



Microsoft Azure Mini Project

Project Overview

- Project Name: Azure Pipelines Kubernetes Deployments .
- Group Members: Praful Bhalerao. Yash Chari. Chandru Shankar
- Date: 09/11/2023

Prerequisites :

- An Azure account with an active subscription. [Create an account for free.](#)
- An Azure DevOps organization. [Create an account for free.](#)

Services Used :

- Azure Resource Group
- Azure Container Registry
- Azure Kubernetes Cluster

Youtube Video ---- <https://www.youtube.com/watch?v=i1-PczamCy4>

Video ---- <https://drive.google.com/file/d/1-L0ER6C32YxWJew2WpgpXaBQeF4p86md/view?usp=sharing>

Project pdf url ----

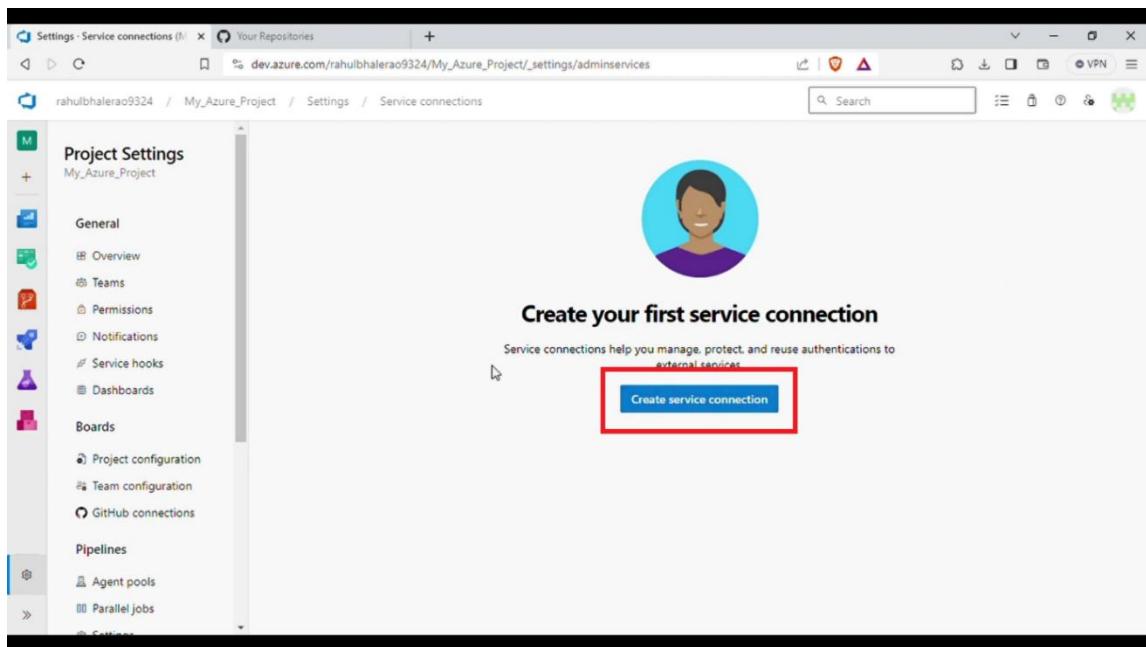
<https://drive.google.com/drive/u/0/folders/1ajkyL7rIRLirshak8hk7M8a9QpaLjiIN>

Step 1: Create service connection between azure portal and azure dev ops.

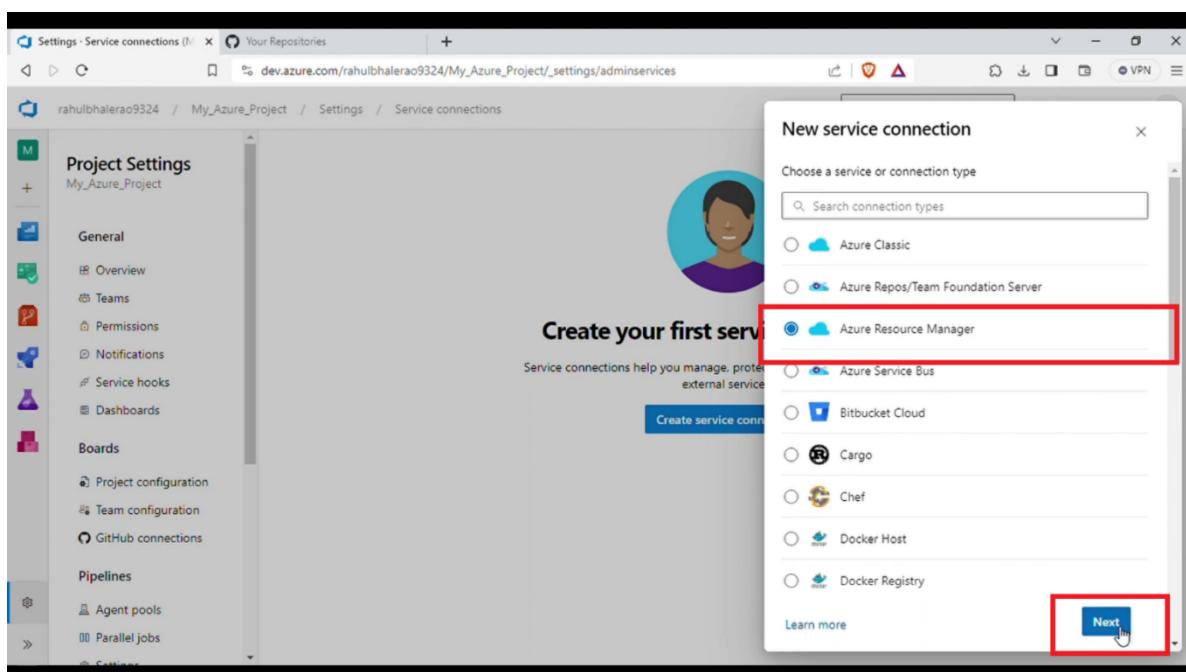
To create the connection, you need to first have an azure subscription, then go to azure dev ops website and go to project setting and go to service connection.

Service connection can be made between azure portal and azure dev ops by inputting all the necessary ports id numbers and linking all the necessary protocols for the connection.

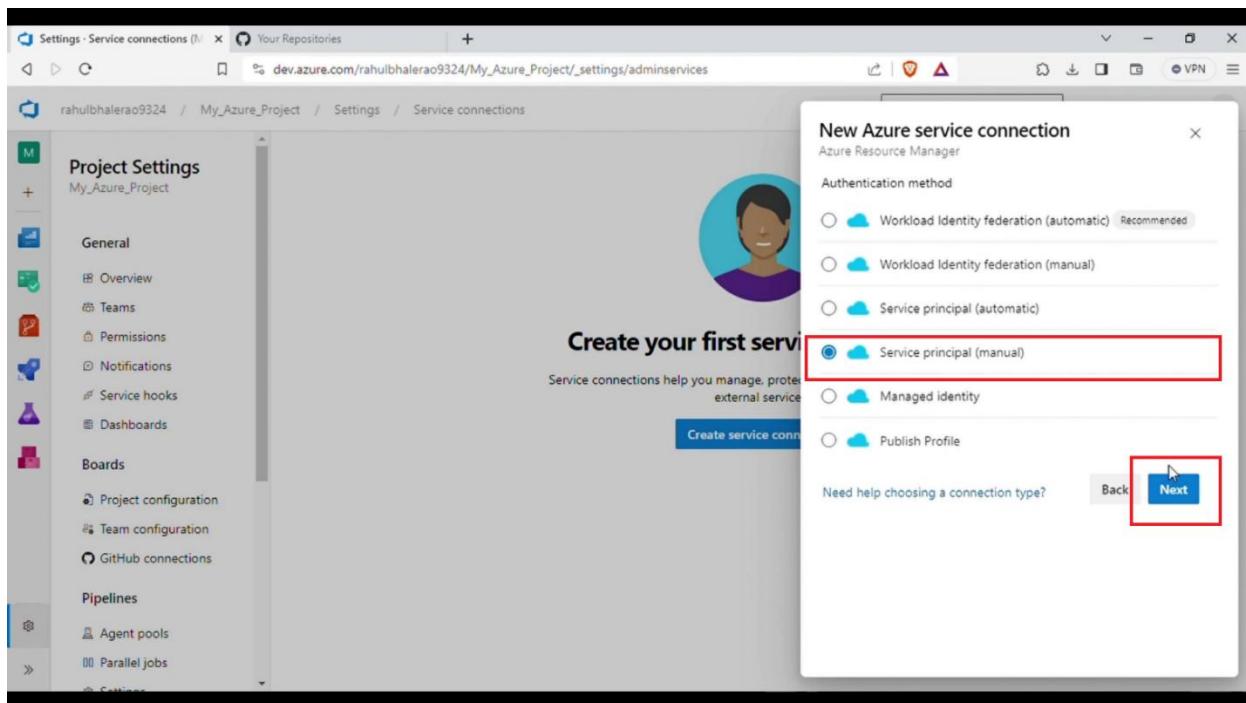
Click on create service connection.



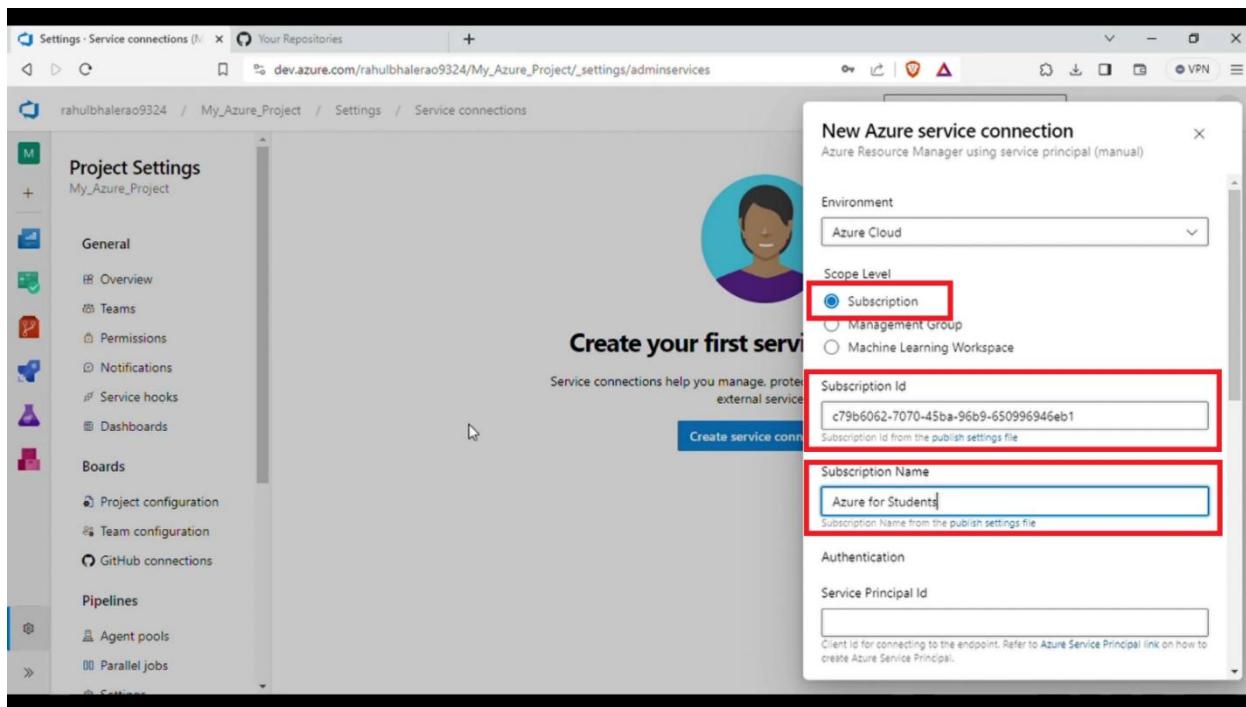
Then Select the Azure Resource Manager option and Next.



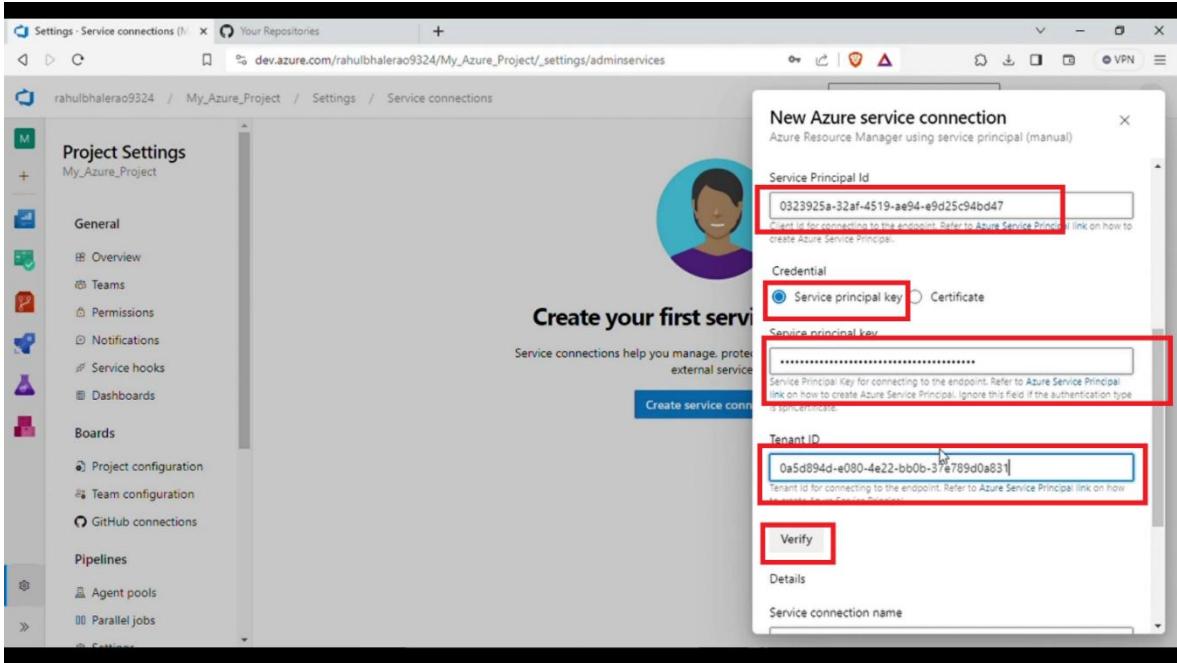
Then select the Service principal (manual) option and select next.



Then select the subscription option and then provide the Subscription id from azure portal, Subscriptions, and provide it the type of subscription you have.

