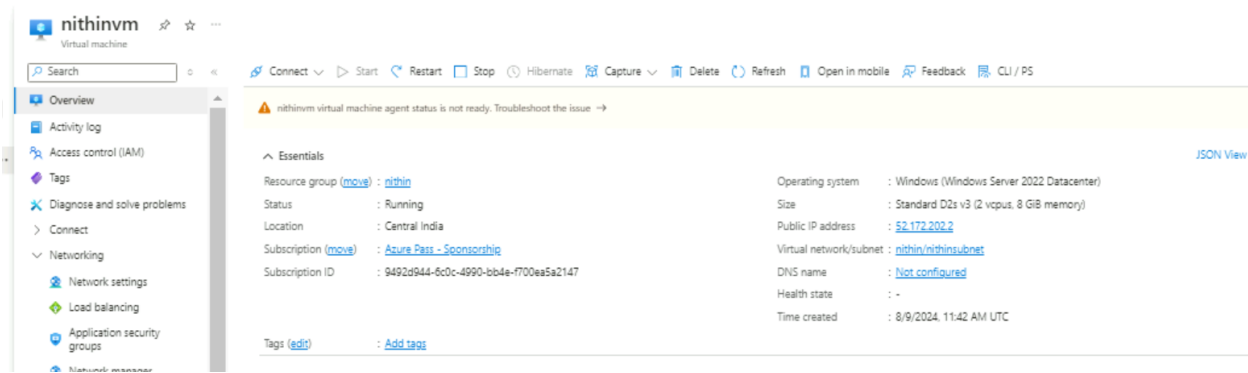
```
nithin [ ~ ]$ az vm create --resource-group nithin --name nithinvm --nics nithinnic --image win2022datacenter --size Standard_D2s_v3 --admin-username nithinvm
Admin Password:
Confirm Admin Password:
{
  "fqdns": "",
  "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f708ea5a2147/resourceGroups/nithin/providers/Microsoft.Compute/virtualMachines/nithinvm",
  "location": "centralindia",
  "macAddress": "7C-1E-52-3C-10-D2",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "52.172.282.2",
  "resourceGroup": "nithin",
  "zones": ""
}
```

Opening the port for connecting the virtual machine

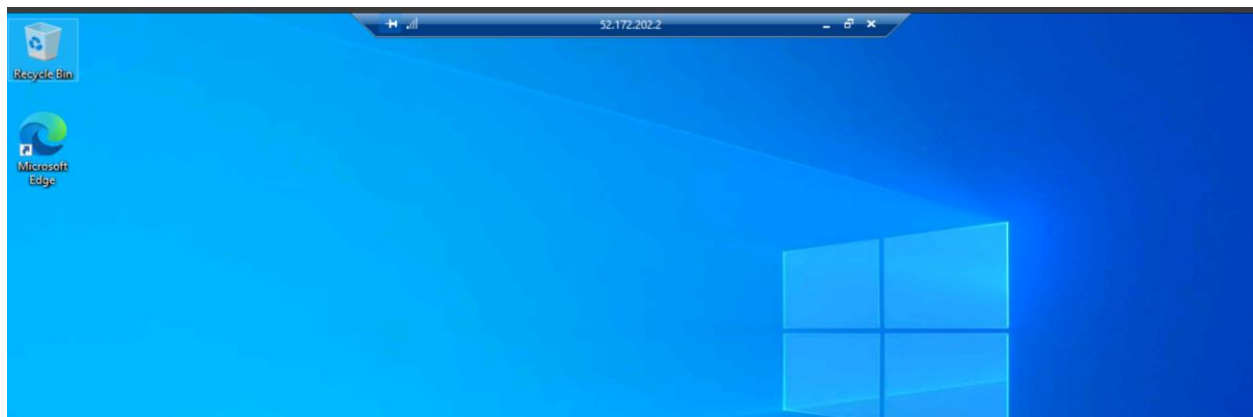
```
nithin [ ~ ]$ az vm open-port --port 3389 --resource-group nithin --name nithinvm
{
  "defaultSecurityRules": [
    {
      "access": "Allow",
      "description": "Allow inbound traffic from all VMs in VNET",
      "destinationAddressPrefix": "VirtualNetwork",
      "destinationAddressPrefixes": [],
      "destinationPortRange": "*",
      "destinationPortRanges": [],
      "direction": "Inbound",
      "etag": "W/\"b6aadd52-6240-477a-b124-bb5b83c8d97e\"",
      "id": "/subscriptions/9492d944-6c8c-4998-bb4e-f708ea5a2147/resourceGroups/nithin/providers/Microsoft.Network/networkSecurityGroups/nithinsecuritygroup/defaultSecurityRules/AllowVnetInbound",
      "name": "AllowVnetInbound",
      "priority": 65000,
      "protocol": "*",
      "provisioningState": "Succeeded",
      "resourceGroup": "nithin",
      "sourceAddressPrefix": "VirtualNetwork",
      "sourceAddressPrefixes": [],
      "sourcePortRange": "*",
      "sourcePortRanges": [],
      "type": "Microsoft.Network/networkSecurityGroups/defaultSecurityRules"
    }
  ],
  {

