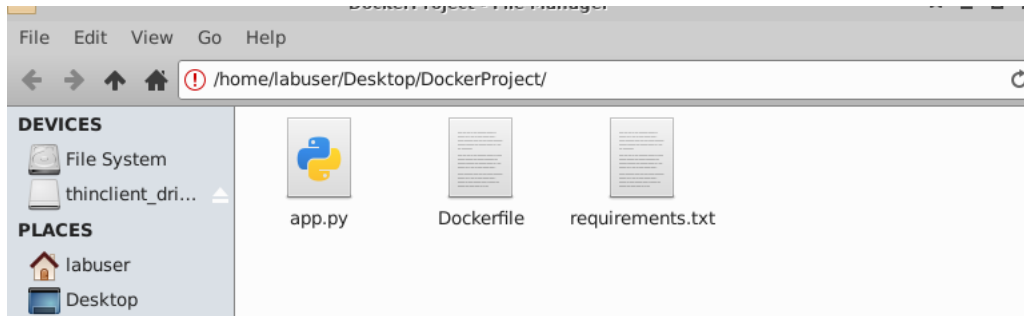Custom Learnings

Day 21

Docker

Creating 3 files for building docker image:
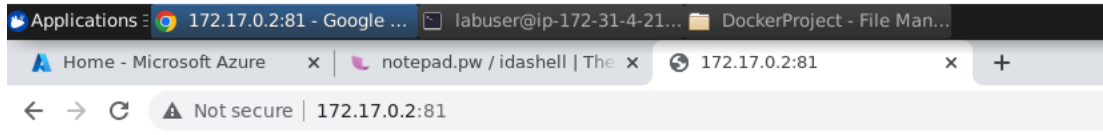

Installing Docker and building docker image:

Run the docker image:

Web App with Python Flask!

Initializing Azure CLI:


```
labuser@ip-172-31-4-214:~/Desktop/DockerProject$ cd
labuser@ip-172-31-4-214:~$ curl -sL https://aka.ms/InstallAzureCLIDeb | sudo bash
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal InRelease

Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]

Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]

Hit:5 http://packages.microsoft.com/repos/code stable InRelease

Hit:6 https://deb.nodesource.com/node_16.x focal InRelease

Ign:1 https://pkg.jenkins.io/debian-stable binary/ InRelease

Get:7 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]

Get:8 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Get:9 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]

Hit:10 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:11 http://apt.postgresql.org/pub/repos/apt focal-pgdg InRelease
Hit:12 http://ppa.launchpad.net/ansible/ansible/ubuntu focal InRelease
Get:13 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2852 kB]
Get:14 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [275 kB]
Get:15 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2328 kB]
Get:16 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1117 kB]
Get:17 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [414 kB]
Get:18 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [25.8 kB]
Get:19 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [944 B]
Get:20 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-backports/main amd64 DEP-11 Metadata [7996 B]
Get:21 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [30.5 kB]
Err:8 https://pkg.jenkins.io/debian-stable binary/ Release.gpg
  The following signatures couldn't be verified because the public key is not available: NO_PUBKEY 5BA31D57EF5975CA
```

Logging into Azure Account through CLI:


```
labuser@ip-172-31-4-214:~$ az login
A web browser has been opened at https://login.microsoftonline.com/organizations/oauth2/v2.0/authorize. Please continue the login in
e web browser. If no web browser is available or if the web browser fails to open, use device code flow with `az login --use-device-c
e`.
Opening in existing browser session.
libva error: vaGetDriverNameByIndex() failed with unknown libva error, driver_name = (null)
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "dce87315-8ffa-4a01-ab40-0de5a7214b2f",
    "id": "7179a1e4-9824-4360-9eda-2930d7e2dc08",
    "isDefault": true,
    "managedByTenants": [],
    "name": "npunext-1680261698581",
    "state": "Enabled",
    "tenantId": "dce87315-8ffa-4a01-ab40-0de5a7214b2f",
    "user": {
      "name": "Shellunext_1693422208756@npunext.onmicrosoft.com",
      "type": "user"
    }
  }
]
```

