

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://844be91aa21f1bb5724f962c60831a13f57b27b492919b2a91ca46c1f204171e
    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>
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```
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                                docker:desktop-linux
=> [internal] load build definition from dockerfile              0.1s
=> => transferring dockerfile: 89B                               0.0s
=> [internal] load metadata for docker.io/library/nginx:alpine  1.0s
=> [internal] load .dockerignore                                0.1s
=> => transferring context: 2B                                     0.0s
=> [internal] load build context                                0.1s
=> => transferring context: 245B                                   0.0s
=> [1/2] FROM docker.io/library/nginx:alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d77 3.8s
=> => resolve docker.io/library/nginx:alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d77 0.0s
=> => sha256:5e7756927bef33a266e1221356d5da8553139cb80bc5b1b3827010811d9ea268 20.24MB / 20.24MB 2.8s
=> => sha256:bca5d04786e112d958f100a66f8257b2aeefc14b64d81e405c3c44acff2fb000 1.86MB / 1.86MB 1.5s
=> => sha256:6d397a54a185dd0b6638d1a3934b81daef7a140741e12697377d6279066f7ca7 1.40kB / 1.40kB 1.3s
=> => sha256:955a8478f9aceb66cbf2f579fa3c24e1af278d1fa3ffd3043d6260e21d2f7416 1.21kB / 1.21kB 1.3s
=> => sha256:399d0898a94e0084f81499a3e3c29824357118c7ce551648ea1dbab813884661 404B / 404B 0.6s
=> => sha256:3e2c181db1b0985ce357c7aaf48ac615f30f392cd15d5c5ba34c4faa1f4f39a2 626B / 626B 0.6s
=> => sha256:6b7b6c7061b76cdb8601e18722d12ae3232f0ddcfad1d2983754abcc6ce0a8a83 954B / 954B 0.8s
=> => sha256:589002ba0eaeed121a1dbf42f6648f29e5be55d5c8a6ee0f8eaa0285cc21ac153 3.86MB / 3.86MB 1.0s
=> => extracting sha256:589002ba0eaeed121a1dbf42f6648f29e5be55d5c8a6ee0f8eaa0285cc21ac153 0.1s
=> => extracting sha256:bca5d04786e112d958f100a66f8257b2aeefc14b64d81e405c3c44acff2fb000 0.1s
=> => extracting sha256:3e2c181db1b0985ce357c7aaf48ac615f30f392cd15d5c5ba34c4faa1f4f39a2 0.0s
=> => extracting sha256:6b7b6c7061b76cdb8601e18722d12ae3232f0ddcfad1d2983754abcc6ce0a8a83 0.0s
=> => extracting sha256:399d0898a94e0084f81499a3e3c29824357118c7ce551648ea1dbab813884661 0.0s
=> => extracting sha256:955a8478f9aceb66cbf2f579fa3c24e1af278d1fa3ffd3043d6260e21d2f7416 0.0s
=> => extracting sha256:6d397a54a185dd0b6638d1a3934b81daef7a140741e12697377d6279066f7ca7 0.0s
=> => extracting sha256:5e7756927bef33a266e1221356d5da8553139cb80bc5b1b3827010811d9ea268 0.4s
=> [2/2] COPY html /usr/share/nginx/html                        0.4s
=> exporting to image                                           0.2s
=> => exporting layers                                           0.1s
=> => exporting manifest sha256:e867b3adb61d44df9a47a2efdf7ee7aa0580993ceaf58b192b22efc3194faba9d 0.0s
=> => exporting config sha256:0abda7dff015a3cac7c2d9f38d4ecddc8fd7bbcb46dfe75c62e36c602354d32c9 0.0s
=> => exporting attestation manifest sha256:5fff19694c8e45439baabb8468d30ad5a3fa28dc1ee782cc9f62b028d24dbfb7 0.0s
=> => exporting manifest list sha256:b662c44080cd73d16d76eb47f7ce4cb9872505af0e0d571a487e92dab32a71b4 0.0s
=> => naming to docker.io/library/pes2ug23cs485-nginx:1.0      0.0s
=> => unpacking to docker.io/library/pes2ug23cs485-nginx:1.0  0.0s
PS C:\Users\rithv\PES2UG23CS485> |
```

```
PS C:\Users\rithv\PES2UG23CS485> kubectl apply -f nginx-pes2ug23cs485.yaml -n pes2ug23cs485-beta
deployment.apps/nginx-peslug23csxxx 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-peslug23csxxx                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:                           <none>
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                                ENDPPOINTS        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                                ENDPPOINTS        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:                           <none>
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-pes2ug23cs485-76/bd858ff-prtk5 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
Handling connection for 8080
Handling connection for 8080
Handling connection for 8080
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

```

← → ↺ 🌐 localhost:8080

Hello from district PES2UG23CS485-beta running in Kubernetes

```

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> |

```