```

Overview of the VM created in the Azure

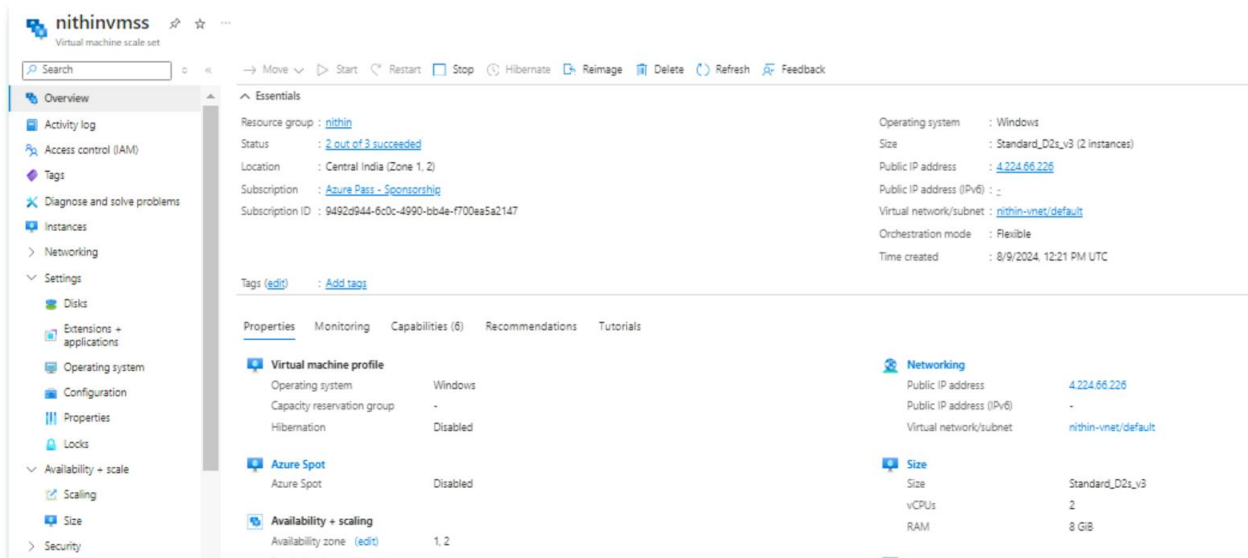


Created Virtual desktop Interface

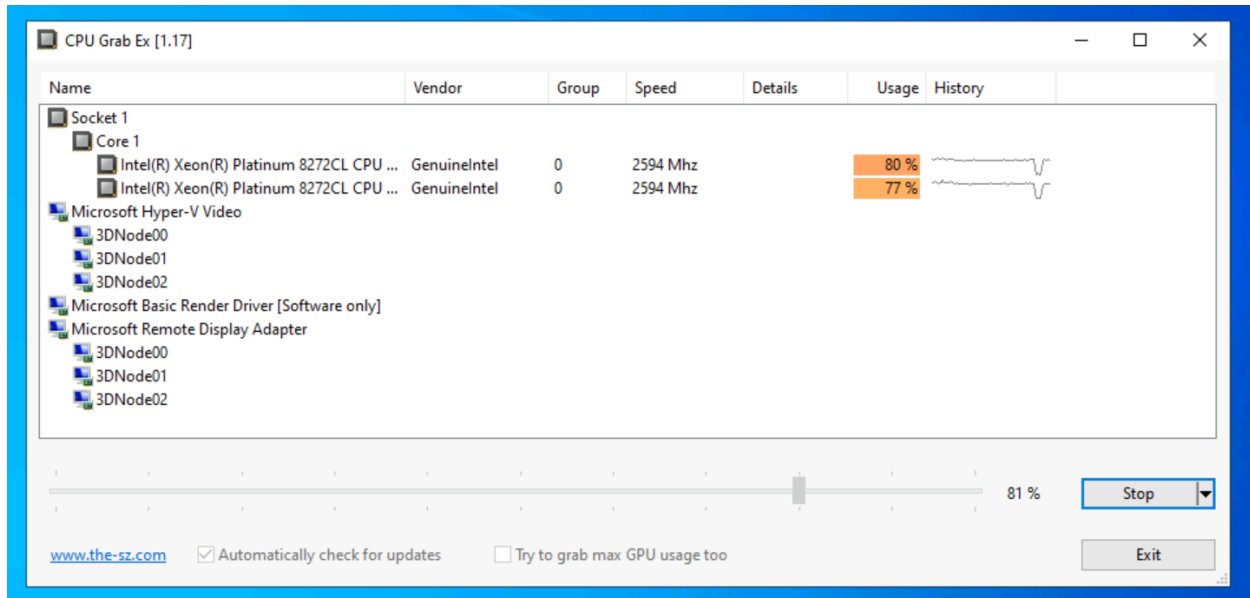


4) Create a VM scale set for window OS where average CPU utilization is > 50 regarding that its should scale up and scale down.

i) First we have to create a VMSS to scale the VM based on the CPU load.



ii)we increased the load of CPU using an app.



iii)Because the CPU load is more than 50% , so it is creating a instance to balance the load.

