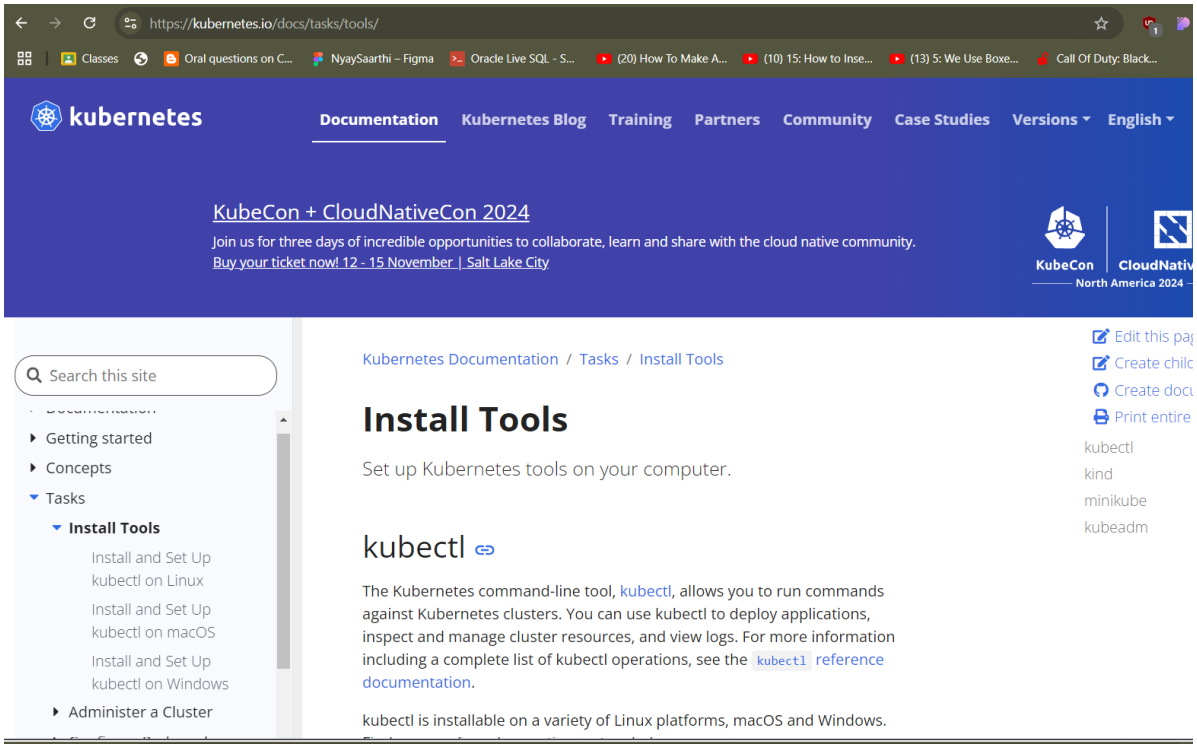
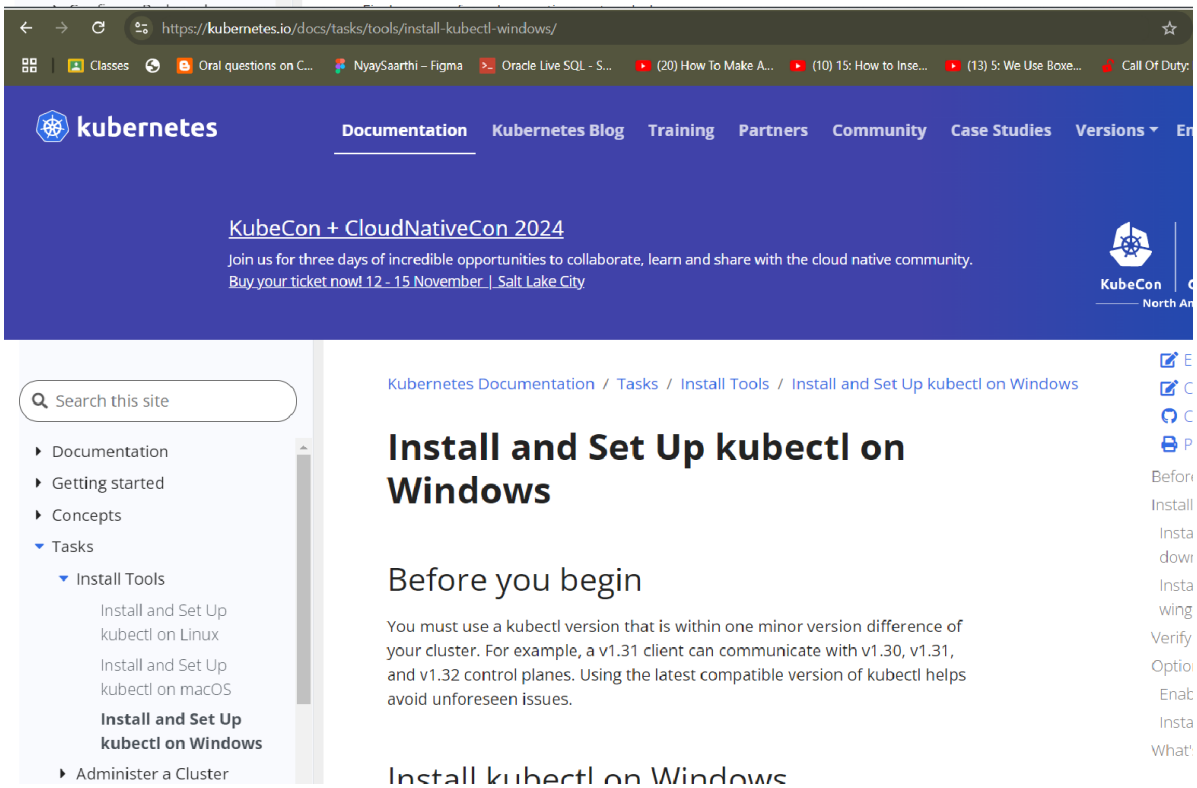
EXP NO 5 KUBERNETES INSTALLATION AND DEPLOY

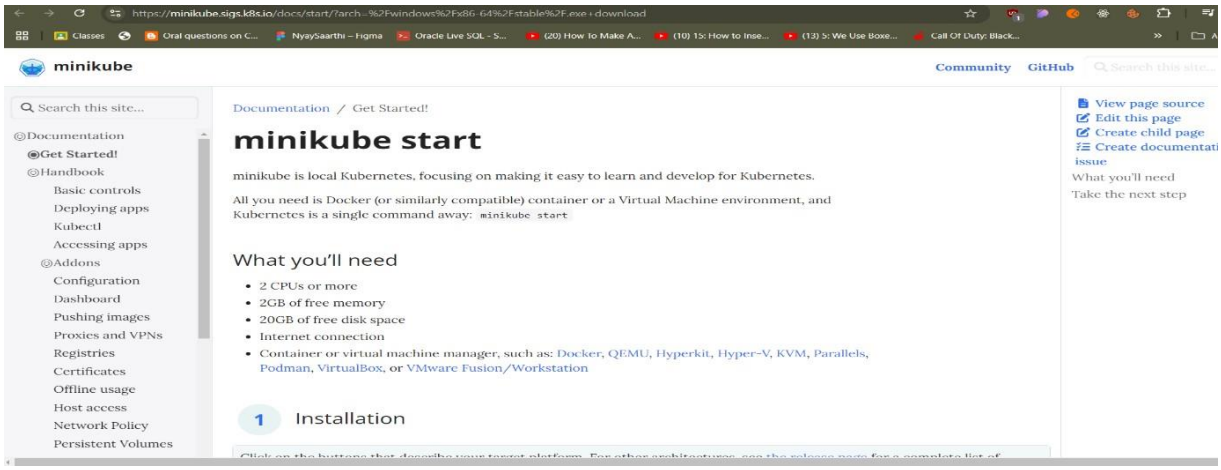
Installing kubectl:

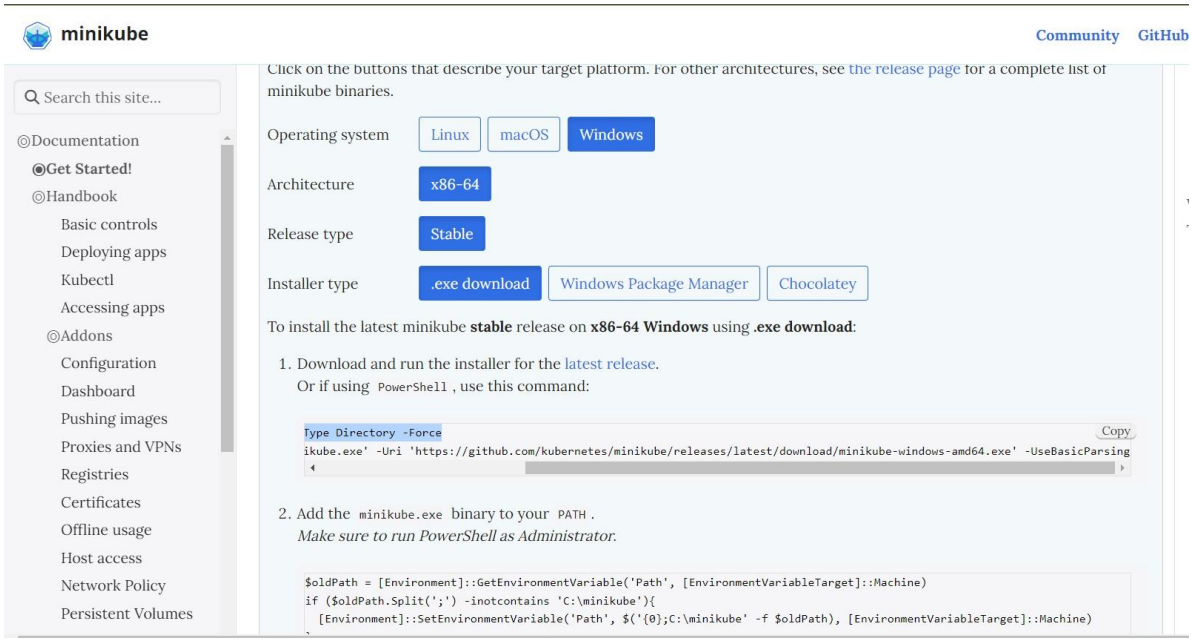




```
Microsoft Windows [Version 10.0.22631.4317]
(c) Microsoft Corporation. All rights reserved.

C:\Kubernetes>curl.exe -LO "https://dl.k8s.io/release/v1.31.0/bin/windows/amd64/kubectl.exe"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    474      0 --:--:-- --:--:-- --:--:--   479
100 55.2M  100 55.2M    0     0  1793k      0  0:00:31  0:00:31 --:--:-- 1820k

C:\Kubernetes>curl.exe -LO "https://dl.k8s.io/v1.31.0/bin/windows/amd64/kubectl.exe.sha256"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    429      0 --:--:-- --:--:-- --:--:--   432
100    64  100    64    0     0    183      0 --:--:-- --:--:-- --:--:--   183

C:\Kubernetes>CertUtil -hashfile kubectl.exe SHA256
SHA256 hash of kubectl.exe:
a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531
CertUtil: -hashfile command completed successfully.

C:\Kubernetes>type kubectl.exe.sha256
a618de26c86421a394de7041f9d0a87752dd4e555894d2278421cf12097fa531
C:\Kubernetes>$(Get-FileHash -Algorithm SHA256 .\kubectl.exe).Hash -eq $(Get-Content .\kubectl.exe.sha256)
'$' is not recognized as an internal or external command,
operable program or batch file.

