

CC Lab 5

Name - Rithvik Rajesh Matta

Class - 6H

SRN - PES2UG23CS485

```
PS C:\Users\rithv> kubectl get nodes
NAME      STATUS    ROLES      AGE      VERSION
minikube  Ready     control-plane   3m10s   v1.35.0
PS C:\Users\rithv> |
```

```
PS C:\Users\rithv> kubectl create namespace pes2ug23cs485-alpha
namespace/pes2ug23cs485-alpha created
PS C:\Users\rithv> kubectl create namespace pes2ug23cs485-beta
namespace/pes2ug23cs485-beta created
PS C:\Users\rithv> kubectl get namespaces
NAME      STATUS    AGE
default  Active   24m
kube-node-lease  Active   24m
kube-public  Active   24m
kube-system  Active   24m
pes2ug23cs485  Active   8m32s
pes2ug23cs485-alpha  Active   17s
pes2ug23cs485-beta  Active   5s
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl config set-context --current --namespace=pes2ug23cs485-alpha
Context "minikube" modified.
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl run citizen kubectl --image=nginx --restart=Never
pod/citizen created
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl get pods
NAME      READY    STATUS    RESTARTS   AGE
citizen  0/1     Error     0          12s
PS C:\Users\rithv>
```

```

PS C:\Users\rithv> kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
citizen   0/1     Error     0          12s
PS C:\Users\rithv> kubectl describe pod citizen
Name:           citizen
Namespace:      pes2ug23cs485-alpha
Priority:       0
Service Account: default
Node:          minikube/192.168.49.2
Start Time:    Tue, 10 Feb 2026 15:00:03 +0530
Labels:         run=citizen
Annotations:   <none>
Status:        Failed
IP:            10.244.0.5
IPs:
  IP:  10.244.0.5
Containers:
  citizen:
    Container ID: docker://844be91aa21f1bb5724f962c60831a13f57b27b492919b2a91ca46clf204171e
    Image:          nginx
    Image ID:      docker-pullable://nginx@sha256:341bf0f3ce6c5277d6002cf6e1fb0319fa4252add24ab6a0e262e0056d313208
    Port:          <none>
    Host Port:    <none>
    Args:
      kubectl
    State:        Terminated
      Reason:     Error
      Exit Code:  127
      Started:   Tue, 10 Feb 2026 15:00:08 +0530
      Finished:  Tue, 10 Feb 2026 15:00:08 +0530
    Ready:        False
    Restart Count: 0
    Environment:  <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-vrb92 (ro)
Conditions:
  Type        Status
  PodReadyToStartContainers  False
  Initialized  True
  Ready        False
  ContainersReady  False
  PodScheduled  True

```

```

PS C:\Users\rithv>

          kubectl delete pod citizen
pod "citizen" deleted from pes2ug23cs485-alpha namespace
PS C:\Users\rithv>

```

```

PS C:\Users\rithv> kubectl get pods -w
NAME      READY   STATUS    RESTARTS   AGE
temp     0/1     Pending   0          0s
temp     0/1     Pending   0          0s
temp     0/1     ContainerCreating 0          0s
temp     1/1     Running   0          5s
temp     1/1     Terminating 0          8s
temp     1/1     Terminating 0          8s
temp     0/1     Completed  0          9s
temp     0/1     Completed  0          9s
temp     0/1     Completed  0          9s