The screenshot shows the Azure portal interface with a table of VM instances. The table has columns: Name, Computer name, Status, Type, and Provisioning state. Two instances are listed: 'nithinvmss_a2873651' with status 'Running' and 'nithinvmss_497a73ca' with status 'Creating'.

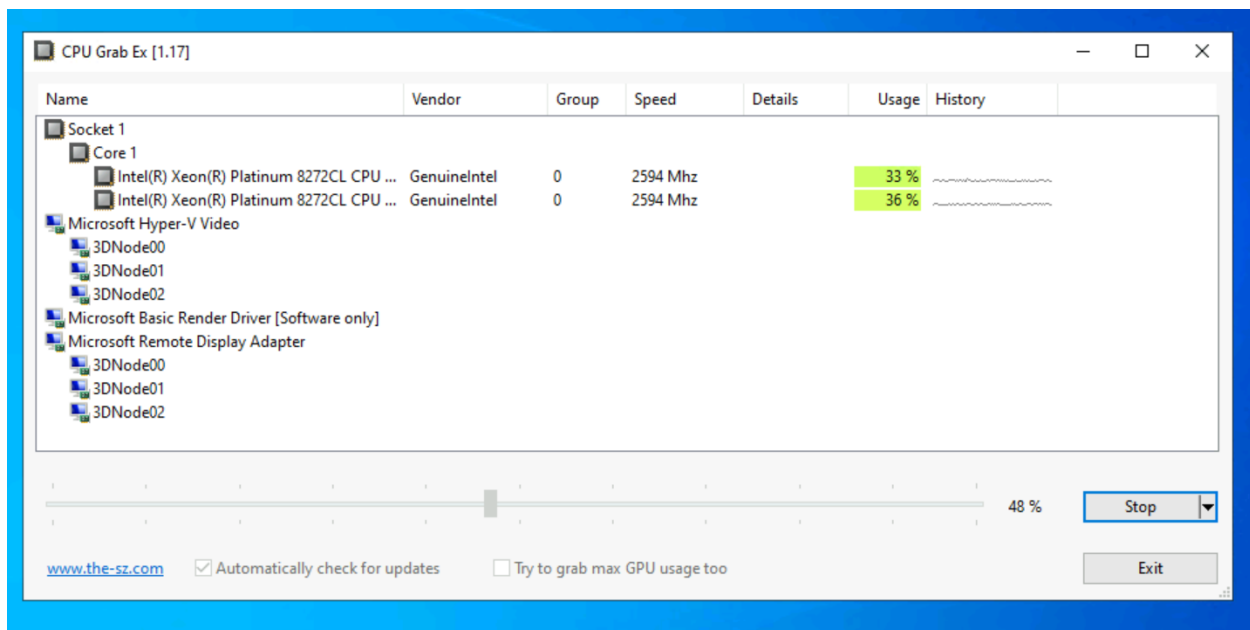
Name	Computer name	Status	Type	Provisioning state
nithinvmss_a2873651	nithinvm86DW33	Running	VM	Succeeded
nithinvmss_497a73ca		Creating	VM	Creating

