Kubeflow Setup on Google Cloud Platform:

- We create a docker file

```
Dockerfile U X

E: > extras > Fall 2022 > ML-OPS > kubeflow > salary_pipeline-master > salary_pipeline-master > Dockerfile > ...
1    FROM python:3.8
2
3    COPY  requirements.txt .
4
5    RUN pip install -r requirements.txt
```

- We create a docker image using the docker file locally and export it to google cloud.
- We use the base image of python 3.8 along with the requirement file we created.
- The requirement file contains python libraries needed for code execution.

```
Dockerfile U          ! cloudbuild.yaml U X        requirements.txt U X

E: > extras > Fall 2022 > ML-OPS > kubeflow > code_artifacts > code_rep_gcloud >    requirements.txt
1     sklearn
2     matplotlib
3     fastapi
4     uvicorn
5     tfx
6     python-snappy
7     numpy
8     pandas
9     kfp
10    sympy
```

- Yaml file (cloud build) to specify the steps for build order

```
Dockerfile U           ! cloudbuild.yaml U X

E: > extras > Fall 2022 > ML-OPS > kubeflow > code_artifacts > code_rep_gcloud > ! cloudbuild.yaml
1     steps:
2     - name: 'gcr.io/cloud-builders/docker'
3       args: ['build', '-t', 'gcr.io/singular-willow-339022/mlimage', '.']
4     - name: 'gcr.io/cloud-builders/docker'
5       args: ['push','gcr.io/singular-willow-339022/mlimage' ]
```
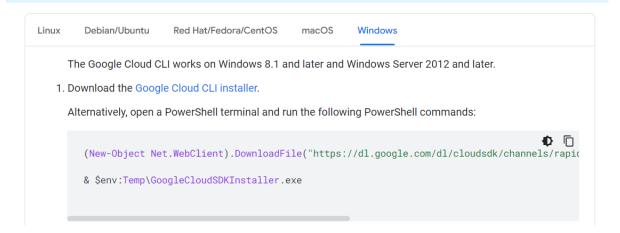
- Using cmd prompt, we run commands to build the docker image on google cloud using the yaml config file.
- To run the google cloud commands on cmd, we first need to instal the google cloud SDK.
- Google cloud SDK can be installed on local windows machine by running power shell commands provided on https://cloud.google.com/sdk/docs/install

Installation instructions

These instructions are for installing the Google Cloud CLI. For information about installing additional components, such as gcloud CLI commands at the alpha or beta release level, see Managing gcloud CLI components.

> ★ **Note:** If you are behind a proxy/firewall, see the proxy settings page for more information on installation.

| Linux | Debian/Ubuntu | Red Hat/Fedora/CentOS | macOS | **Windows** |

The Google Cloud CLI works on Windows 8.1 and later and Windows Server 2012 and later.

1. Download the Google Cloud CLI installer.

Alternatively, open a PowerShell terminal and run the following PowerShell commands:

```
(New-Object Net.WebClient).DownloadFile("https://dl.google.com/dl/cloudsdk/channels/rapi

& $env:Temp\GoogleCloudSDKInstaller.exe
```

Power Shell Command:

```
(New-Object Net.WebClient).DownloadFile
("https://dl.google.com/dl/cloudsdk/channels
/rapid/GoogleCloudSDKInstaller.exe",
"$env:Temp\GoogleCloudSDKInstaller.exe")

& $env:Temp\GoogleCloudSDKInstaller.exe
```

(New-Object Net.WebClient).DownloadFile("https://dl.google.com/dl/cloudsdk/channels/rapid/GoogleCloudSDKInstaller.exe", "$env:Temp\GoogleCloudSDKInstaller.exe")

& $env:Temp\GoogleCloudSDKInstaller.exe

- Proceed by clicking on next till the end. On the finish page, select the 'run gcloud.init to configure the Cloud SDK' option and click on finish.
- Once the google cloud SDK is installed, the google cloud command line can be opened by running the 'gcloud init' command on command prompt.
- During the first login, we are asked to sign into our GCP account. Once the initial sign in is done, restart the terminal.
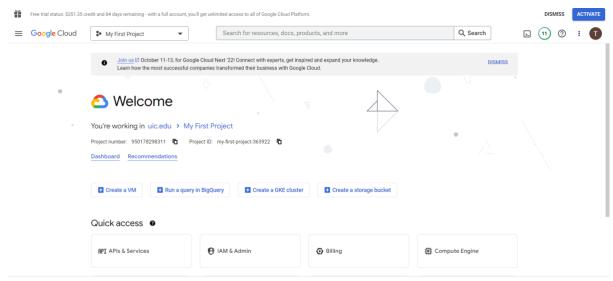