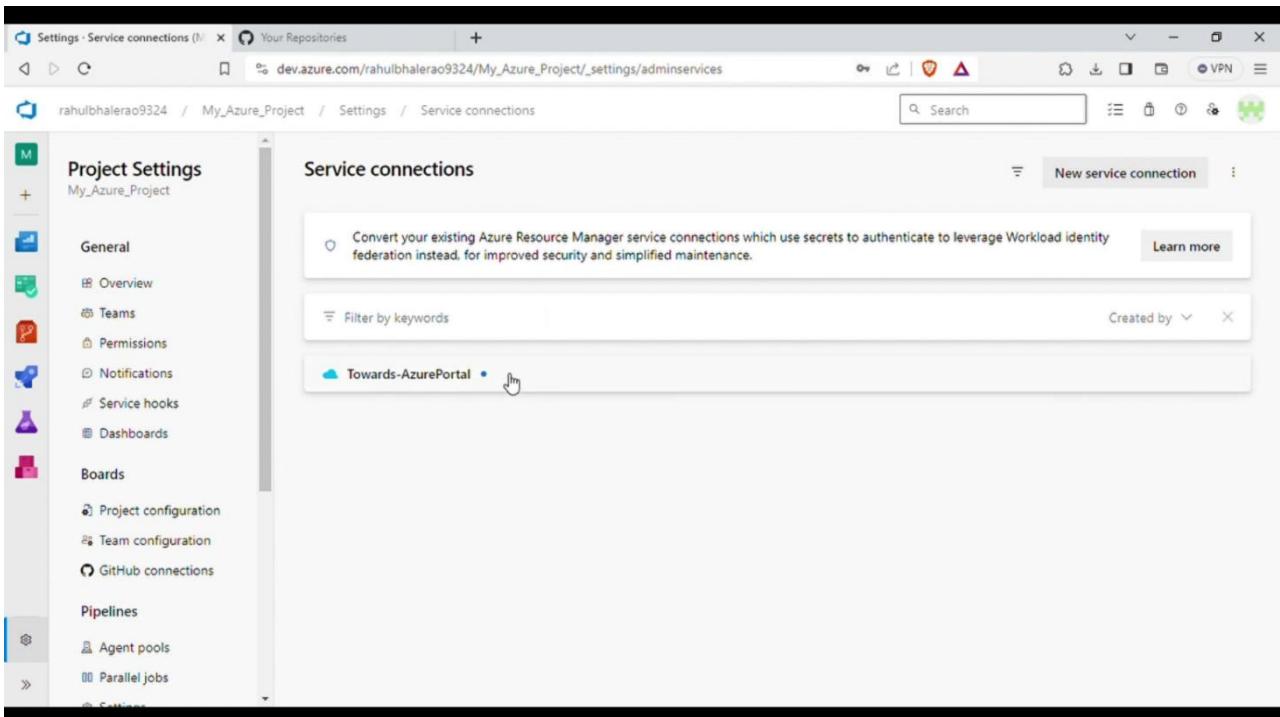


Then Go to azure portal's Microsoft intra and then go to default directory and there you can find your service principal key and Tenant id.



And then click on verify.

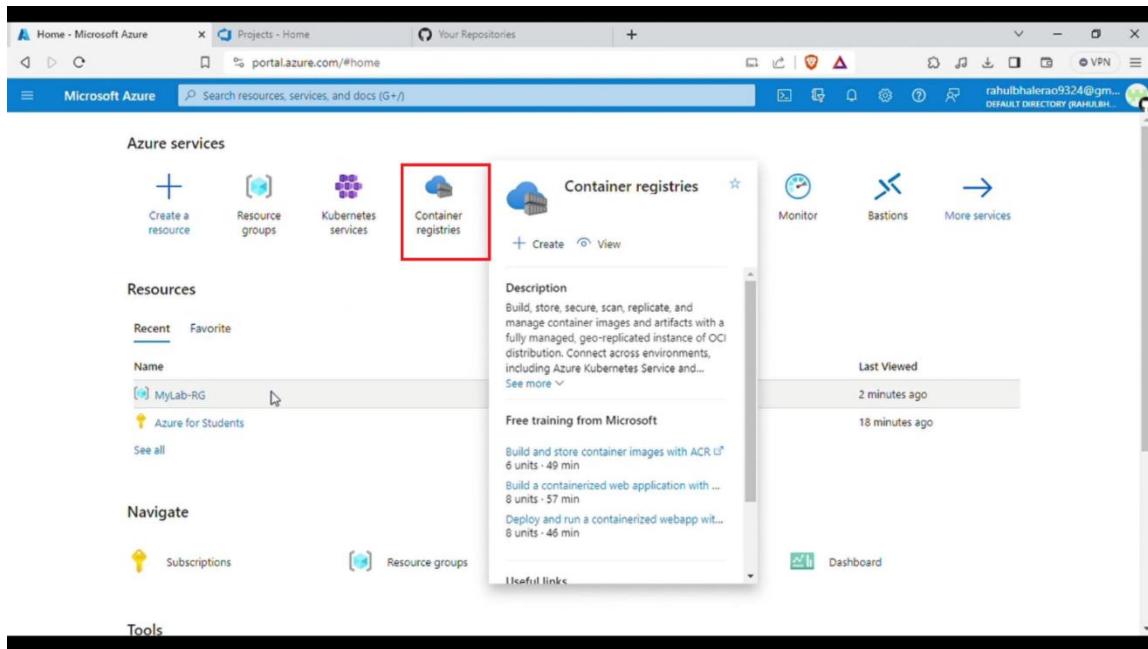
Give the service connection name and then Grant all the access permissions and you will be set with a service connection.



Step 2: Create azure container registry and azure Kubernetes cluster

Azure Container Registry provides a secure and scalable way to store and manage container images, while Azure Kubernetes Service enables easy deployment and orchestration of containerized applications, making them a powerful combination for container-based workloads in the Azure ecosystem.

Go to azure portal and Search Container Registry.



Create container Registry

The screenshot shows the Microsoft Azure Container registries page. At the top, there are navigation tabs for 'Container registries', 'Projects - Home', and 'Your Repositories'. Below the tabs, there's a search bar and filter options. A red box highlights the '+ Create' button. The main content area displays a message: 'No container registries to display' with a sub-message about building, storing, and managing container images. It includes a 'Create container registry' button and a 'Give feedback' link.

Fill all the basic details such as Resource Group, Name of the registry, region and provide it with Pricing plan and then Create.

The screenshot shows the 'Create container registry' wizard, Step 1: Project details. It includes fields for 'Subscription' (set to 'Azure for Students'), 'Resource group' (set to '(New) MyLab-RG'), 'Registry name' (set to 'mylabacr131'), 'Location' (set to 'East US'), and 'Pricing plan' (set to 'Standard'). Each field has a red box around it, indicating they are required or being highlighted. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Networking >'.

mylabacr131

Resource group (move): MyLab-RG

Location: East US

Subscription (move): Azure for Students

Subscription ID: c79b6062-7070-45ba-96b9-650996946eb1

Soft delete (Preview): Disabled

Tags (edit): Add tags

Login server: mylabacr131.azurecr.io

Creation date: 10/28/2023, 3:27 PM GMT+5:30

Provisioning state: Succeeded

Pricing plan: Standard

Simplify container lifecycle management

Container registry allows you to build, store, and manage container images and artifacts in a private registry for all types of container deployments. Learn more

Go to Azure portal and search Kubernetes services.

Create Kubernetes Cluster

Kubernetes services

Create a Kubernetes cluster

Notifications

More events in the activity log → Dismiss all

*** Deployment in progress... Running ×

Deployment to resource group 'MyLab-RG' is in progress. a few seconds ago

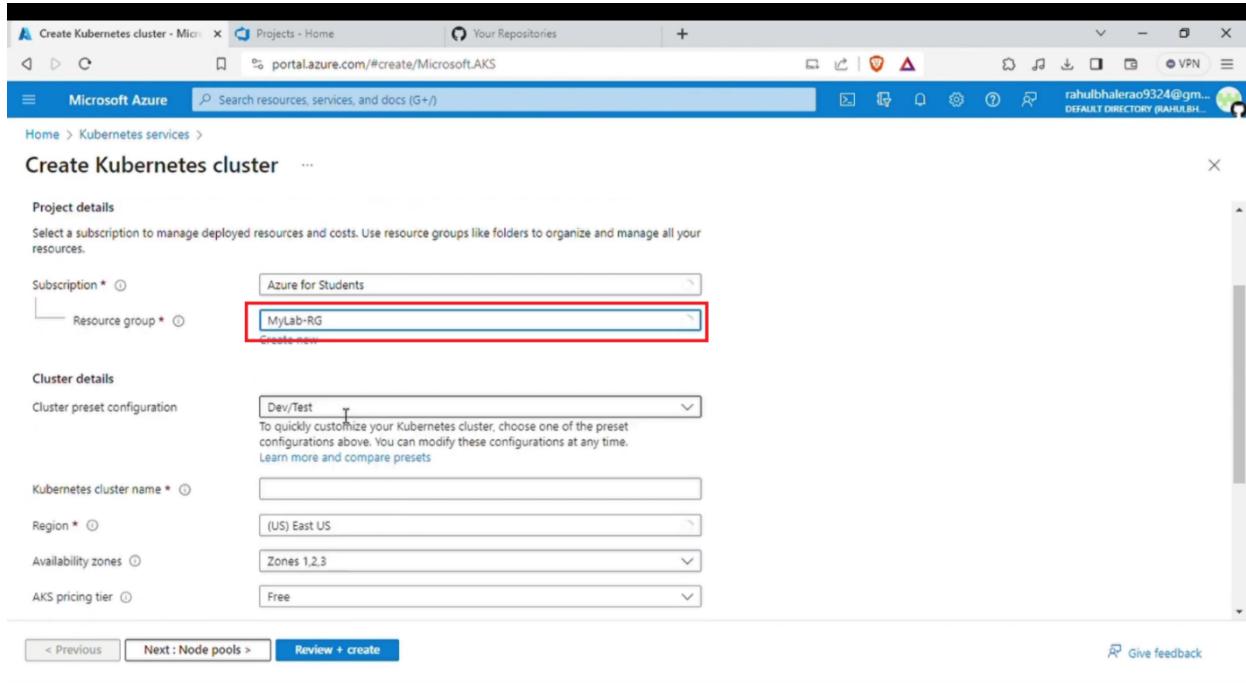
No Kubernetes services to display

Use Azure Kubernetes Service to create and manage Kubernetes clusters. Azure will handle cluster operations, including creating, scaling, and upgrading, freeing up developers to focus on their application. To get started, create a cluster with Azure Kubernetes Service.

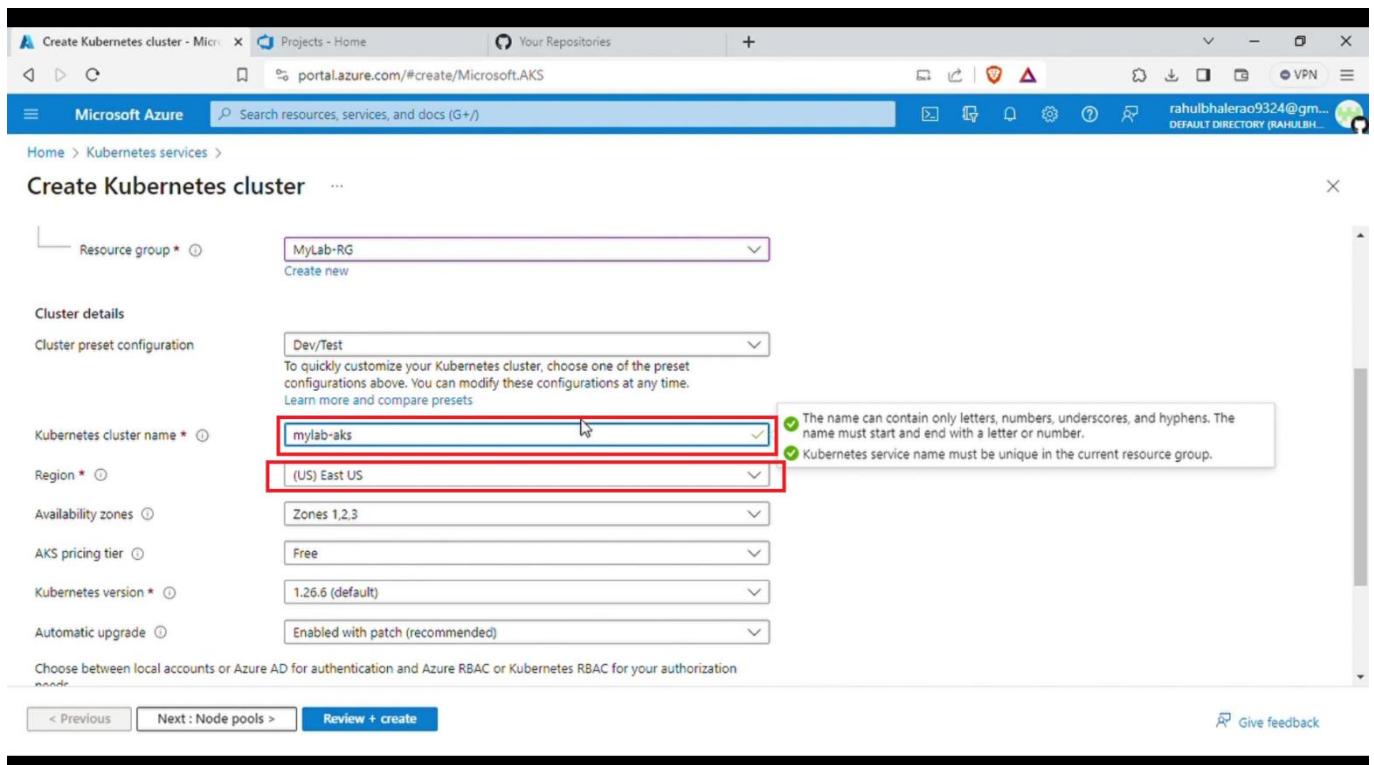
Create

Learn more Give feedback

Fill in basic details such as resource group, name, region, and provide pricing tier according to requirements.



The screenshot shows the 'Create Kubernetes cluster' wizard in the Azure portal. The first step, 'Project details', is displayed. A red box highlights the 'Resource group' input field, which contains 'MyLab-RG'. Other fields include 'Subscription' (Azure for Students), 'Cluster preset configuration' (Dev/Test), 'Kubernetes cluster name' (empty), 'Region' ((US) East US), 'Availability zones' (Zones 1,2,3), and 'AKS pricing tier' (Free). Navigation buttons at the bottom are '< Previous', 'Next : Node pools >', and 'Review + create'.