```

```
PS C:\Users\rithv> kubectl run temp --image=nginx
pod/temp created
PS C:\Users\rithv> kubectl delete pod temp
pod "temp" deleted from pes2ug23cs485-alpha namespace
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl run broken --image=busybox --restart=Never --command -- sh -c "echo 'CRASH: something went wrong' >&2; exit 1"
pod/broken created
PS C:\Users\rithv> kubectl logs broken
Error from server (BadRequest): container "broken" in pod "broken" is waiting to start: ContainerCreating
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl create deployment pes2ug23cs485 --image=nginx
deployment.apps/pes2ug23cs485 created
```

```
PS C:\Users\rithv> kubectl get deployments -n pes2ug23cs485-alpha
NAME      READY  UP-TO-DATE  AVAILABLE  AGE
pes2ug23cs485  1/1    1          1          45s
PS C:\Users\rithv> kubectl get pods -n pes2ug23cs485-alpha
NAME            READY  STATUS      RESTARTS  AGE
broken          0/1    ImagePullBackOff  0         2m33s
pes2ug23cs485-58f577ccf7-9ldk2  1/1    Running     0         56s
PS C:\Users\rithv>
```

```
PS C:\Users\rithv> kubectl scale deployment pes2ug23cs485 --replicas=5
deployment.apps/pes2ug23cs485 scaled
PS C:\Users\rithv> kubectl get pods
NAME            READY  STATUS      RESTARTS  AGE
broken          0/1    ImagePullBackOff  0         3m5s
pes2ug23cs485-58f577ccf7-6prqx  0/1    ContainerCreating  0         6s
pes2ug23cs485-58f577ccf7-9ldk2  1/1    Running     0         88s
pes2ug23cs485-58f577ccf7-fw5q6  0/1    ContainerCreating  0         6s
pes2ug23cs485-58f577ccf7-mq7rd  0/1    ContainerCreating  0         6s
pes2ug23cs485-58f577ccf7-wn6xv  0/1    ContainerCreating  0         6s
PS C:\Users\rithv> kubectl scale deployment pes2ug23cs485 --replicas=3
deployment.apps/pes2ug23cs485 scaled
PS C:\Users\rithv> kubectl get pods
NAME            READY  STATUS      RESTARTS  AGE
broken          0/1    ImagePullBackOff  0         3m20s
pes2ug23cs485-58f577ccf7-6prqx  1/1    Running     0         21s
pes2ug23cs485-58f577ccf7-9ldk2  1/1    Running     0         103s
pes2ug23cs485-58f577ccf7-fw5q6  1/1    Running     0         21s
PS C:\Users\rithv>
```

```

PS C:\Users\rithv> kubectl get rs,po
NAME                                DESIRED   CURRENT   READY   AGE
replicaset.apps/pes2ug23cs485-58f577ccf7   3         3         3      2m5s

NAME                  READY   STATUS    RESTARTS   AGE
pod/broken           0/1     ErrImagePull  0          3m42s
pod/pes2ug23cs485-58f577ccf7-6prqx   1/1     Running   0          43s
pod/pes2ug23cs485-58f577ccf7-9ldk2   1/1     Running   0          2m5s
pod/pes2ug23cs485-58f577ccf7-fw5q6   1/1     Running   0          43s
PS C:\Users\rithv>

```

```

PS C:\Users\rithv> kubectl set image deployment/pes2ug23cs485 nginx=nginx:1.25
deployment.apps/pes2ug23cs485 image updated
PS C:\Users\rithv> kubectl get rs,po
NAME                                DESIRED   CURRENT   READY   AGE
replicaset.apps/pes2ug23cs485-58f577ccf7   3         3         3      2m50s
replicaset.apps/pes2ug23cs485-6ccb96878f   1         1         0      7s

NAME                  READY   STATUS    RESTARTS   AGE
pod/broken           0/1     ImagePullBackOff  0          4m27s
pod/pes2ug23cs485-58f577ccf7-6prqx   1/1     Running   0          88s
pod/pes2ug23cs485-58f577ccf7-9ldk2   1/1     Running   0          2m50s
pod/pes2ug23cs485-58f577ccf7-fw5q6   1/1     Running   0          88s
pod/pes2ug23cs485-6ccb96878f-j4vjx   0/1     ErrImagePull  0          7s
PS C:\Users\rithv>

```

```

PS C:\Users\rithv> kubectl rollout history deployment pes2ug23cs485
deployment.apps/pes2ug23cs485
REVISION  CHANGE-CAUSE
2        <none>
3        <none>

```

```

PS C:\Users\rithv> kubectl rollout history deployment pes2ug23cs485 --revision=2
deployment.apps/pes2ug23cs485 with revision #2
Pod Template:
  Labels:      app=pes2ug23cs485
                pod-template-hash=6ccb96878f
  Containers:
    nginx:
      Image:      nginx:1.25
      Port:       <none>
      Host Port: <none>
      Environment: <none>
      Mounts:      <none>
      Volumes:     <none>
      Node-Selectors: <none>
      Tolerations:  <none>

```

```
PS C:\Users\rithv> mkdir PES2UG23CS485
```

```
Directory: C:\Users\rithv
```