iv)creation of new instance is completed.

The screenshot shows the Azure portal interface with a table of VM instances. The table has columns: Name, Computer name, Status, Type, and Provisioning state. Two instances are listed: 'nithinvmss_a2873651' with status 'Running' and 'nithinvmss_497a73ca' with status 'Running'.

Name	Computer name	Status	Type	Provisioning state
nithinvmss_a2873651	nithinvm86DW33	Running	VM	Succeeded
nithinvmss_497a73ca	nithinvm22Z4MU	Running	VM	Succeeded

v)we reduce the load of the CPU to less than 50%, for checking the lower loads



vi)It is creating the new instance for the reduced load.

The screenshot shows the AWS Management Console 'Instances' page for the account 'nithinvmss'. The page displays a table of virtual machine instances. The table has columns: Name, Computer name, Status, Type, and Provisioning state. Two instances are listed: 'nithinvmss_a2873651' with status 'Running' and 'nithinvmss_f2f22da4' with status 'Creating'. The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and a list of instance-related settings.

Name	Computer name	Status	Type	Provisioning state
nithinvmss_a2873651	nithinvmss86DW33	Running	VM	Succeeded
nithinvmss_f2f22da4		Creating	VM	Creating

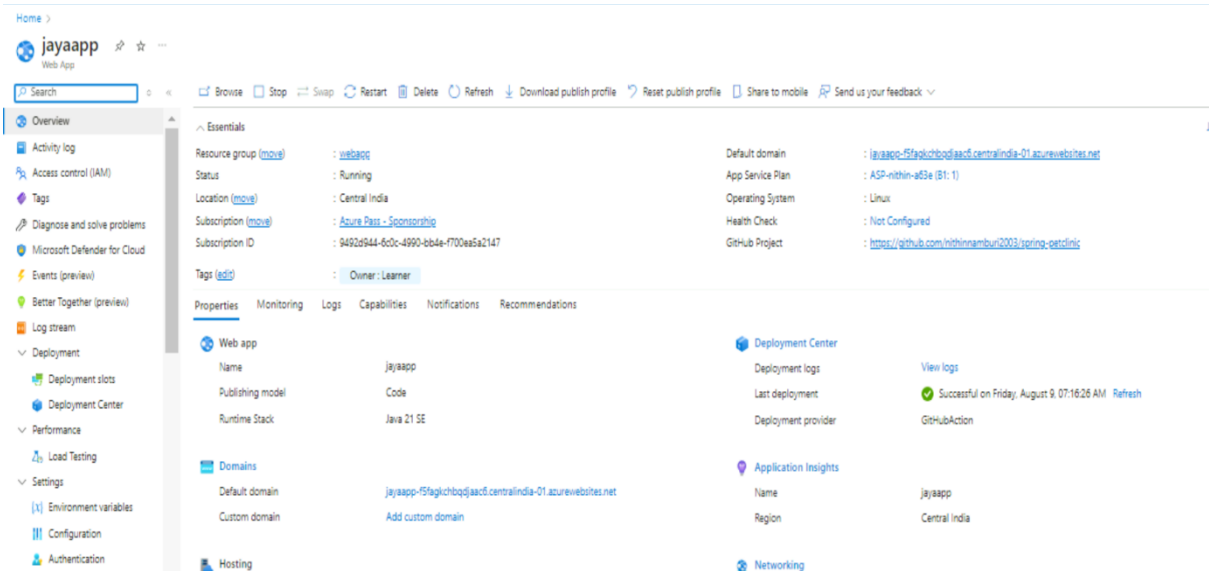
vii)New Instance was created for the decreased load of CPU.