The screenshot shows the 'Create Kubernetes cluster' wizard in the Azure portal. The first step, 'Project details', is displayed. A red box highlights the 'Kubernetes cluster name' input field, which contains 'mylab-aks'. A red box also highlights the 'Region' input field, which contains '(US) East US'. A callout box provides validation messages: 'The name can contain only letters, numbers, underscores, and hyphens. The name must start and end with a letter or number.' and 'Kubernetes service name must be unique in the current resource group.'

Create Kubernetes cluster

Resource group * MyLab-RG

Cluster preset configuration Dev/Test

Kubernetes cluster name * mylab-aks

Region * (US) East US

Availability zones None

AKS pricing tier

Kubernetes version * 1.26.6 (default)

Automatic upgrade Enabled with patch (recommended)

Choose between local accounts or Azure AD for authentication and Azure RBAC or Kubernetes RBAC for your authorization needs.

< Previous Next : Node pools > Review + create Give feedback

Create Kubernetes cluster

Resource group * MyLab-RG

Cluster preset configuration Dev/Test

Kubernetes cluster name * mylab-aks

Region * (US) East US

Availability zones None

AKS pricing tier Free

Kubernetes version * 1.26.6 (default)

Automatic upgrade Enabled with patch (recommended)

Choose between local accounts or Azure AD for authentication and Azure RBAC or Kubernetes RBAC for your authorization needs.

Authentication and Authorization Local accounts with Kubernetes RBAC

< Previous Next : Node pools > Review + create Give feedback

Then go to integration, and add the container registry you just created.

Create Kubernetes cluster - Microsoft Azure | portal.azure.com/#create/Microsoft.AKS

Microsoft Azure Search resources, services, and docs (G+) rahulbhalerao9324@gmail.com DEFAULT DIRECTORY (RAHULBH)

Home > Kubernetes services >

Create Kubernetes cluster

Basics Node pools Networking **Integrations** Advanced Tags Review + create

Connect your AKS cluster with additional services.

Microsoft Defender for Cloud
Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

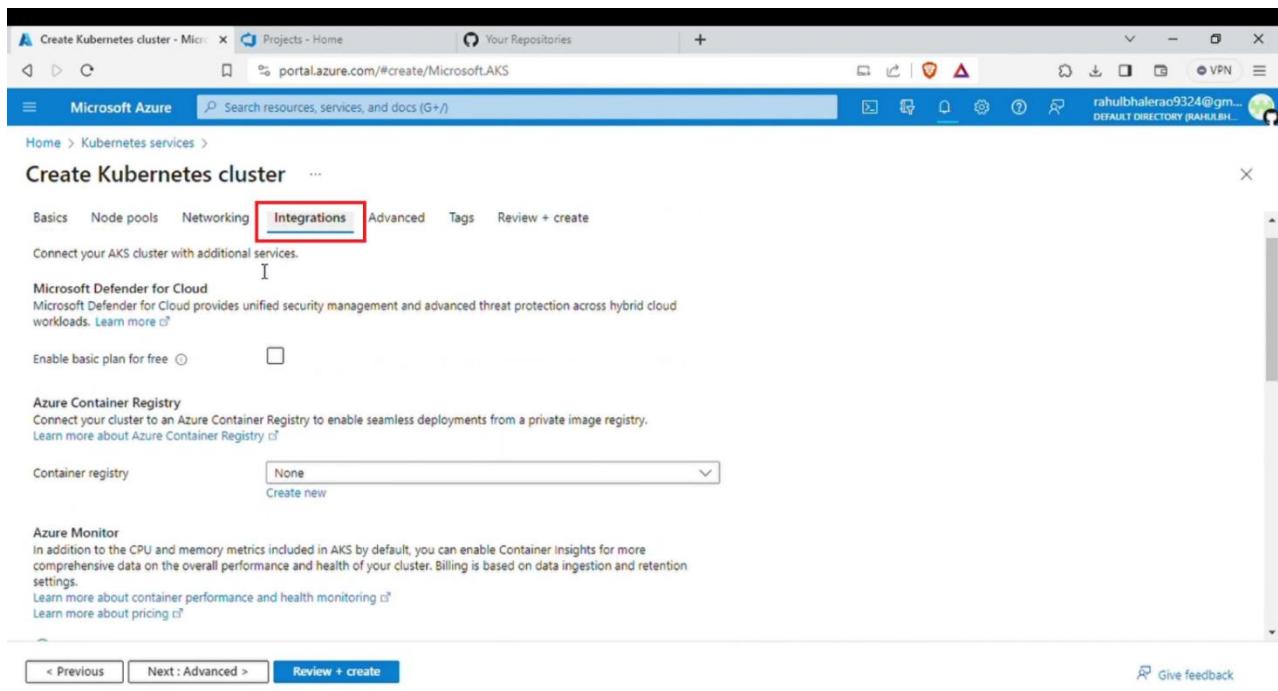
Enable basic plan for free

Azure Container Registry
Connect your cluster to an Azure Container Registry to enable seamless deployments from a private image registry.
[Learn more about Azure Container Registry](#)

Container registry

Azure Monitor
In addition to the CPU and memory metrics included in AKS by default, you can enable Container Insights for more comprehensive data on the overall performance and health of your cluster. Billing is based on data ingestion and retention settings.
[Learn more about container performance and health monitoring](#) [Learn more about pricing](#)

< Previous Next : Advanced > Review + create Give feedback



Create Kubernetes cluster - Microsoft Azure | portal.azure.com/#create/Microsoft.AKS

Microsoft Azure Search resources, services, and docs (G+) rahulbhalerao9324@gmail.com DEFAULT DIRECTORY (RAHULBH)

Home > Kubernetes services >

Create Kubernetes cluster

Connect your AKS cluster with additional services.

Microsoft Defender for Cloud
Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

Your subscription is protected by Microsoft Defender for Cloud basic plan.

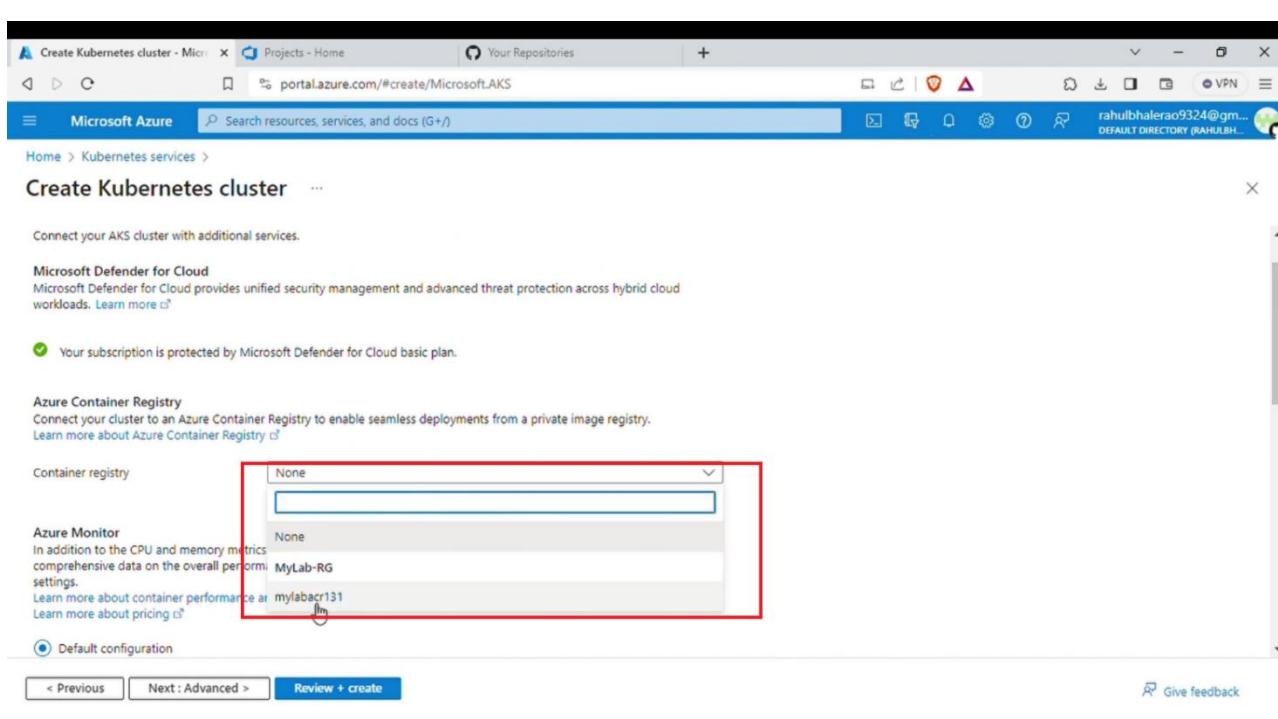
Azure Container Registry
Connect your cluster to an Azure Container Registry to enable seamless deployments from a private image registry.
[Learn more about Azure Container Registry](#)

Container registry
None
MyLab-RG
mylabacr131

Azure Monitor
In addition to the CPU and memory metrics included in AKS by default, you can enable Container Insights for more comprehensive data on the overall performance and health of your cluster. Billing is based on data ingestion and retention settings.
[Learn more about container performance and health monitoring](#) [Learn more about pricing](#)

Default configuration

< Previous Next : Advanced > Review + create Give feedback



Create Kubernetes cluster - Microsoft Azure | **Projects - Home** | **Your Repositories**

portal.azure.com/#create/Microsoft.AKS

Microsoft Azure | **Search resources, services, and docs (G+)**

Home > Kubernetes services > Create Kubernetes cluster

Validation passed

Basics Node pools Networking Integrations Advanced Tags **Review + create**

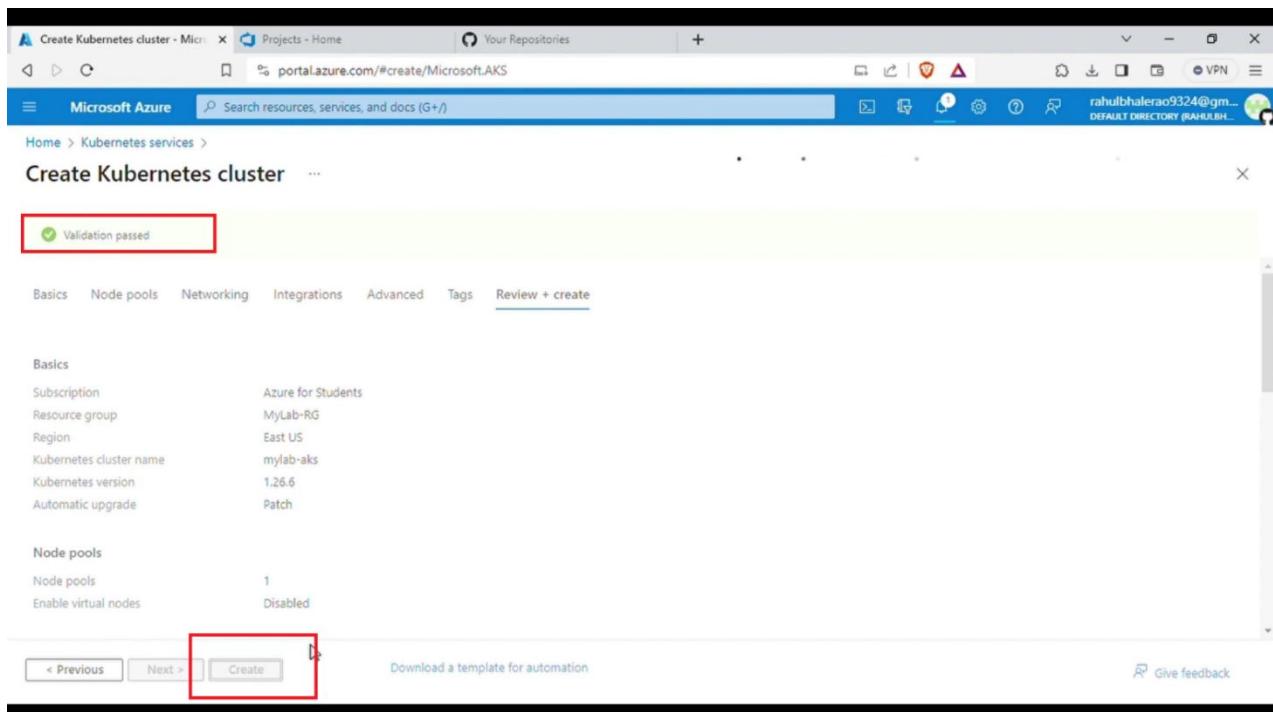
Basics

Subscription	Azure for Students
Resource group	MyLab-RG
Region	East US
Kubernetes cluster name	mylab-aks
Kubernetes version	1.26.6
Automatic upgrade	Patch

Node pools

Node pools	1
Enable virtual nodes	Disabled

< Previous Next > **Create** Download a template for automation Give feedback



microsoft.aks-20231028152814 - Microsoft Azure | **Projects - Home** | **Your Repositories**

portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscription... | **Give feedback**

Notifications

More events in the activity log → Dismiss all ▾

*** Deployment in progress... Running X Deployment to resource group 'MyLab-RG' is in progress. a few seconds ago

*** Deployment in progress... Running X Deployment to resource group 'MyLab-RG' is in progress. 3 minutes ago

microsoft.aks-20231028152814 | Overview

Deployment

Search

Overview Inputs Outputs Template

Deployment is in progress

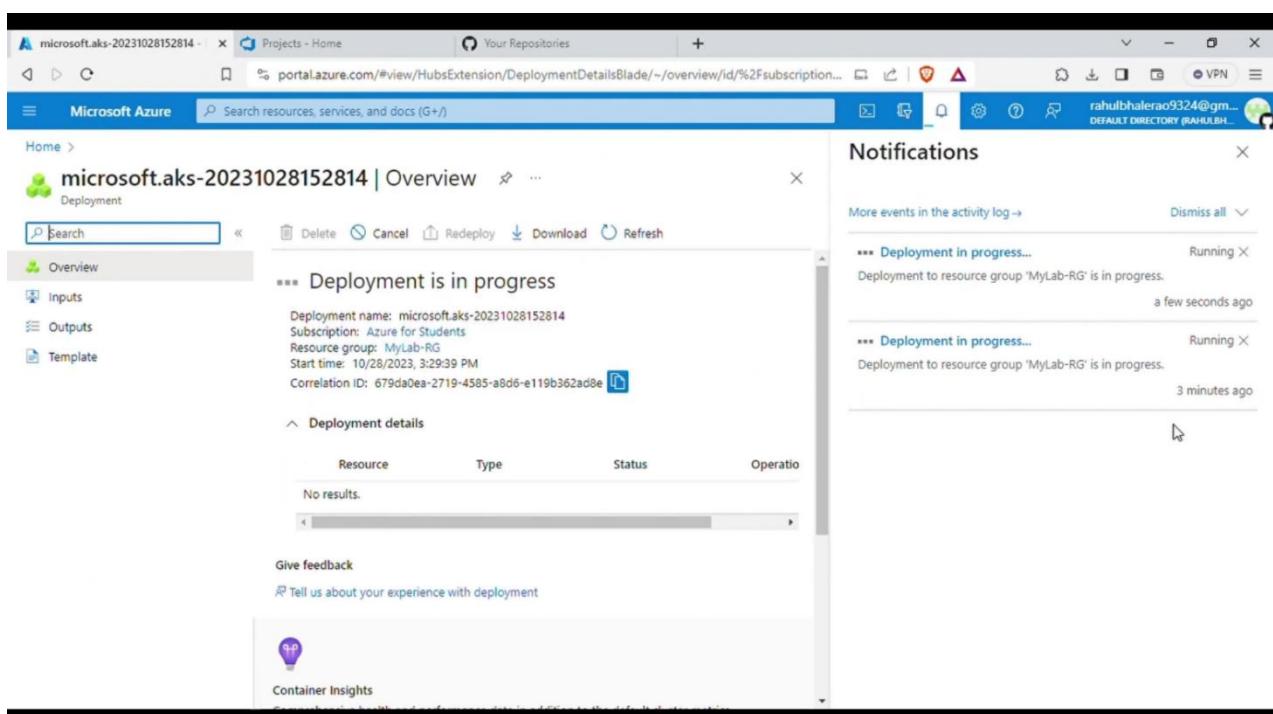
Deployment name: microsoft.aks-20231028152814
Subscription: Azure for Students
Resource group: MyLab-RG
Start time: 10/28/2023, 3:29:39 PM
Correlation ID: 679da0ea-2719-4585-a8d6-e119b362ad8e

Deployment details

Resource	Type	Status	Operation
No results.			