C:\Kubernetes>kubectl version --client
Client Version: v1.31.0
Kustomize Version: v5.4.2

C:\Kubernetes>
```

Installing minikube:





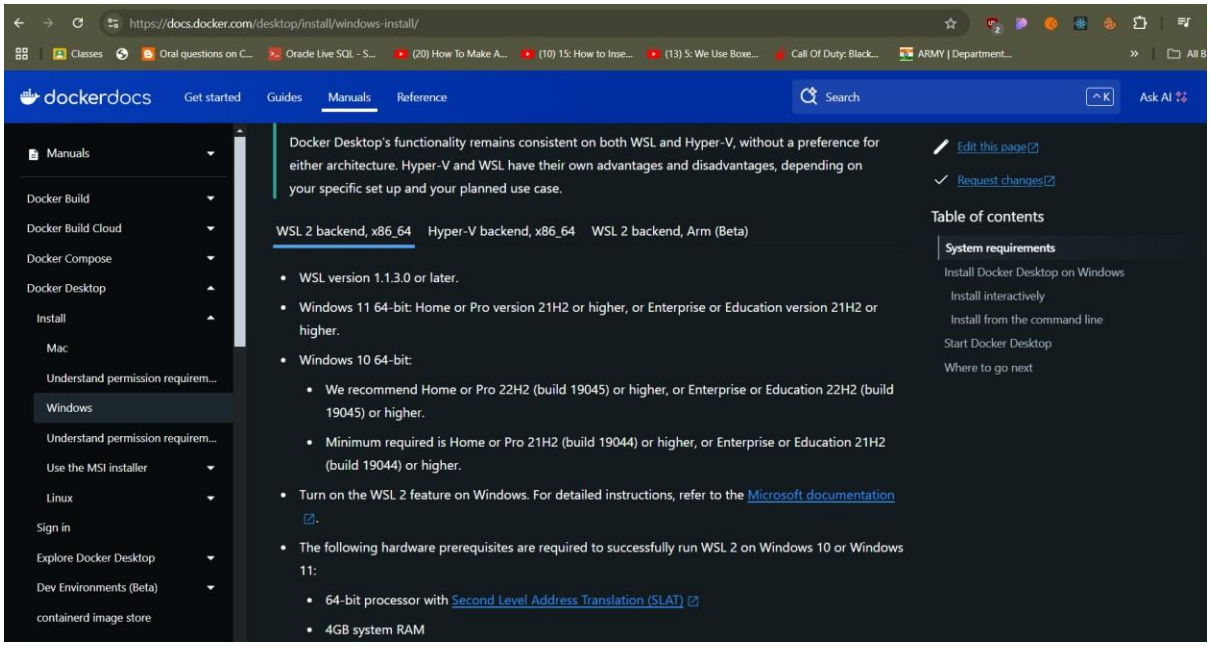
```
PS C:\> New-Item -Path 'c:\' -Name 'minikube' -ItemType Directory -Force


    Directory: C:\


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        18-10-2024     05:04                minikube


PS C:\> Invoke-WebRequest -OutFile 'c:\minikube\minikube.exe' -Uri 'https://github.com/kubernetes/minikube/releases/latest/download/minikube-windows-amd64.e
xe' -UseBasicParsing
PS C:\>
```

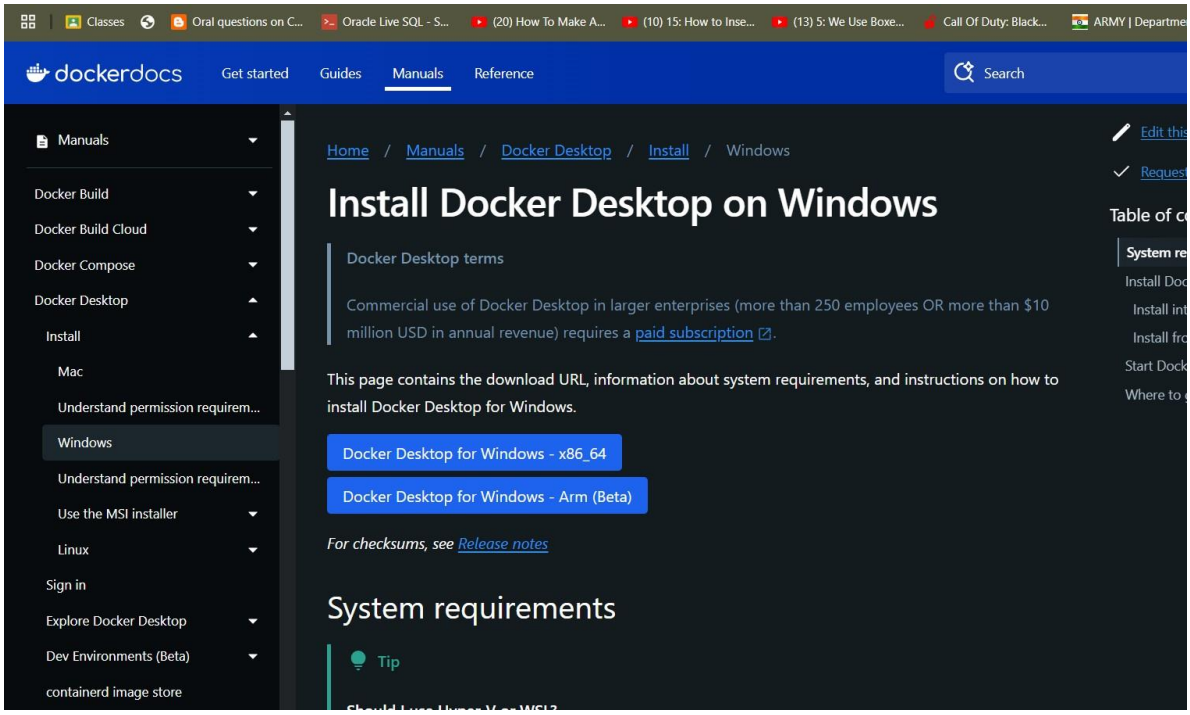
```
Administrator: Windows PowerShell
PS C:\> $oldPath = [Environment]::GetEnvironmentVariable('Path', [EnvironmentVariableTarget]::Machine)