Mode	LastWriteTime	Length	Name
----	-----	-----	-----
d----	10-02-2026 03.16 PM		PES2UG23CS485

```
PS C:\Users\rithv> cd PES2UG23CS485
```

```
PS C:\Users\rithv\PES2UG23CS485> docker build -t pes2ug23cs485-nginx:1.0 .
[+] Building 5.8s (7/7) FINISHED
=> [internal] load build definition from dockerfile
=> => transferring dockerfile: 89B
=> [internal] load metadata for docker.io/library/nginx:alpine
=> [internal] load .dockerrcignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 245B
=> [1/2] FROM docker.io/library/nginx:alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d77
=> => resolve docker.io/library/nginx@alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d77
=> => sha256:5e7756927bef33a266e1221356d5da855139cb80bc5b13827010811d9ea268 20.24MB / 20.24MB
=> => sha256:bca5d04786e112d958f100a66f8257b2aeefc14b64d81e405c3c44acff2fb000 1.86MB / 1.86MB
=> => sha256:6d397a54a185dd0b6638d1a3934b81dae7fa140741e12697377d6279066f7ca7 1.40kB / 1.40kB
=> => sha256:955a8478f9aceb66cbf2f579fa3c24e1af278d1fa3fd3043d6260e21d2f7416 1.21kB / 1.21kB
=> => sha256:399d0898a94e0084f81499a3e3c29824357118c7ce551648ea1dbab13884661 404B / 404B
=> => sha256:3e2c181db1b6985ce357c7aaaf8ac615f30f392cd15d5c5ba34c4fa1f4f39a2 626B / 626B
=> => sha256:6b7b6c7061b76cdb8601e18722d12ae3232f0ddcfa1d2983754abcc6ce0a8a83 954B / 954B
=> => sha256:589902ba0eaed121a1dbf42f6648f29e5be55d5c8a6ee0f8eaa0285cc21ac153 3.86MB / 3.86MB
=> => extracting sha256:589902ba0eaed121a1dbf42f6648f29e5be55d5c8a6ee0f8eaa0285cc21ac153
=> => extracting sha256:bca5d04786e112d958f100a66f8257b2aeefc14b64d81e405c3c44acff2fb000
=> => extracting sha256:3e2c181db1b6985ce357c7aaaf8ac615f30f392cd15d5c5ba34c4fa1f4f39a2
=> => extracting sha256:6b7b6c7061b76cdb8601e18722d12ae3232f0ddcfa1d2983754abcc6ce0a8a83
=> => extracting sha256:399d0898a94e0084f81499a3e3c29824357118c7ce551648ea1dbab13884661
=> => extracting sha256:955a8478f9aceb66cbf2f579fa3c24e1af278d1fa3fd3043d6260e21d2f7416
=> => extracting sha256:6d397a54a185dd0b6638d1a3934b81dae7fa140741e12697377d6279066f7ca7
=> => extracting sha256:955a8478f9aceb66cbf2f579fa3c24e1af278d1fa3fd3043d6260e21d2f7416
=> [2/2] COPY html /usr/share/nginx/html
=> => exporting to image
=> => exporting layers
=> => exporting manifest sha256:e867b3adb61d44df9a47a2efd7ee7aa0580993ceaf58b192b22efc3194faba9d
=> => exporting config sha256:0abd07dff015a3cac7c2d9f38d4ecddc8fd7bbc46df75c62e36c602354d32c9
=> => exporting attestation manifest sha256:5fff19694c8e45439baab8468d30ad5a3fa28d1ee782cc9f62b028d24dbfb7
=> => exporting manifest list sha256:d662c44080cd73d16d76eb47f7ce4cb9872505af0e0d571a487e92dab32a71b4
=> => naming to docker.io/library/pes2ug23cs485-nginx:1.0
=> => unpacking to docker.io/library/pes2ug23cs485-nginx:1.0
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl apply -f nginx-pes2ug23cs485.yaml -n pes2ug23cs485-beta
deployment.apps/nginx-pes1ug23csxxx created
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl config set-context --current --namespace=pes2ug23cs485-beta
Context "minikube" modified.
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl get deployments
NAME                  READY   UP-TO-DATE   AVAILABLE   AGE
nginx-pes1ug23csxxx   0/3     3           0           2m44s
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl apply -f pes2ug23cs485-service.yaml
service/pes2ug23cs485-service created
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl apply -f pes2ug23cs485-service.yaml
service/pes2ug23cs485-service created
PS C:\Users\rithv\PES2UG23CS485> kubectl get services