Give feedback Tell us about your experience with deployment

Container Insights



The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes tabs for 'Pipelines - Run 20231028_4 logs', 'app-deploy.yaml - Repos', 'mylab-aks - Microsoft Azure', and '20.204.239.241'. The main title bar says 'Microsoft Azure' and 'Search resources, services, and docs (G+)'. The user's email 'rahulbhalerao9324@gmail.com' and 'DEFAULT DIRECTORY (RAHULBH...' are displayed on the right.

The left sidebar shows 'Kubernetes services' under 'Default Directory (rahulbhalerao9324@gmail.onmicrosoft.com)'. A search bar and a 'Create' button are at the top. The main content area is titled 'mylab-aks' and shows the 'Overview' tab. Key details include:

- Resource group:** MyLab-RG
- Status:** Succeeded (Running)
- Location:** East US
- Subscription:** Azure for Students
- Subscription ID:** c79b6062-7070-45ba-96b9-650996946eb1
- Kubernetes version:** 1.26.6
- API server address:** mylab-aks-dns-x5ca7vrl.hcp.eastus.azurek8s.io
- Network type (plugin):** Kubelet
- Node pools:** 1 node pool

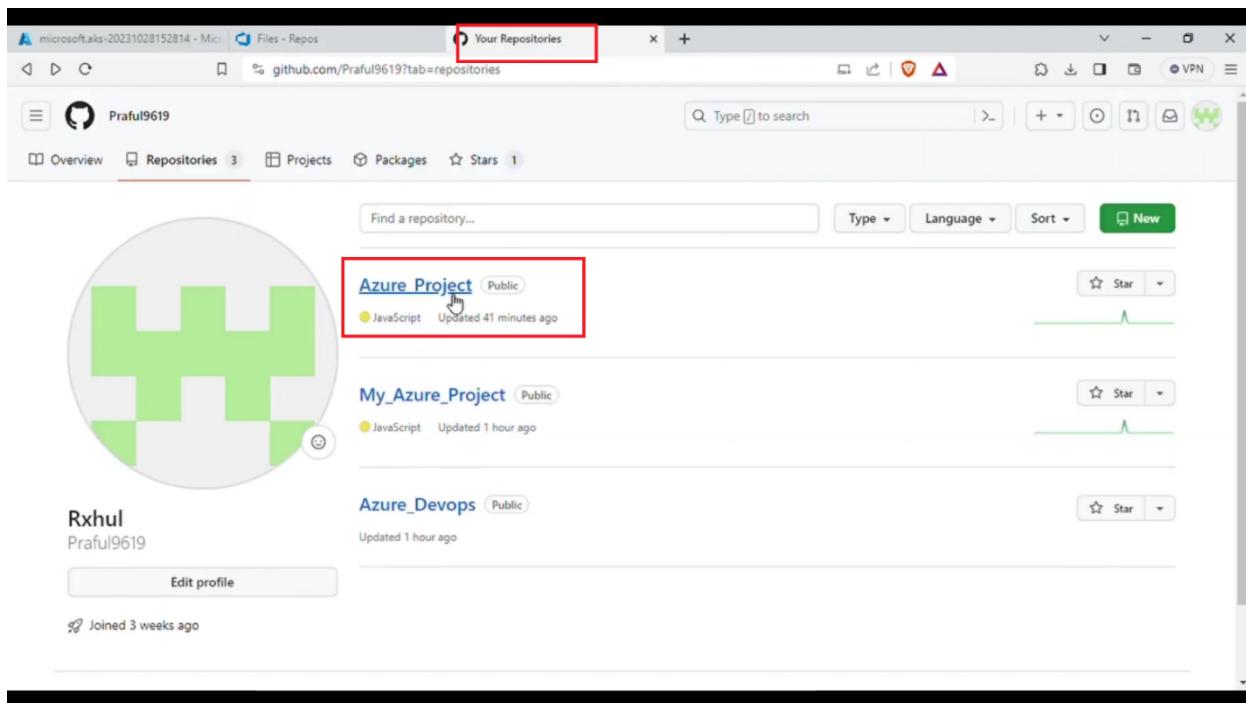
The 'Properties' tab is selected. Other tabs include 'Get started', 'Monitoring', 'Capabilities (4)', 'Recommendations', and 'Tutorials'. The 'Networking' section shows:

- API server address:** mylab-aks-dns-x5ca7vrl.hcp.eastus.azurek8s.io
- Network type (plugin):** Kubelet

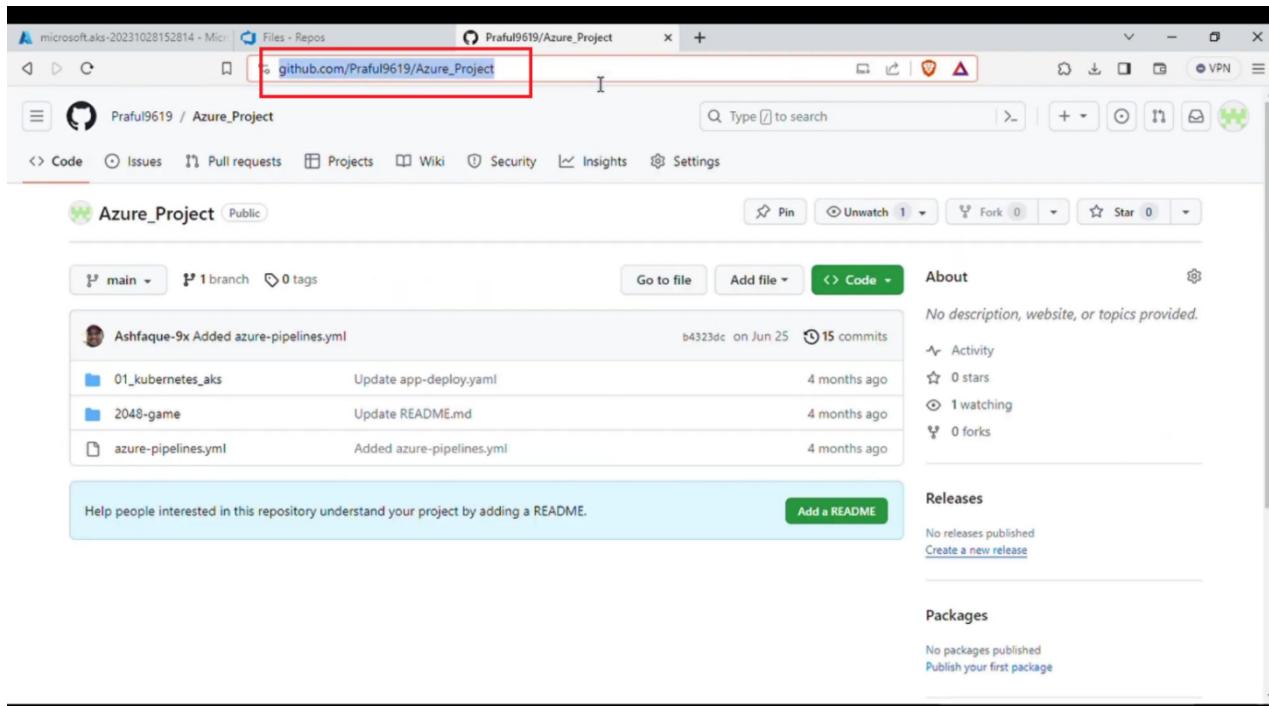
At the bottom, there are 'Edit' and 'Add tags' buttons.

Step 3: Import your project from your GitHub repository to Azure Devops

Go to your GitHub account and open the repository in which you have saved your project



Select the repository and copy the URL of the GitHub Repository in which you have your project.

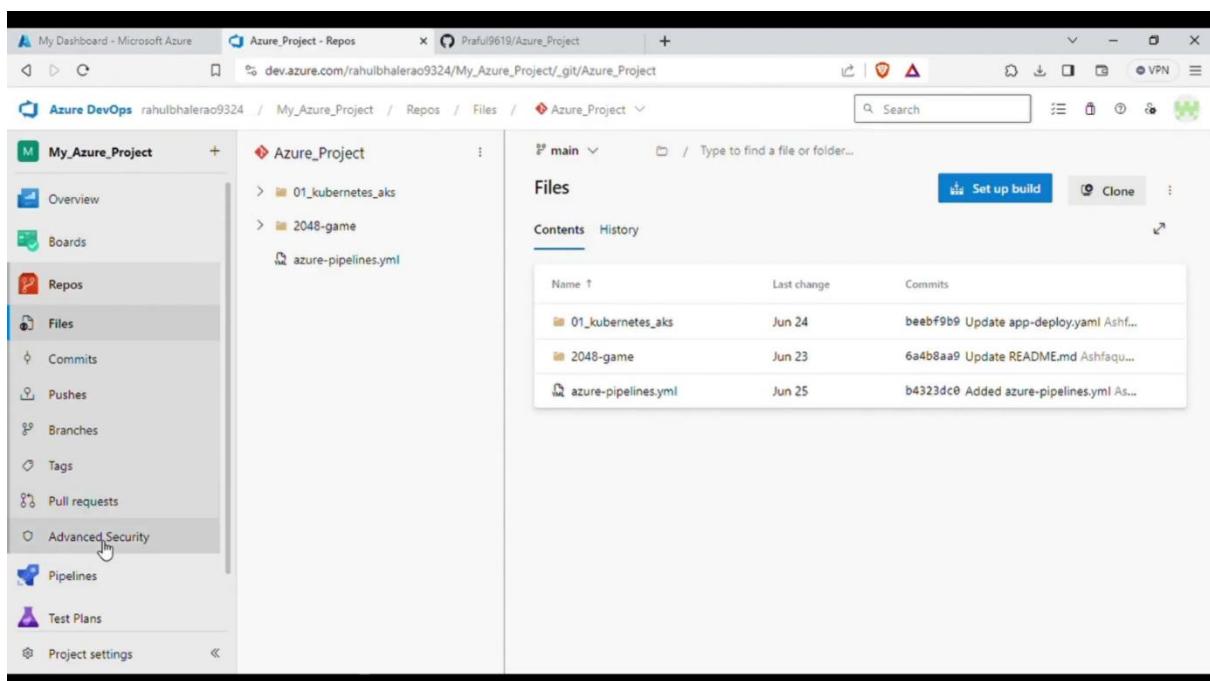
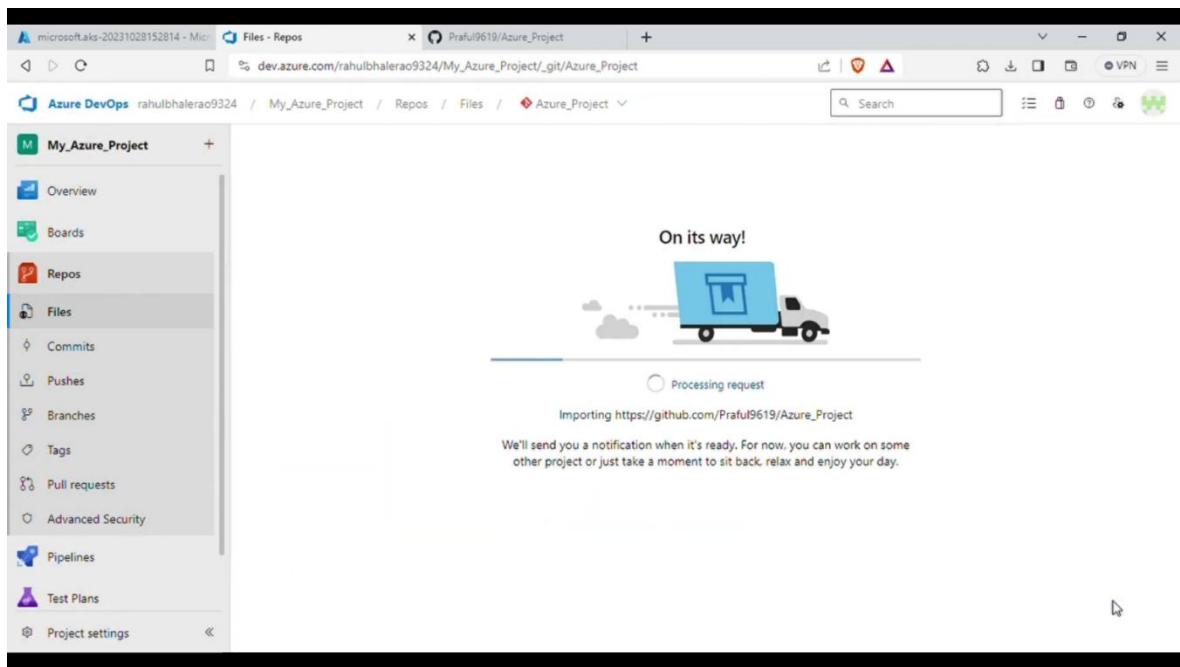


Then Go to azure Devops and go to Repos and click on import repository.