>> if ($oldPath.Split(';') -inotcontains 'C:\minikube'){
>>   [Environment]::SetEnvironmentVariable('Path', $('{0};C:\minikube' -f $oldPath), [EnvironmentVariableTarget]::Machine)
>> }
>>
PS C:\>
```

```
C:\minikube>minikube start
* minikube v1.34.0 on Microsoft Windows 11 Home Single Language 10.0.22631.4317 Build 22631.4317
* Using the docker driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.45 ...
* Updating the running docker "minikube" container ...
! Failing to connect to https://registry.k8s.io/ from inside the minikube container
* To pull new external images, you may need to configure a proxy: https://minikube.sigs.k8s.io/docs/reference/networking/proxy/
* Preparing Kubernetes v1.31.0 on Docker 27.2.0 ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default

C:\minikube>minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured


C:\minikube>
```

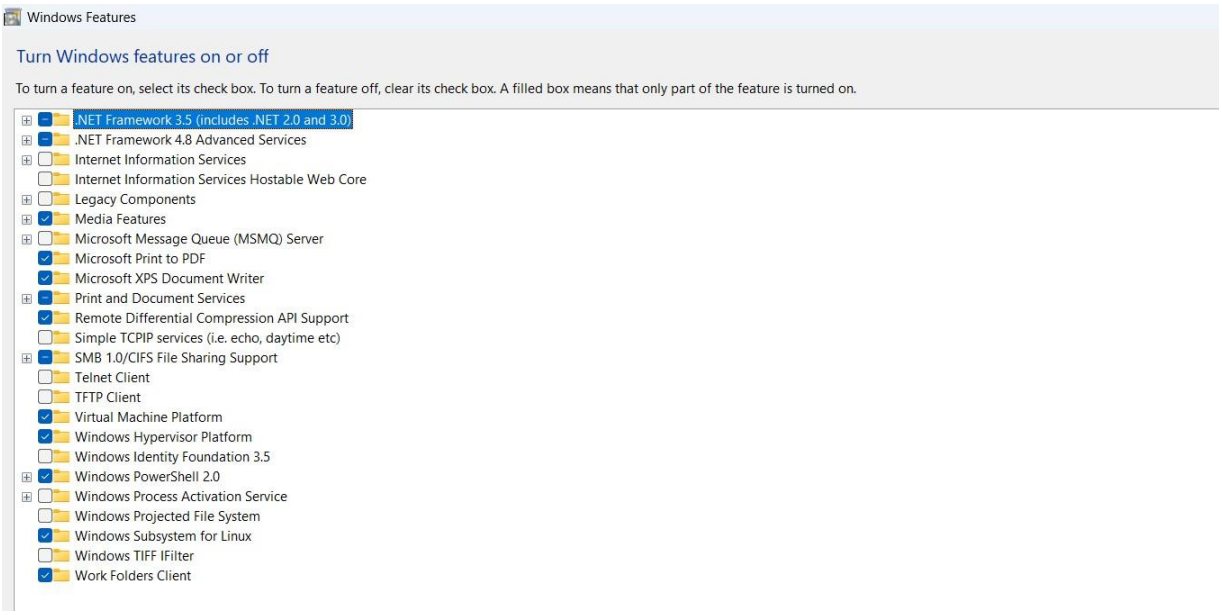
Installing Docker :

Check for System requirements:

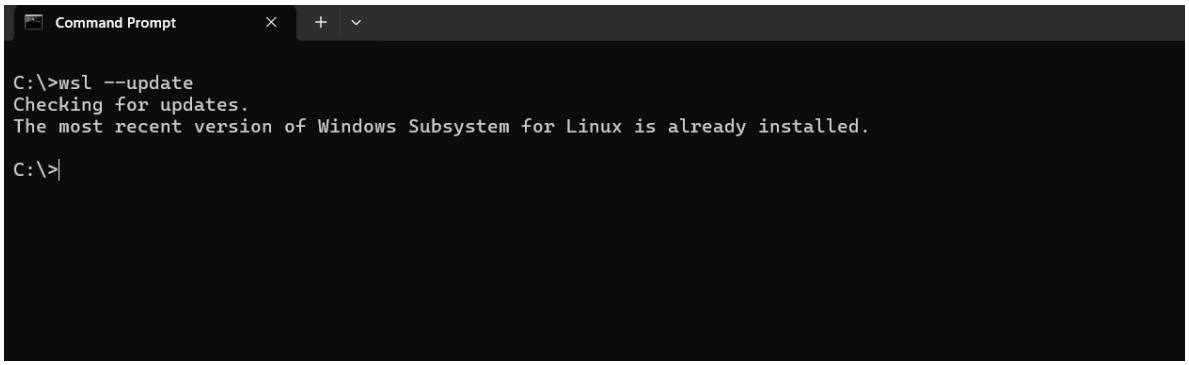


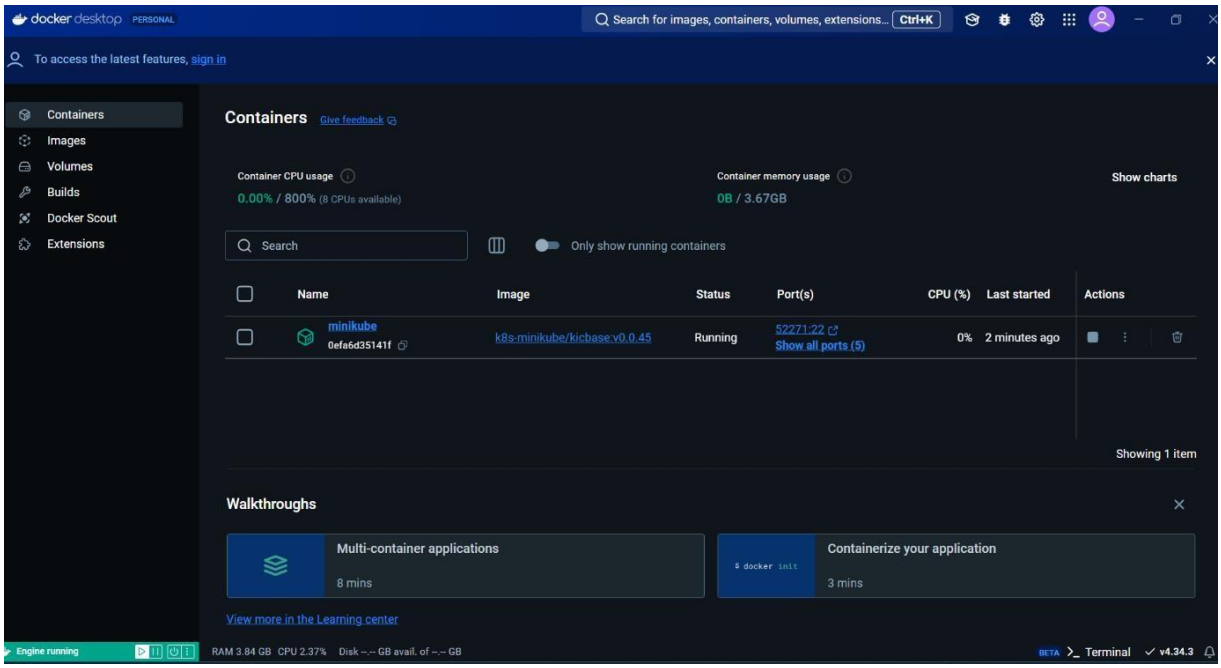


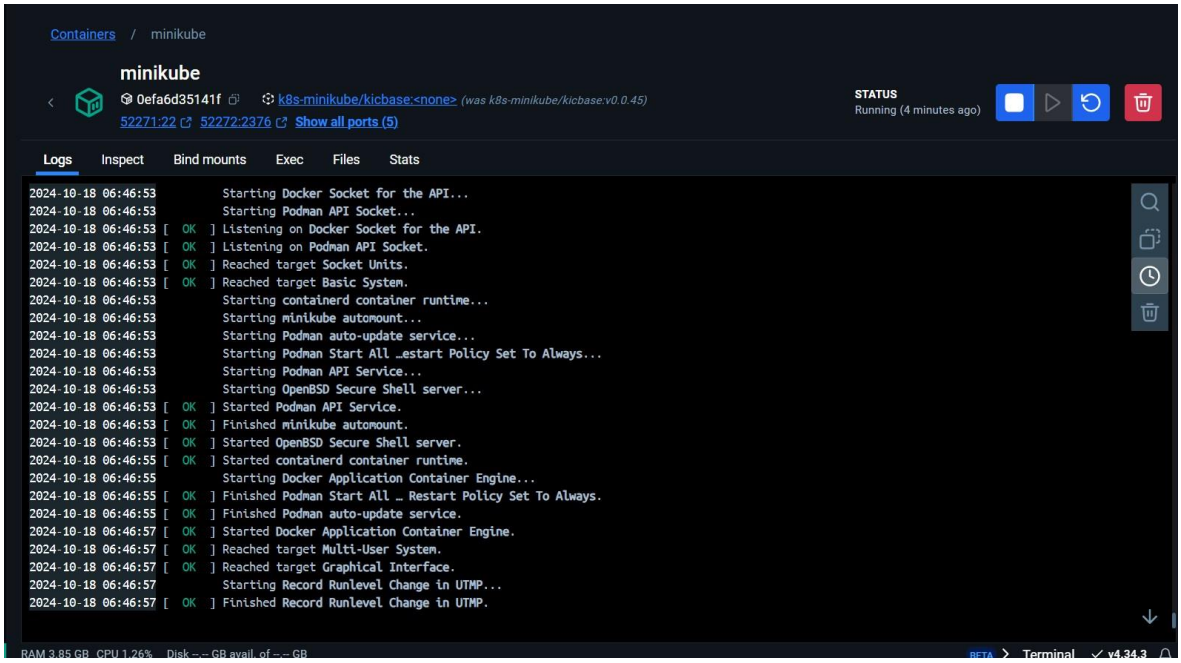
Make sure you have selected :Virtual Machine Platform,Windows Hypervisior Platform and Windows Subsystem for Linux and restart your system once selected to run docker smoothly.



Command to update wsl:




docker desktop PERSONAL
Search for images, containers, volumes, extensions... Ctrl+K
To access the latest features, sign in
Containers
Images
Volumes
Builds
Docker Scout
Extensions
Containers Give feedback
Container CPU usage
0.00% / 800% (8 CPUs available)
Container memory usage
0B / 3.67GB
Show charts
Search
Only show running containers
Name
Image
Status
Port(s)
CPU (%)
Last started
Actions
minikube
0efa6d35141f
k8s-minikube/kicbase:v0.0.45
Running
52271:22
Show all ports (5)
0%
2 minutes ago
Showing 1 item
Walkthroughs
Multi-container applications
8 mins
Containerize your application
3 mins
View more in the Learning center
Engine running
RAM 3.84 GB CPU 2.37% Disk –.– GB avail. of –.– GB
Terminal
v4.34.3


Containers / minikube
minikube
0efa6d35141f
k8s-minikube/kicbase:<none> (was k8s-minikube/kicbase:v0.0.45)
52271:22 52272:2376 Show all ports (5)
STATUS
Running (4 minutes ago)
Logs
Inspect
Bind mounts
Exec
Files
Stats
2024-10-18 06:46:53 Starting Docker Socket for the API...