Creating the resource group and azure container registry:

```
labuser@ip-172-31-4-214:~$ az group create --name RG_IDA_SHELL --location eastus
{
  "id": "/subscriptions/7179a1e4-9824-4360-9eda-2930d7e2dc08/resourceGroups/RG_IDA_SHELL",
  "location": "eastus",
  "managedBy": null,
  "name": "RG_IDA_SHELL",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
labuser@ip-172-31-4-214:~$ az acr create --name idashellacr03 --resource-group RG_IDA_SHELL --location eastus --sku Standard
Resource provider 'Microsoft.ContainerRegistry' used by this operation is not registered. We are registering for you.
Registration succeeded.
{
  "adminUserEnabled": false,
  "anonymousPullEnabled": false,
  "creationDate": "2023-09-28T06:07:32.026543+00:00",
  "dataEndpointEnabled": false,
  "dataEndpointHostNames": [],
```

Logging into the azure acr:

```
labuser@ip-172-31-4-214:~/Desktop/DockerProject$ sudo docker login idashellacr03.azurecr.io
Username: idashellacr03
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
```

Tagging and pushing to the acr repository:

```
labuser@ip-172-31-4-214:~/Desktop/DockerProject$ sudo docker tag my-first-python-app idashellacr03.azurecr.io/my-first-python-app:v1
labuser@ip-172-31-4-214:~/Desktop/DockerProject$ sudo docker push idashellacr03.azurecr.io/my-first-python-app:v1
The push refers to repository [idashellacr03.azurecr.io/my-first-python-app]
f937a0ea8640: Pushed
e02caf25ee01: Pushed
f78dc48200c8: Pushed
e6c5004ee77f: Pushed
997b8e79e84f: Pushed
3054512b6f71: Pushed
ae2d55769c5e: Pushed
e2ef8a51359d: Pushed
v1: digest: sha256:7195a20a551476cee8e86ac47f8a3284cab0b66016302d9664f3906a8b0a119c size: 1995
labuser@ip-172-31-4-214:~/Desktop/DockerProject$ ▉
```

Creation of Kubernetes Cluster:


```
labuser@ip-172-31-4-214:~/Desktop/DockerProject/Kubernetes$ az aks update -n idashellkc03 -g RG_IDA_SHELL --attach-acr idashellacr03
AAD role propagation done[#######################################]  100.000AAD role propagation done[#######################################]  100.0000{
  "aadProfile": null,
  "addonProfiles": {
    "azureKeyvaultSecretsProvider": {
      "config": null,
      "enabled": false,
      "identity": null
```

```
labuser@ip-172-31-4-214:~/Desktop/DockerProject/Kubernetes$ kubectl apply -f deployment.yaml
deployment.apps/my-first-python-app created
labuser@ip-172-31-4-214:~/Desktop/DockerProject/Kubernetes$ kubectl apply -f service.yaml
service/my-first-python-app configured
labuser@ip-172-31-4-214:~/Desktop/DockerProject/Kubernetes$ kubectl get pods
NAME                                    READY   STATUS    RESTARTS   AGE
my-app-f966d9c8d-6zgjm                  1/1     Running   0          49m
my-app-f966d9c8d-nz48v                  1/1     Running   0          49m
my-first-python-app-7cbf5c4874-ljgkj    1/1     Running   0          42s
my-first-python-app-7cbf5c4874-xlv8f    1/1     Running   0          41s
labuser@ip-172-31-4-214:~/Desktop/DockerProject/Kubernetes$ kubectl get svc
NAME                  TYPE           CLUSTER-IP      EXTERNAL-IP       PORT(S)        AGE
kubernetes            ClusterIP      10.0.0.1        <none>            443/TCP        83m
my-first-python-app   LoadBalancer   10.0.162.251    20.241.145.238    80:30861/TCP   49m
```