A screenshot of the Azure DevOps interface, specifically the repository page for a project named 'My_Azure_Project'. The left sidebar shows various project navigation options like Overview, Boards, Repos, Files, etc. The main area displays sections for cloning to your computer (with HTTPS and SSH options), pushing from command line, and importing a repository. A red box highlights the 'Import a repository' section. Within this section, another red box highlights the 'Import' button. A dropdown menu above the import form is also highlighted with a red box.

Paste the repository URL that you copied in the section, and import.

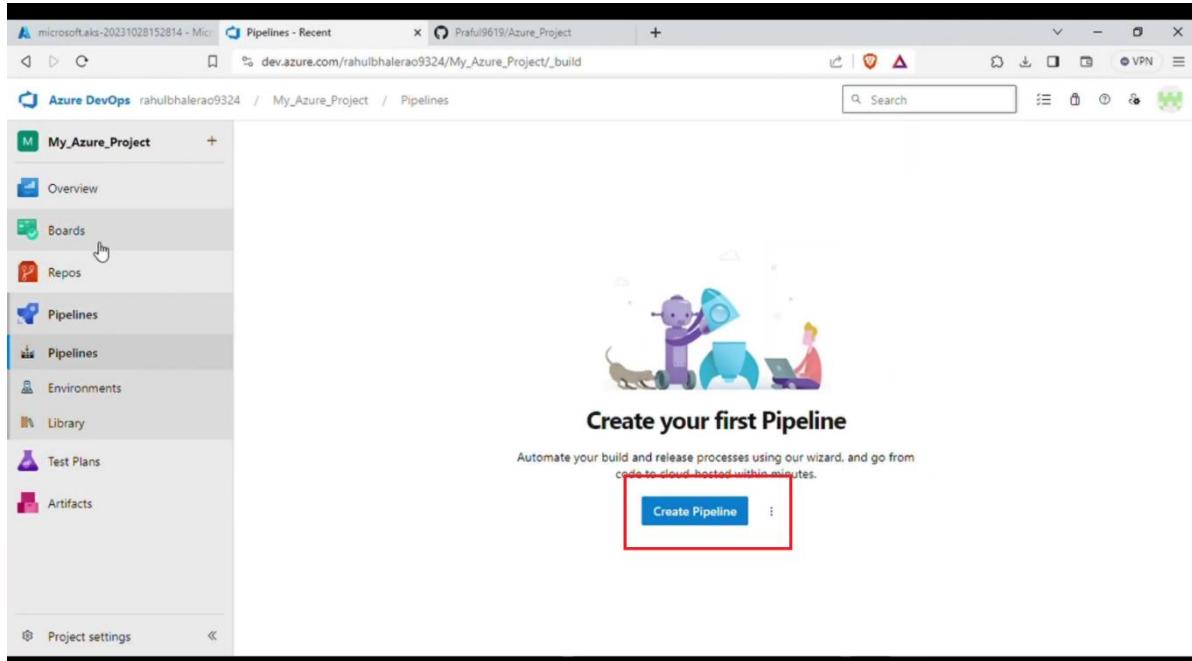
A screenshot of the 'Import a Git repository' dialog box. It contains fields for 'Repository type' (set to 'Git'), 'Clone URL' (containing the URL 'https://github.com/Praful9619/Azure_Project'), and 'Name' (set to 'Azure_Project'). A red box highlights the 'Clone URL' field. The 'Import' button at the bottom right is also highlighted with a red box.



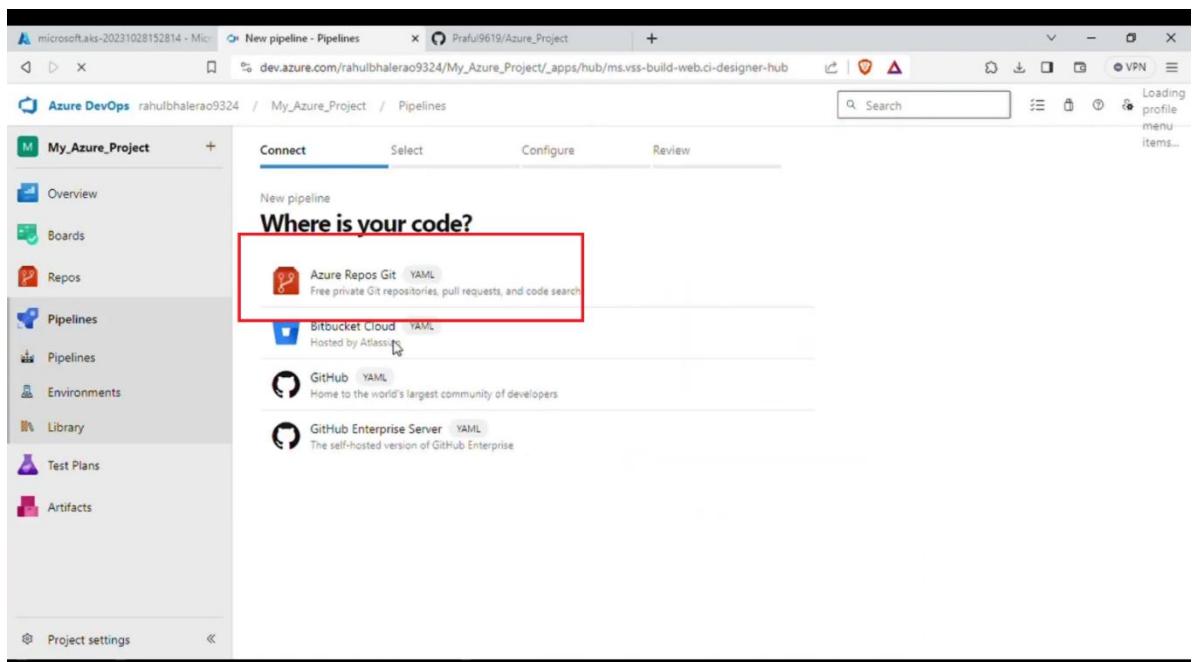
Step 4: Create CI /CD pipeline, azure pipeline will actually push the image to the azure container registry, and then our azure pipeline will deploy the pods on the AKS cluster using that image

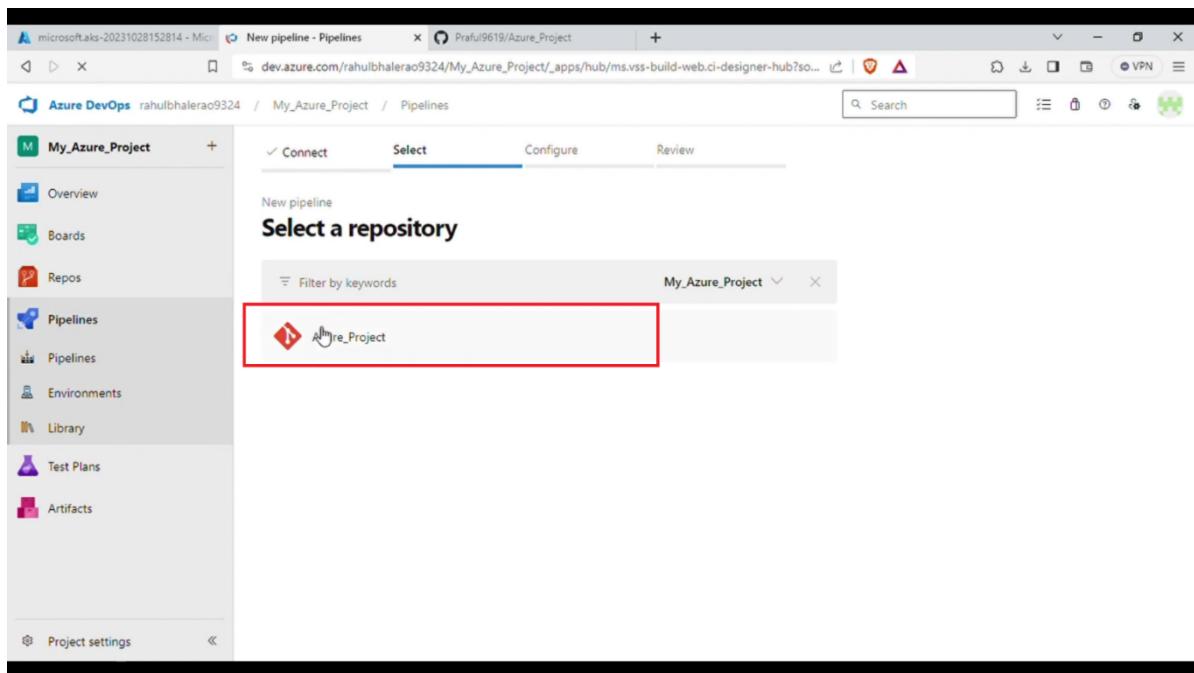
A CI/CD pipeline connecting Azure Portal and Azure DevOps streamlines development, testing, and deployment, ensuring efficient and automated software delivery in a seamless Azure environment.

Go to Azure Devops, then go to pipeline and create new pipeline.

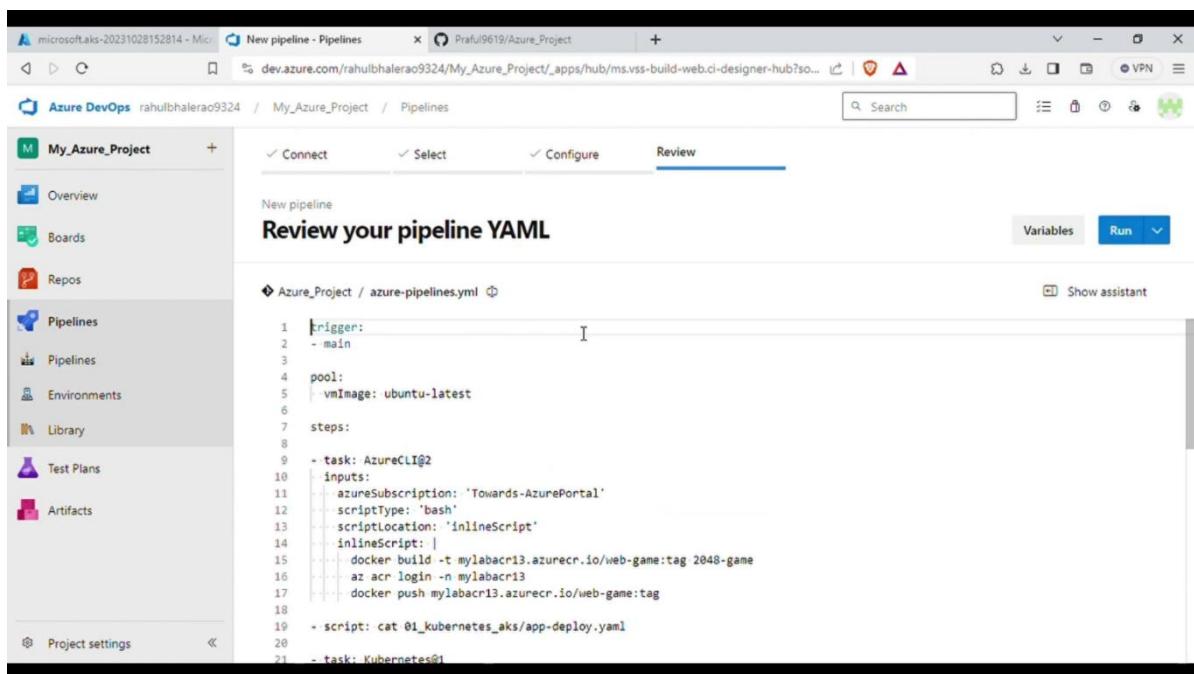


Select azure repos git.





The screenshot shows the 'Select a repository' step in the Azure DevOps Pipelines interface. The left sidebar lists project navigation options like Overview, Boards, Repos, Pipelines, Environments, Library, Test Plans, and Artifacts. The main area has tabs for Connect, Select, Configure, and Review, with 'Select' being active. A search bar at the top right is set to 'My_Azure_Project'. Below it, a list of repositories is shown, with 'My_Azure_Project' highlighted and surrounded by a red box.