- On restarting the terminal, we can verify the gcp account linked and the gcp project we signed in to.
- On powershell, run the following command:
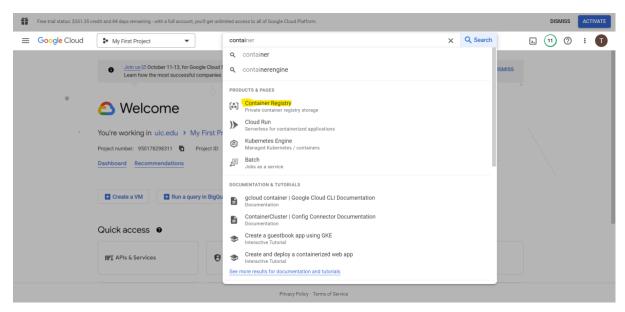- gcloud builds submit --config configbuild.yaml . --timeout=10000

- This command builds our docker file into an image, exports it to our GCP project and runs the container.
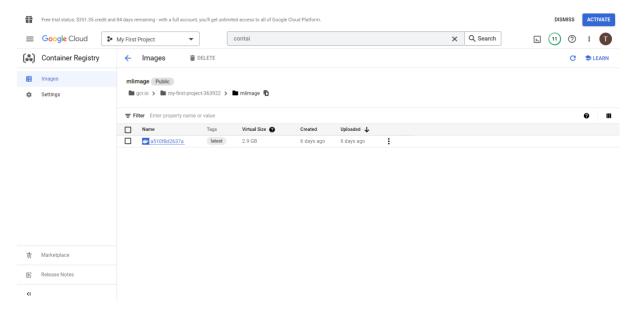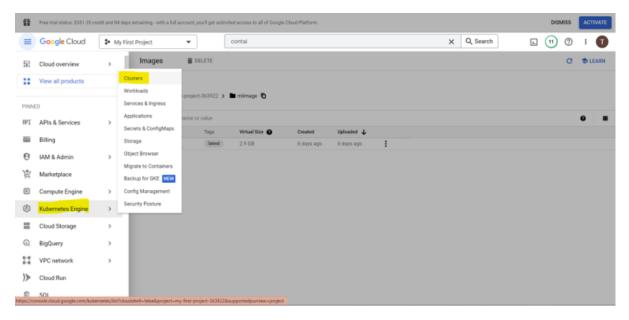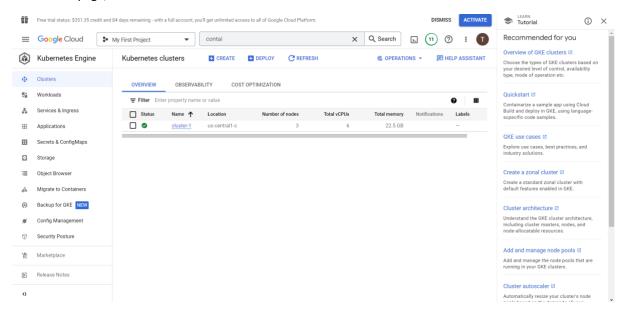- Go to GCP

- Open container registry

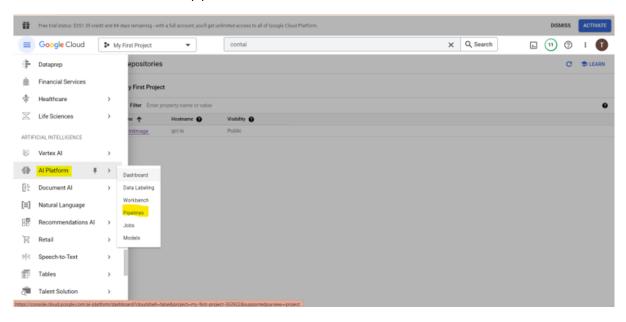- Container of the image built locally and exported can be verified.

- Select the Kubernetes product, then select the clusters option

- On this page, the Kubernetes cluster can be created.

- Go to AI Platform and select pipelines

- We create new Kubeflow pipelines through this UI

Click on "Open Pipeline Dashboard"