This screenshot is a closer view of the 'Instances' table from the previous screenshot. It shows the same two instances: 'nithinvmss_a2873651' and 'nithinvmss_f2f22da4'. Both instances now have a status of 'Running' and a green checkmark icon, indicating they are both active.

Name	Computer name	Status
nithinvmss_a2873651	nithinvmss86DW33	Running
nithinvmss_f2f22da4	nithinvmss3ME4WS	Running

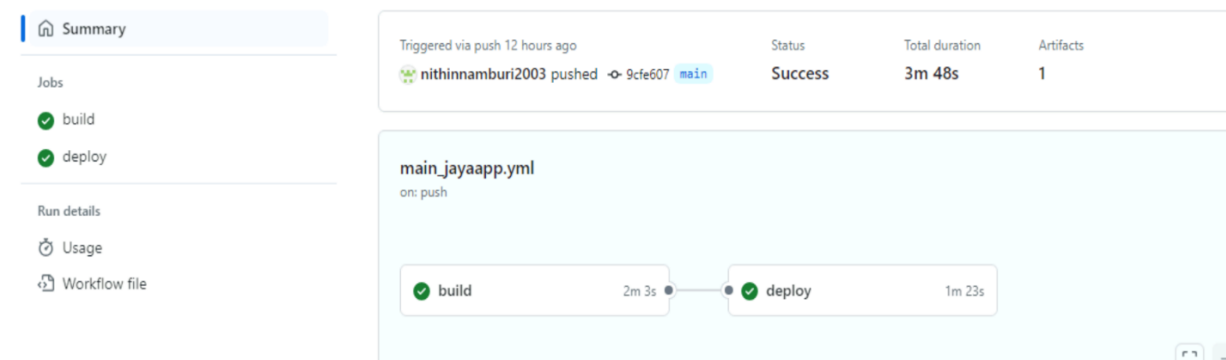
5) Deploy the spring pet clinic on azure app services.

i)Deploying the web app for the spring pet clinic with the name called Jayaapp.

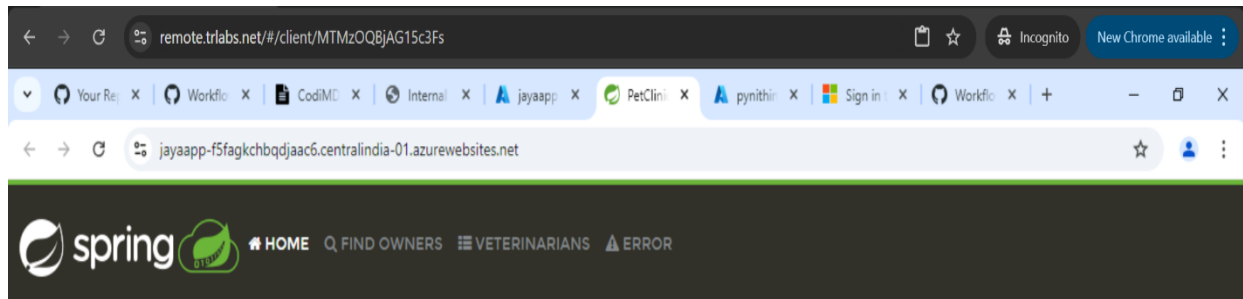


ii)first we have to fork the respective spring pet clinic repository to our github repository and while deploying the web app we have to link our repository in web app deployment part.

iii)After that, we have to deploy the web app services and after the completion of deployment we have to check the actions in github to check whether the service is successfully deployed or not.



iv) Click the browse option available in the Azure app services to check the web app launched successfully or not.



Welcome