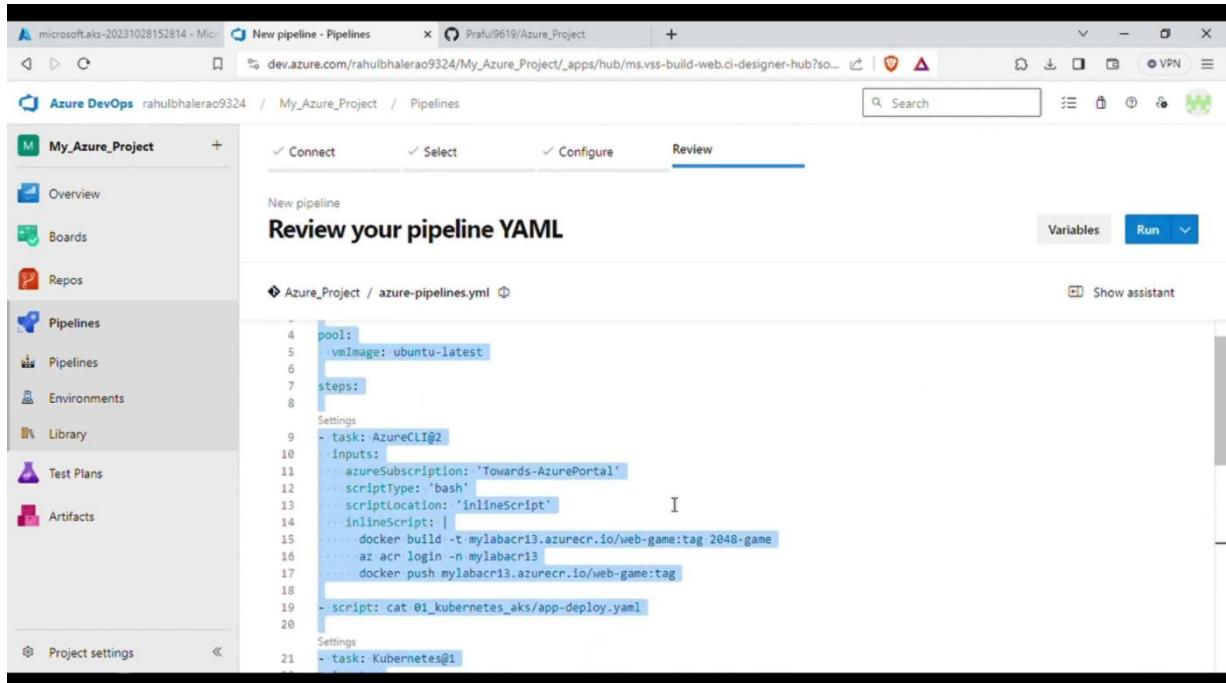
The screenshot shows the 'Review your pipeline YAML' step in the Azure DevOps Pipelines interface. The left sidebar is identical to the previous screenshot. The main area has tabs for Connect, Select, Configure, and Review, with 'Review' being active. It displays the YAML configuration for the pipeline:

```
trigger:
- main

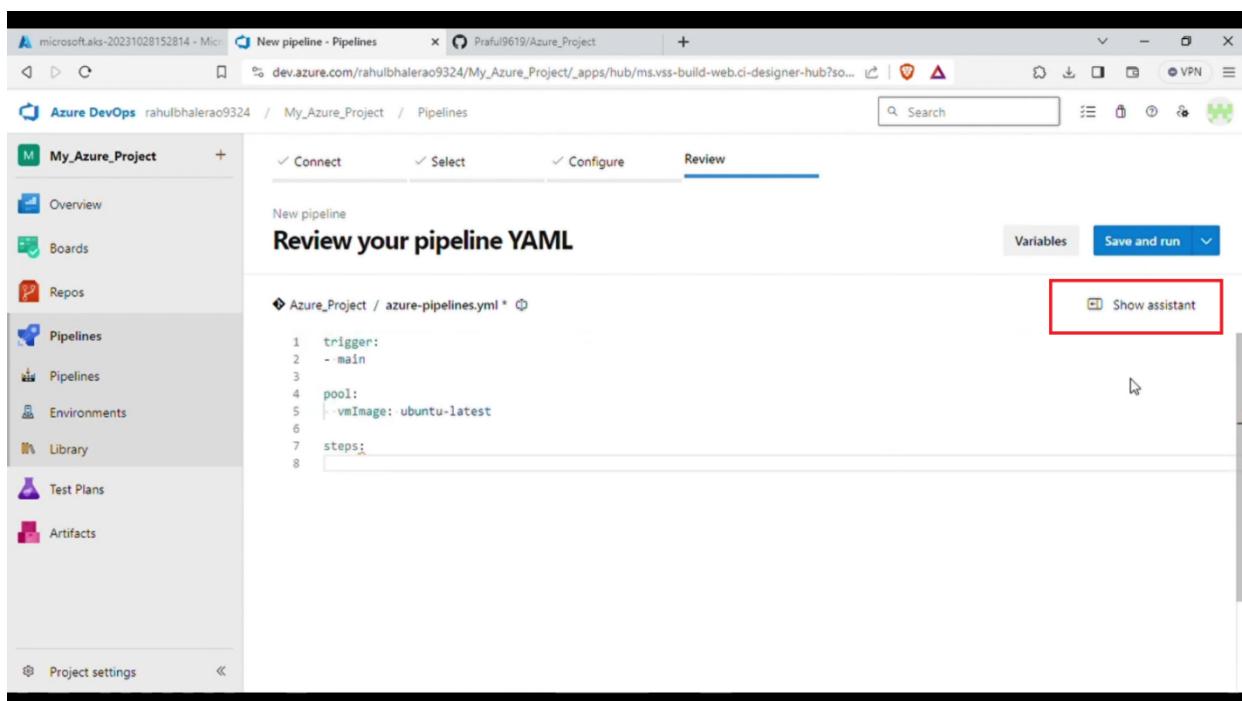
pool:
  vmImage: ubuntu-latest

steps:
- task: AzureCLI@2
  inputs:
    azureSubscription: 'Towards-AzurePortal'
    scriptType: 'bash'
    scriptLocation: 'inlineScript'
    inlineScript: |
      docker build -t mylabacr13.azurecr.io/web-game:tag 2048-game
      az acr login -n mylabacr13
      docker push mylabacr13.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
    - task: Kubernetes@1
```

Delete the code and create another azure cli code by clicking on the show assistant option.



```
pool:
vmImage: ubuntu-latest
steps:
- task: AzureCLI@2
  inputs:
    azureSubscription: 'Towards-AzurePortal'
    scriptType: 'bash'
    scriptLocation: 'inlineScript'
    inlineScript: |
      docker build -t mylabacr13.azurecr.io/web-game:tag_2048-game
      az acr login -n mylabacr13
      docker push mylabacr13.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
  settings:
    - task: Kubernetes@1
```



```
trigger:
- main
pool:
vmImage: ubuntu-latest
steps:
```

A screenshot of the Azure DevOps Pipelines interface. On the left, there's a sidebar with project navigation: Overview, Boards, Repos, Pipelines (selected), Pipelines, Environments, Library, Test Plans, and Artifacts. Below that is a 'Project settings' link. The main area shows a 'New pipeline' step with a 'Review' tab selected. A file named 'azure-pipelines.yml' is open, showing a YAML configuration. To the right, a 'Tasks' pane is open with a search bar containing 'azure cli'. Two suggestions are shown: 'Azure CLI' and 'Run Azure CLI commands against an Azure subscr...'. Both suggestions are highlighted with red boxes.

Select the service connection name script type script location and script path.

A screenshot of the Azure DevOps Pipelines interface, similar to the previous one but with different configurations. The 'Tasks' pane shows a task setup. The 'Service Connection' dropdown is set to 'Towards-AzurePortal'. The 'Script Type' dropdown is set to 'Batch'. The 'Script Location' dropdown is set to 'Script path'. The 'Script Path' input field is empty. The 'Script Arguments' input field is also empty. The 'Advanced' section is collapsed. At the bottom of the task configuration, there are 'About this task' and 'Add' buttons.

Provide the inline script and add.

The screenshot shows the 'Review your pipeline YAML' page in Azure DevOps. The pipeline configuration file 'azure-pipelines.yml' is displayed:

```
trigger:
- main
pool:
- vmImage: ubuntu-latest
steps:
```

The 'Script Type' is set to 'Batch' and the 'Script Location' is 'Inline script'. The inline script contains the following Docker commands:

```
docker build -t mylabacr13.azurecr.io/web-game:tag 2048-game
az acr login -n mylabacr13
docker push mylabacr13.azurecr.io/web-game:tag
```

A red box highlights the 'Script Type' dropdown, the 'Script Location' dropdown, and the inline script area.

The screenshot shows the 'Review your pipeline YAML' page in Azure DevOps. The pipeline configuration file 'azure-pipelines.yml' is displayed:

```
trigger:
- main
pool:
- vmImage: ubuntu-latest
steps:
  - task: AzureCLI@2
    inputs:
      azureSubscription: 'Towards-AzurePortal'
      scriptType: 'batch'
      scriptLocation: 'inlineScript'
      inlineScript: |
        docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
        az acr login -n mylabacr131
        docker push mylabacr131.azurecr.io/web-game:tag
```

A red box highlights the 'Added task' button in the bottom right corner of the step editor.

Add this script line add the end and then save.

The screenshot shows the Azure DevOps Pipelines interface. On the left, there's a sidebar with 'My_Azure_Project' selected. Under 'Pipelines', 'Pipelines' is also selected. The main area is titled 'Review your pipeline YAML'. It shows a code editor with the file 'azure-pipelines.yml' containing the following YAML:

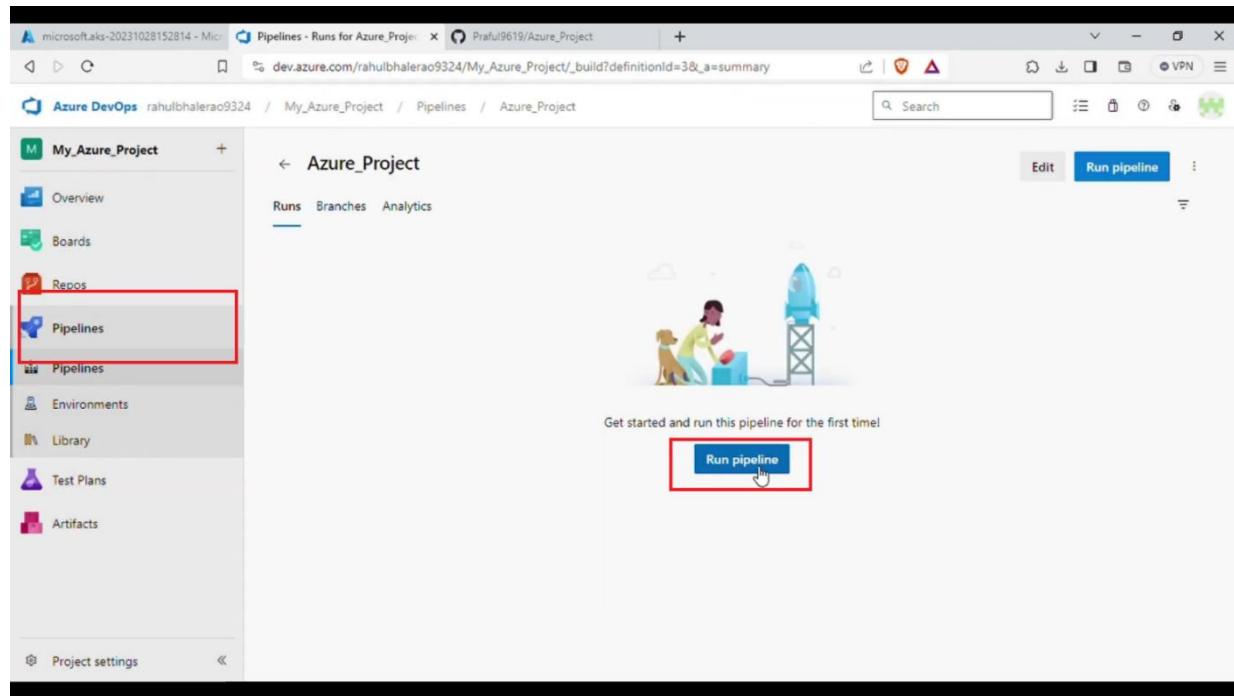
```
scriptType: 'bash'
scriptLocation: 'inlineScript'
inlineScript: |
  docker build -t mylabacr131.azurecr.io/web-game:tag_2048-game
  az acr login -n mylabacr131
  docker push mylabacr131.azurecr.io/web-game:tag
- script: cat 01_kubernetes_aks/app-deploy.yaml
```

A red box highlights the line '- script: cat 01_kubernetes_aks/app-deploy.yaml'.

To the right of the code editor is a 'Tasks' pane with several options: .NET Core, Android signing, Ant, App Center distribute, and App Center test. At the top right of the main area are 'Variables' and 'Save and run' buttons.

The screenshot shows the 'Save' dialog box from the previous step. The 'Commit message' field contains the text 'Set up CI with Azure Pipelines'. A red box highlights this field. Below it is an 'Optional extended description' field with a placeholder 'Add an optional description...'. At the bottom of the dialog, there are two radio buttons: 'Commit directly to the main branch' (selected) and 'Create a new branch for this commit'. A red box highlights the 'Save' button at the bottom right.

Then go to Run pipeline



Edit the pipeline and add the Azure Kubernetes Cluster to your azure pipeline.

The screenshot shows the Azure DevOps Pipelines page for the project 'My_Azure_Project'. On the left, there's a sidebar with various project management options like Overview, Boards, Repos, Pipelines, Environments, Library, Test Plans, and Artifacts. The 'Pipelines' option is selected. The main area is titled 'Pipelines' and shows a section for 'Recently run pipelines'. A single pipeline named 'Azure_Project' is listed with the status 'No runs yet'. A context menu is open over this pipeline, with the 'Edit' option highlighted. Other options in the menu include Run pipeline, Manage security, Rename/move, and Delete.

The screenshot shows the Azure Pipeline editor for the 'Azure_Project' pipeline. The left pane displays the YAML configuration file 'azure-pipelines.yml'. The right pane is titled 'Tasks' and contains a search bar with the term 'kub' entered. Below the search bar, several tasks are listed, including 'Azure Function on Kubernetes', 'Deploy to Kubernetes', 'Helm tool installer', 'Kubectl tool installer', 'Kubelogin tool installer', and 'Package and deploy Helm charts'. A tooltip for the 'Helm tool installer' task reads: 'Install Helm and Kubernetes on an agent machine'. A red box highlights the search bar and the 'Helm tool installer' task.

Provide it with the basic details as given in the further documents.

Azure DevOps Pipeline configuration for Kubernetes deployment:

Pipeline YML:

```
trigger:
- main
pool:
  vmImage: ubuntu-latest
steps:
  - task: AzureCLI@2
    inputs:
      azureSubscription: 'Towards-AzurePortal'
      scriptType: 'bash'
      scriptLocation: 'inlineScript'
      inlineScript: |
        docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
        az acr login -n mylabacr131
        docker push mylabacr131.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
```

Kubectl Task Configuration (Service connection type: Azure Resource Manager):

- Azure subscription: Towards-AzurePortal
- Service connections: Towards-AzurePortal
- Kubernetes cluster: mylab-aks
- Use cluster admin credentials

Azure DevOps Pipeline configuration for Kubernetes deployment (updated setup):

Pipeline YML:

```
trigger:
- main
pool:
  vmImage: ubuntu-latest
steps:
  - task: AzureCLI@2
    inputs:
      azureSubscription: 'Towards-AzurePortal'
      scriptType: 'bash'
      scriptLocation: 'inlineScript'
      inlineScript: |
        docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
        az acr login -n mylabacr131
        docker push mylabacr131.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
```

Kubectl Task Configuration (Service connection type: Azure Resource Manager):

- Azure subscription: Towards-AzurePortal
- Resource group: MyLab-RG
- Kubernetes cluster: mylab-aks
- Use cluster admin credentials
- Namespace: (empty)

The screenshot shows the Azure DevOps Pipelines interface for a project named "My_Azure_Project". The left sidebar includes options like Overview, Boards, Repos, Pipelines (selected), Pipelines, Environments, Library, Test Plans, and Artifacts. The main area displays a YAML file named "azure-pipelines.yml" with the following content:

```
trigger:
- main

pool:
vmImage: ubuntu-latest

steps:
- task: AzureCLI@2
  inputs:
    azureSubscription: 'Towards-AzurePortal'
    scriptType: 'bash'
    scriptLocation: 'inlineScript'
    inlineScript: |
      docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
      az acr login -n mylabacr131
      docker push mylabacr131.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
```

The right panel shows the "Commands" section with the following configuration:

- Namespace: default
- Command: apply
- Use configuration:

At the bottom right of the command section is a blue "Add" button.

This screenshot is identical to the one above, but the "Use configuration" checkbox in the "Commands" section is now checked. The "File path" field contains the value "01_kubernetes_aks". The "Add" button at the bottom right is also highlighted with a red border.