2024-10-18 06:46:53 Starting Podman API Socket...
2024-10-18 06:46:53 [OK] Listening on Docker Socket for the API.
2024-10-18 06:46:53 [OK] Listening on Podman API Socket.
2024-10-18 06:46:53 [OK] Reached target Socket Units.
2024-10-18 06:46:53 [OK] Reached target Basic System.
2024-10-18 06:46:53 Starting containerd container runtime...
2024-10-18 06:46:53 Starting minikube automount...
2024-10-18 06:46:53 Starting Podman auto-update service...
2024-10-18 06:46:53 Starting Podman Start All …estart Policy Set To Always...
2024-10-18 06:46:53 Starting Podman API Service...
2024-10-18 06:46:53 Starting OpenBSD Secure Shell server...
2024-10-18 06:46:53 [OK] Started Podman API Service.
2024-10-18 06:46:53 [OK] Finished minikube automount.
2024-10-18 06:46:53 [OK] Started OpenBSD Secure Shell server.
2024-10-18 06:46:55 [OK] Started containerd container runtime.
2024-10-18 06:46:55 Starting Docker Application Container Engine...
2024-10-18 06:46:55 [OK] Finished Podman Start All … Restart Policy Set To Always.
2024-10-18 06:46:55 [OK] Finished Podman auto-update service.
2024-10-18 06:46:57 [OK] Started Docker Application Container Engine.
2024-10-18 06:46:57 [OK] Reached target Multi-User System.
2024-10-18 06:46:57 [OK] Reached target Graphical Interface.
2024-10-18 06:46:57 Starting Record Runlevel Change in UTMP...
2024-10-18 06:46:57 [OK] Finished Record Runlevel Change in UTMP.
RAM 3.85 GB CPU 1.26% Disk –.– GB avail. of –.– GB
Terminal
v4.34.3

```
C:\minikube>kubectl get po -A
NAMESPACE     NAME                               READY   STATUS    RESTARTS      AGE
kube-system   coredns-6f6b679f8f-bq25z           1/1     Running   1 (18m ago)   23m
kube-system   etcd-minikube                      1/1     Running   1 (18m ago)   23m
kube-system   kube-apiserver-minikube            1/1     Running   1 (18m ago)   23m
kube-system   kube-controller-manager-minikube   1/1     Running   1 (18m ago)   23m
kube-system   kube-proxy-k4459                   1/1     Running   1 (18m ago)   23m
kube-system   kube-scheduler-minikube            1/1     Running   1 (18m ago)   23m
kube-system   storage-provisioner                1/1     Running   3 (73s ago)   23m

C:\minikube>kubectl create deployment hello-minikube --image=kicbase/echo-server:1.0
deployment.apps/hello-minikube created

C:\minikube>kubectl expose deployment hello-minikube --type=NodePort --port=8080
service/hello-minikube exposed
```

```
C:\minikube>kubectl get services hello-minikube
NAME             TYPE       CLUSTER-IP      EXTERNAL-IP   PORT(S)          AGE
hello-minikube   NodePort   10.102.156.18   <none>        8080:32254/TCP   116s

C:\minikube>minikube service hello-minikube
|-----------|----------------|-------------|---------------------------|
| NAMESPACE |      NAME      | TARGET PORT |            URL            |
|-----------|----------------|-------------|---------------------------|
| default   | hello-minikube |        8080 | http://192.168.49.2:32254 |
|-----------|----------------|-------------|---------------------------|
* Starting tunnel for service hello-minikube.
|-----------|----------------|-------------|------------------------|
| NAMESPACE |      NAME      | TARGET PORT |          URL           |
|-----------|----------------|-------------|------------------------|
| default   | hello-minikube |             | http://127.0.0.1:53604 |
|-----------|----------------|-------------|------------------------|
* Opening service default/hello-minikube in default browser...
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```