NAME           TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
pes2ug23cs485-service   ClusterIP  10.97.63.132 <none>       80/TCP    15s
PS C:\Users\rithv\PES2UG23CS485> kubectl describe service pes2ug23cs485-service
Name:           pes2ug23cs485-service
Namespace:      pes2ug23cs485-beta
Labels:          <none>
Annotations:    <none>
Selector:       app=nginx
Type:           ClusterIP
IP Family Policy: SingleStack
IP Families:   IPv4
IP:             10.97.63.132
IPs:            10.97.63.132
Port:           <unset>  80/TCP
TargetPort:     80/TCP
Endpoints:
Session Affinity: None
Internal Traffic Policy: Cluster
Events:          <none>
PS C:\Users\rithv\PES2UG23CS485> kubectl get endpoints pes2ug23cs485-service
Warning: v1 Endpoints is deprecated in v1.33+; use discovery.k8s.io/v1 EndpointSlice
NAME           ENDPOINTS   AGE
pes2ug23cs485-service   47s
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl delete pod -l app=nginx
pod "nginx-peslug23csxxx-5c6fb87df9-4jpfv" deleted from pes2ug23cs485-beta namespace
pod "nginx-peslug23csxxx-5c6fb87df9-4vwsq" deleted from pes2ug23cs485-beta namespace
pod "nginx-peslug23csxxx-5c6fb87df9-c8btf" deleted from pes2ug23cs485-beta namespace
PS C:\Users\rithv\PES2UG23CS485> kubectl get endpoints pes2ug23cs485-service
Warning: v1 Endpoints is deprecated in v1.33+; use discovery.k8s.io/v1 EndpointSlice
NAME           ENDPOINTS   AGE
pes2ug23cs485-service   80s
PS C:\Users\rithv\PES2UG23CS485> kubectl describe service pes2ug23cs485-service
Name:           pes2ug23cs485-service
Namespace:      pes2ug23cs485-beta
Labels:          <none>
Annotations:    <none>
Selector:       app=nginx
Type:           ClusterIP
IP Family Policy: SingleStack
IP Families:   IPv4
IP:             10.97.63.132
IPs:            10.97.63.132
Port:           <unset>  80/TCP
TargetPort:     80/TCP
Endpoints:
Session Affinity: None
Internal Traffic Policy: Cluster
Events:          <none>
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl get deployments -n pes2ug23cs485-beta
NAME        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-peslug23csxxx  0/3      3           0           4s
PS C:\Users\rithv\PES2UG23CS485> |
```

```
nginx-pes2ug23cs485-767bd858ff-prlk5 0/1 ErrImageNeverPull 0 31s
PS C:\Users\rithv\PES2UG23CS485> kubectl port-forward deployment/nginx-pes2ug23cs485 8080:80 -n pes2ug23cs485-beta
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
Handling connection for 8080
PS C:\Users\rithv\PES2UG23CS485> kubectl port-forward deployment/nginx-pes2ug23cs485 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
PS C:\Users\rithv\PES2UG23CS485> kubectl port-forward deployment/nginx-pes2ug23cs485 8080:80
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
```

```
← → ⌂ localhost:8080
```

Hello from district PES2UG23CS485-beta running in Kubernetes

```
Handling connection for 8080
PS C:\Users\rithv\PES2UG23CS485> kubectl delete namespace pes2ug23cs485-alpha
namespace "pes2ug23cs485-alpha" deleted
PS C:\Users\rithv\PES2UG23CS485> kubectl delete namespace pes2ug23cs485-beta
namespace "pes2ug23cs485-beta" deleted
PS C:\Users\rithv\PES2UG23CS485> kubectl get ns
NAME          STATUS   AGE
default       Active   74m
kube-node-lease Active   74m
kube-public   Active   74m
kube-system   Active   74m
pes2ug23cs485 Active   59m
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl get ns
NAME          STATUS   AGE
default       Active   75m
kube-node-lease Active   75m
kube-public   Active   75m
kube-system   Active   75m
PS C:\Users\rithv\PES2UG23CS485> |
```