Screenshot of the Azure DevOps Pipelines interface showing the configuration of an Azure Pipeline named "main". The pipeline definition file "azure-pipelines.yml" is displayed on the left, and the "Secrets" panel is open on the right.

The pipeline configuration includes:

```
trigger:
- main
pool:
  vmImage: ubuntu-latest
steps:
  - task: AzureCLI@2
    inputs:
      azureSubscription: 'Towards-AzurePortal'
      scriptType: 'bash'
      scriptLocation: 'inlineScript'
      inlineScript: |
        docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
        az acr login -n mylabacr131
        docker push mylabacr131.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
```

The "Secrets" panel shows the configuration for a secret named "dockerRegistry":

- Type of secret: dockerRegistry
- Container registry type: Azure Container Registry
- Azure subscription: Towards-AzurePortal
- Azure container registry: (dropdown menu)
- Secret name: (empty input field)

Buttons at the bottom of the Secrets panel include "About this task" and "Add".

Screenshot of the Azure DevOps Pipelines interface showing the configuration of an Azure Pipeline named "main". The pipeline definition file "azure-pipelines.yml" is displayed on the left, and the "Secrets" panel is open on the right.

The pipeline configuration includes:

```
trigger:
- main
pool:
  vmImage: ubuntu-latest
steps:
  - task: AzureCLI@2
    inputs:
      azureSubscription: 'Towards-AzurePortal'
      scriptType: 'bash'
      scriptLocation: 'inlineScript'
      inlineScript: |
        docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
        az acr login -n mylabacr131
        docker push mylabacr131.azurecr.io/web-game:tag
    - script: cat 01_kubernetes_aks/app-deploy.yaml
```

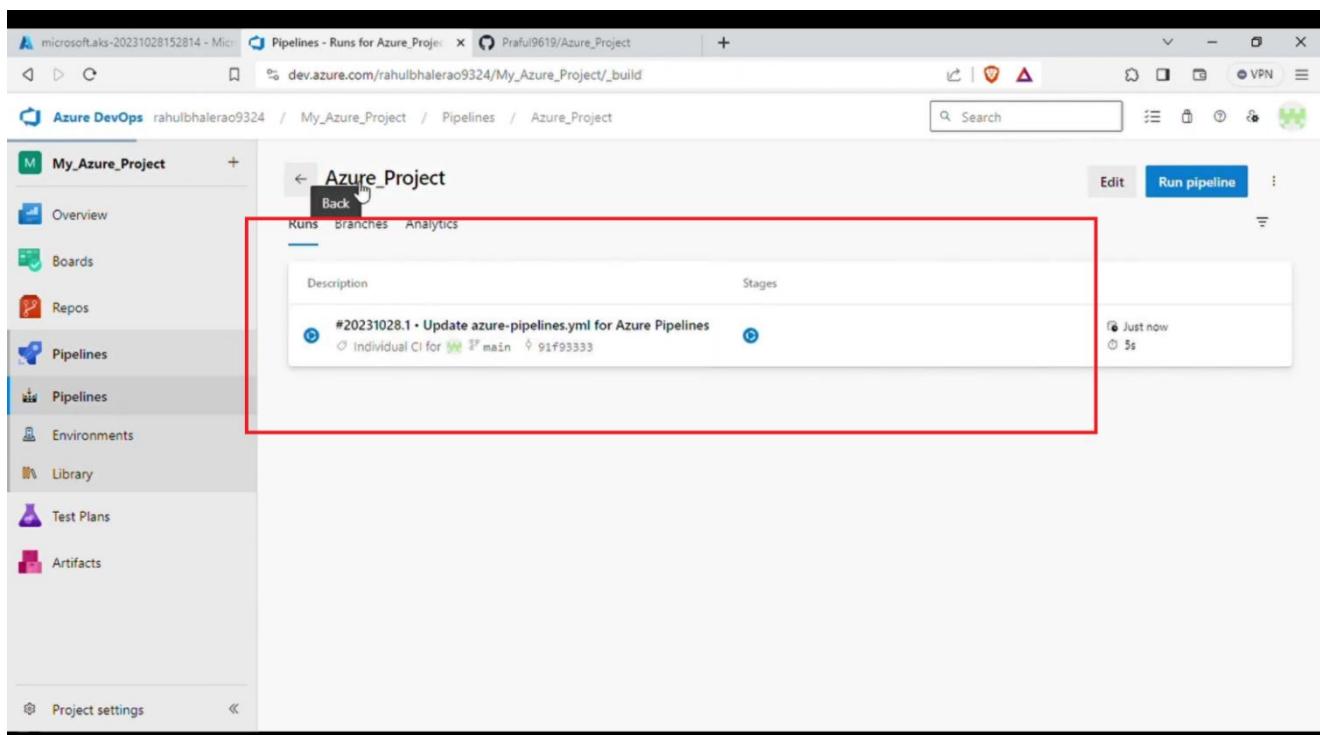
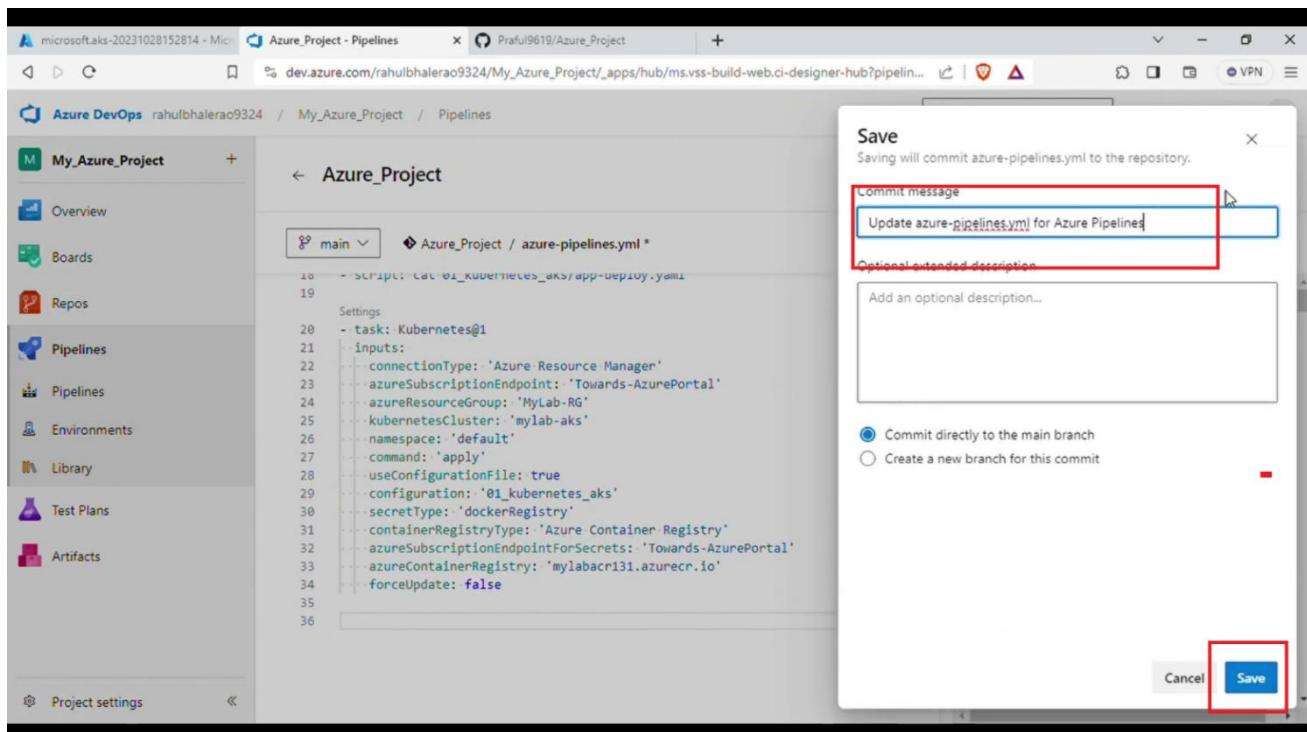
The "Secrets" panel shows the configuration for a secret named "mylabacr131":

- Type of secret: dockerRegistry
- Container registry type: Azure Container Registry
- Azure subscription: Towards-AzurePortal
- Azure container registry: mylabacr131
- Secret name: (empty input field)
- Force update secret

Buttons at the bottom of the Secrets panel include "About this task" and "Add".

```
main
  ◊ Azure_Project / azure-pipelines.yml *
13   inlineScript: |
14     docker build -t mylabacr131.azurecr.io/web-game:tag 2048-game
15     az acr login -n mylabacr131
16     docker push mylabacr131.azurecr.io/web-game:tag
17   ...
18   - script: cat 01_kubernetes_aks/app-deploy.yaml
19
20 Settings
21 - task: Kubernetes@1
22   inputs:
23     connectionType: 'Azure Resource Manager'
24     azureSubscriptionEndpoint: 'Towards-AzurePortal'
25     azureResourceGroup: 'MyLab-RG'
26     kubernetesCluster: 'mylab-aks'
27     namespace: 'default'
28     command: 'apply'
29     useConfigurationFile: true
30     configuration: '01_kubernetes_aks'
31     secretType: 'dockerRegistry'
32     containerRegistryType: 'Azure Container Registry'
33     azureSubscriptionEndpointForSecrets: 'Towards-AzurePortal'
34     azureContainerRegistry: 'mylabacr131.azurecr.io'
35     forceUpdate: false
36
37 Added task
```

And save the code.



A screenshot of the Azure DevOps Pipelines page for the 'My_Azure_Project' repository. The pipeline 'Azure_Project' is listed under 'Recently run pipelines'. A context menu is open over the pipeline entry, showing options: Edit, Run pipeline (highlighted with a red arrow), Manage security, Rename/move, and Delete.

Click on run pipeline.

A screenshot of the Azure DevOps Pipeline run details page for build #20231028.1. The summary section shows the pipeline triggered by 'Rahul' and provides details about the repository, version, and duration of the run. The 'Jobs' section lists a single job named 'Job' with a status of 'Running' and a duration of '12s'. A red box highlights the 'Status' and 'Duration' columns for the job table.

A screenshot of the Azure DevOps Pipelines interface. The pipeline run is titled '#20231028.1 • Update azure-pipelines.yml for Azure Pipelines' and was triggered by 'Rahul'. The summary shows the run was just now completed successfully ('Success') in 1m 10s. A red box highlights the 'Job' entry in the 'Jobs' table.

Triggered by Rahul

Repository and version
Azure_Project
main ↗ 91f93333

Time started and elapsed
Just now
1m 10s

Related
0 work items
0 artifacts

Tests and coverage
Get started

Name	Status	Duration
Job	Success	1m 6s

Go to job

A screenshot of the Azure DevOps Pipelines interface. The pipeline run is titled '#20231028.2 • Update azure-pipelines.yml for Azure Pipelines' and was manually run by 'Rahul'. The summary shows the run was completed successfully ('Success') in 54s. A red box highlights the 'Job' entry in the 'Jobs' table.

Manually run by Rahul

Repository and version
Azure_Project
main ↗ 91f93333

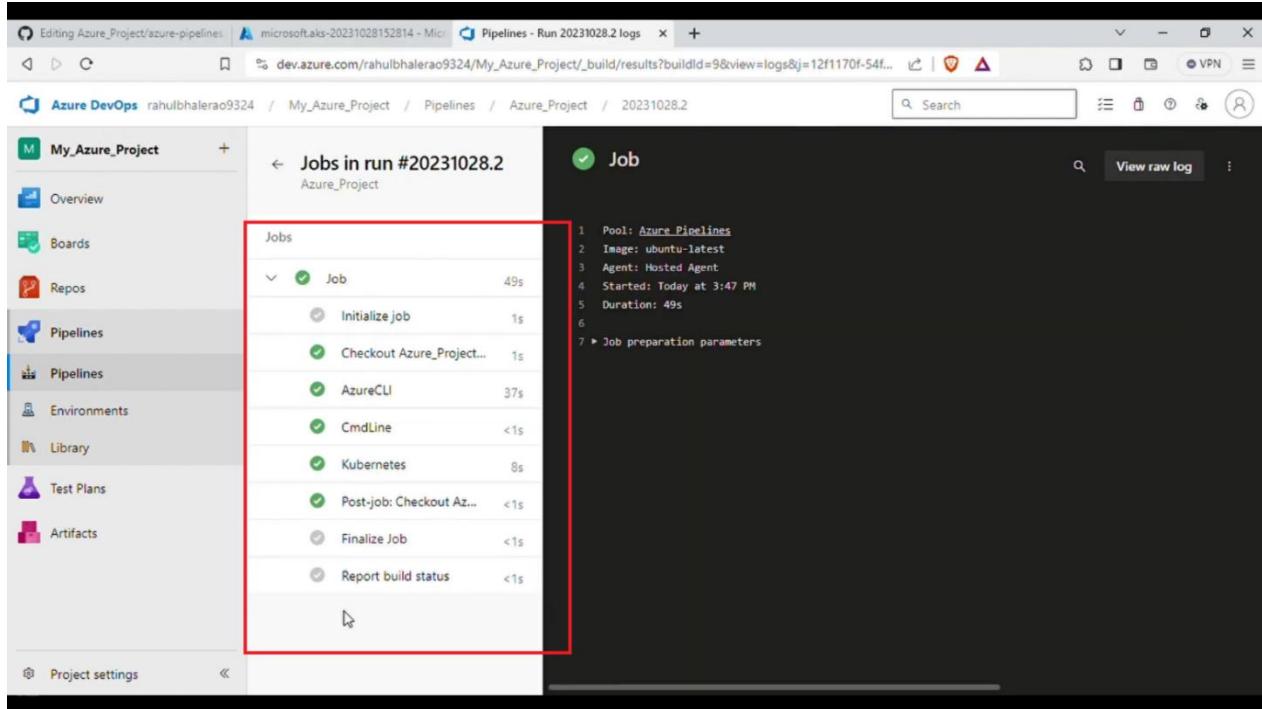
Time started and elapsed
Today at 3:46 PM
54s

Related
0 work items
0 artifacts

Tests and coverage
Get started

Name	Status	Duration
Job	Success	49s

Here you can see the Kubernetes code and the azure cli code, then go to azure cli and at the bottom you will find the ip address of your code.

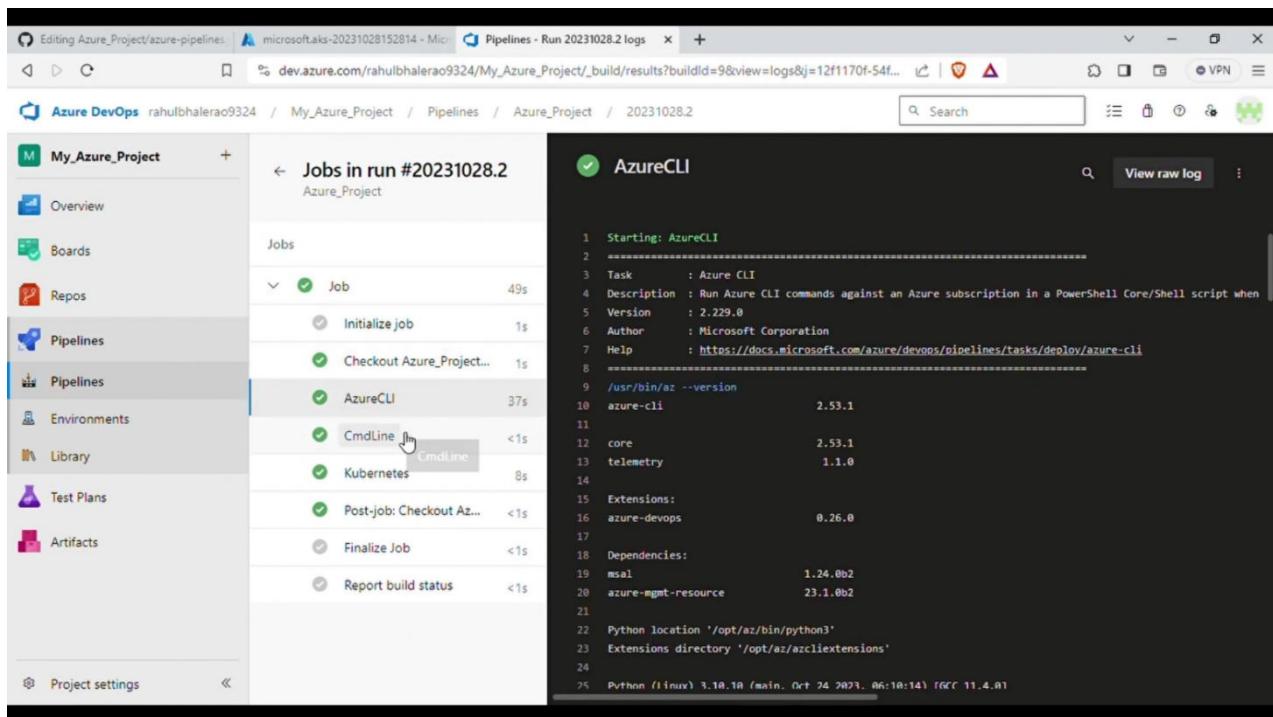


A screenshot of the Azure DevOps interface showing the logs for a pipeline run. The left sidebar shows the project structure: My_Azure_Project > Pipelines > Azure_Project > 20231028.2. The main area displays the 'Jobs in run #20231028.2' section. A red box highlights the 'Job' section, which contains the following tasks:

- Initialize job
- Checkout Azure_Project...
- AzureCLI
- CmdLine
- Kubernetes
- Post-job: Checkout Az...
- Finalize Job
- Report build status

The log pane on the right shows the detailed output for the 'Job' task, which includes the following steps:

```
1 Pool: Azure_Pipelines
2 Image: ubuntu-latest
3 Agent: Hosted Agent
4 Started: Today at 3:47 PM
5 Duration: 49s
6
7 Job preparation parameters
```



A screenshot of the Azure DevOps interface showing the logs for a pipeline run. The left sidebar shows the project structure: My_Azure_Project > Pipelines > Azure_Project > 20231028.2. The main area displays the 'Jobs in run #20231028.2' section. The 'AzureCLI' task is highlighted with a mouse cursor. The log pane on the right shows the detailed output for the 'AzureCLI' task, which includes the following steps:

```
1 Starting: AzureCLI
2 =====
3 Task : Azure CLI
4 Description : Run Azure CLI commands against an Azure subscription in a PowerShell Core/Shell script when
5 Version : 2.229.0
6 Author : Microsoft Corporation
7 Help : https://docs.microsoft.com/azure/devops/pipelines/tasks/deploy/azure-cli
8 =====
9 /usr/bin/az --version
10 azure-cli 2.53.1
11 core 2.53.1
12 telemetry 1.1.0
13
14 Extensions:
15 azure-devops 0.26.0
16
17 Dependencies:
18 msal 1.24.0b2
19 azure-mgmt-resource 23.1.0b2
20
21 Python location '/opt/az/bin/python3'
22 Extensions directory '/opt/az/azcliextensions'
23
24 Python (linux) 3.10.10 (main, Oct 24 2023, 06:10:14) GCC 11.4.0
```

Editing Azure_Project/azure-pipeline | microsoft.aks-20231028152814 - Mic | Pipelines - Run 20231028.2 logs | +

dev.azure.com/rahulbhalerao9324/My_Azure_Project/_build/results?buildId=9&view=logs&j=12f1170f-54f... | VPN |

Azure DevOps rahulbhalerao9324 / My_Azure_Project / Pipelines / Azure_Project / 20231028.2

Search

My_Azure_Project

Overview

Boards

Repos

Pipelines

Pipelines

Environments

Library

Test Plans

Artifacts

Project settings

Jobs in run #20231028.2

Job

Initialize job

Checkout Azure_Project...

AzureCLI

CmdLine

Kubernetes

Post-job: Checkout Az...

Finalize Job

Report build status

CmdLine

Starting: CmdLine

Task : Command line

Description : Run a command line script using Bash on Linux and macOS and cmd.exe on Windows

Version : 2.229.0

Author : Microsoft Corporation

Help : <https://docs.microsoft.com/azure/devops/pipelines/tasks/utility/command-line>

Generating script.

Script contents:

```
cat 01_kubernetes_aks/app-deploy.yaml
```

----- Starting Command Output -----

```
/usr/bin/bash --noprofile --norc /home/vsts/work/_temp/2a976002-98cf-4de4-b353-097fc962b92f.sh
```

apiVersion: apps/v1

kind: Deployment

metadata:

name: web-game

spec:

replicas: 1

selector:

matchLabels:

app: web-game

strategy:

rollingUpdate:

maxSurge: 1

Editing Azure_Project/azure-pipeline | microsoft.aks-20231028152814 - Mic | Pipelines - Run 20231028.2 logs | +

dev.azure.com/rahulbhalerao9324/My_Azure_Project/_build/results?buildId=9&view=logs&j=12f1170f-54f... | VPN |

Azure DevOps rahulbhalerao9324 / My_Azure_Project / Pipelines / Azure_Project / 20231028.2

Search

My_Azure_Project

Overview

Boards

Repos

Pipelines

Pipelines

Environments

Library

Test Plans

Artifacts

Project settings

Jobs in run #20231028.2

Job

Initialize job

Checkout Azure_Project...

AzureCLI

CmdLine

Kubernetes

Post-job: Ch

Finalize Job

Report build status

Kubernetes

Starting: Kubernetes

Task : Kubectl

Description : Deploy, configure, update a Kubernetes cluster in Azure Container Service by running kubectl

Version : 1.227.0

Author : Microsoft Corporation

Help : <https://aka.ms/azores-kubectl-tsg>

Prepending PATH environment variable with directory: /usr/bin

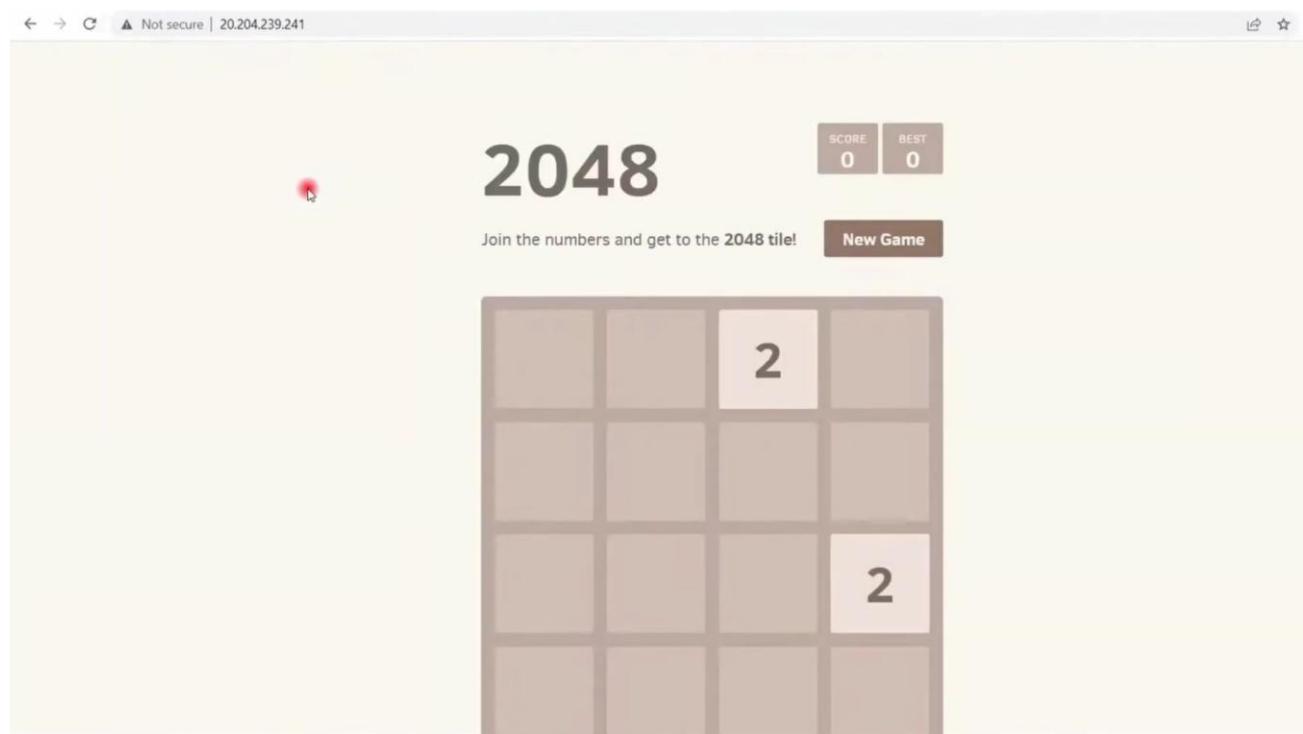
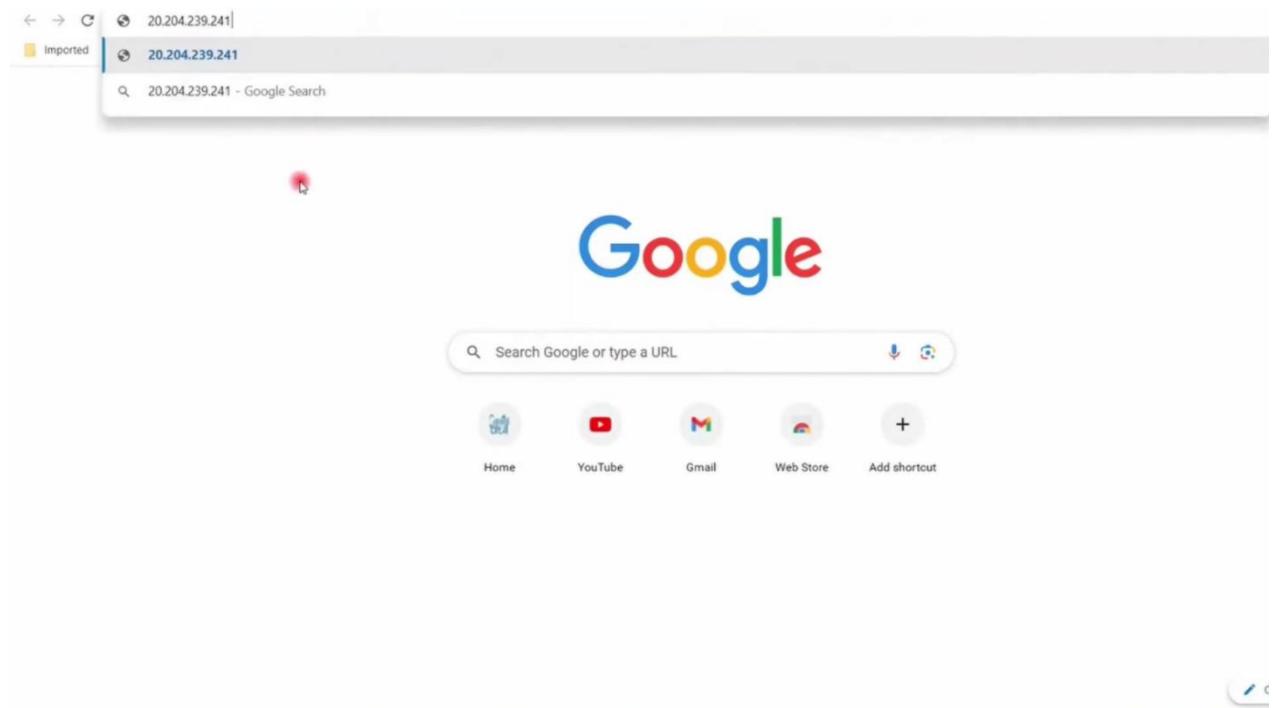
Kubectl Client Version: v1.28.3

Kubectl Server Version: v1.26.6

/usr/bin/kubectl apply -n default -f /home/vsts/work/1/s/01_kubernetes_aks -o json

```
{
  "kind": "List",
  "apiVersion": "v1",
  "metadata": {},
  "items": [
    {
      "apiVersion": "apps/v1",
      "kind": "Deployment",
      "metadata": {
        "annotations": {
          "deployment.kubernetes.io/revision": "1"
        }
      }
    }
  ]
}
```

Go to any browser of your choice and paste the ip address.



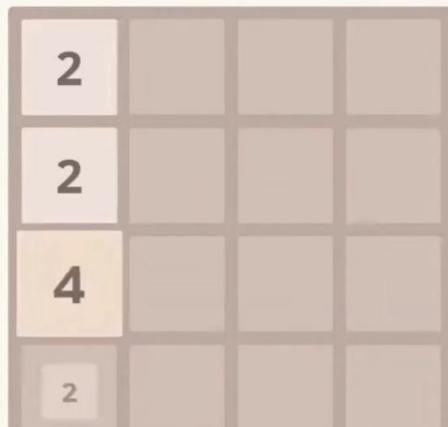
2048

SCORE
+4
4

BEST
4

Join the numbers and get to the 2048 tile!

New Game



2048

SCORE
72
72

Join the numbers and get to the 2048 tile!

New Game

