

CLOUD COMPUTING LAB-5

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Git hub link: <https://github.com/PES2UG23CS925/Cloud-Computing-lab>

SS1:

```
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl create namespace pes2ug23cs925-alpha
namespace/pes2ug23cs925-alpha created
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl create namespace pes2ug23cs925-beta
namespace/pes2ug23cs925-beta created
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get namespaces
NAME                STATUS    AGE
default             Active    11m
kube-node-lease     Active    11m
kube-public         Active    11m
kube-system         Active    11m
pes2ug23cs925-alpha Active    40s
pes2ug23cs925-beta  Active    19s
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ |
```

SS2:

```
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl run citizen --image=nginx --restart=Never
pod/citizen created
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha
No resources found in pes2ug23cs925-alpha namespace.
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods
NAME                READY   STATUS    RESTARTS   AGE
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl describe pod citizen
Name:               citizen
Namespace:          default
Priority:            0
Service Account:    default
Node:               minikube/192.168.49.2
Start Time:         Tue, 10 Feb 2026 08:36:14 +0000
Labels:             run=citizen
Annotations:        <none>
Status:             Pending
IP:                10.244.0.5
IPs:               10.244.0.5
Containers:
  citizen:
    Container ID:
    Image:         nginx
    Image ID:
    Port:          <none>
    Host Port:     <none>
    State:         Waiting
    Reason:        ImagePullBackOff
    Ready:         False
    Restart Count: 0
    Environment:   <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-d7v48 (ro)
Conditions:
  Type             Status
  PodReadyToStartContainers  True
  Initialized       True
  Ready            False
  ContainersReady   False
  PodScheduled      True
Volumes:
  kube-api-access-d7v48:
    Type:          Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds: 3607
    ConfigMapName:    kube-root-ca.crt
    Optional:         false
    DownwardAPI:      true
    BestEffort:       true
QoS Class:          <none>
Node-Selectors:
Tolerations:        node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                    node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type     Reason      Age   From      Message
  ----     ------      ---   -
Normal    Scheduled   3m14s    default-scheduler    Successfully assigned default/citizen to minikube
Normal    Pulling     86s (x4 over 3m13s)    kubelet              Pulling image "nginx": Error response from daemon: toomanyrequests: You have reached your unauthenticated pull rate limit. https://www.docker.com/increase-rate-limit
Warning   Failed     82s (x4 over 3m9s)     kubelet              Failed to pull image "nginx": Error: ErrImagePull
Normal    BackOff     19s (x11 over 3m9s)    kubelet              Back-off pulling image "nginx"
Warning   Failed     18s (x11 over 3m9s)    kubelet              Error: ImagePullBackOff
aakanksha@Aakanksha: /mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS3:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha -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           7s
temp      1/1     Terminating      0           18s
temp      1/1     Terminating      0           18s
temp      0/1     Completed          0           19s
temp      0/1     Completed          0           19s
temp      0/1     Completed          0           19s
```

SS4:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl logs citizen -n pes2ug23cs925-alpha
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2026/02/10 09:25:48 [notice] 1#1: using the "epoll" event method
2026/02/10 09:25:48 [notice] 1#1: nginx/1.29.5
2026/02/10 09:25:48 [notice] 1#1: built by gcc 14.2.0 (Debian 14.2.0-19)
2026/02/10 09:25:48 [notice] 1#1: OS: Linux 6.6.87.2-microsoft-standard-WSL2
2026/02/10 09:25:48 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2026/02/10 09:25:48 [notice] 1#1: start worker processes
2026/02/10 09:25:48 [notice] 1#1: start worker process 29
2026/02/10 09:25:48 [notice] 1#1: start worker process 30
2026/02/10 09:25:48 [notice] 1#1: start worker process 31
2026/02/10 09:25:48 [notice] 1#1: start worker process 32
2026/02/10 09:25:48 [notice] 1#1: start worker process 33
2026/02/10 09:25:48 [notice] 1#1: start worker process 34
2026/02/10 09:25:48 [notice] 1#1: start worker process 35
2026/02/10 09:25:48 [notice] 1#1: start worker process 36
2026/02/10 09:25:48 [notice] 1#1: start worker process 37
2026/02/10 09:25:48 [notice] 1#1: start worker process 38
2026/02/10 09:25:48 [notice] 1#1: start worker process 39
2026/02/10 09:25:48 [notice] 1#1: start worker process 40
2026/02/10 09:25:48 [notice] 1#1: start worker process 41
2026/02/10 09:25:48 [notice] 1#1: start worker process 42
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS5:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl run broken \
--image=busybox \
--restart=Never \
--image-pull-policy=IfNotPresent \
--command -- sh -c "echo 'CRASH: something went wrong' >&2; exit 1"
pod/broken created
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl logs broken
CRASH: something went wrong
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS6:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl create deployment pes2ug23cs925 --image=nginx -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 created
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get deployments -n pes2ug23cs925-alpha
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
pes2ug23cs925 1/1     1             1           40s
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha
```

NAME	READY	STATUS	RESTARTS	AGE
citizen	1/1	Running	0	18m
pes2ug23cs925-7867c57964-7dwcx	1/1	Running	0	10m

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
broken	1/1	Running	0	45s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS7:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl scale deployment pes2ug23cs925 \
--replicas=5 \
-n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 scaled
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods --all-namespaces
```

NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
default	broken	0/1	Error	0	3m43s
kube-system	coredns-7d764666f9-j7cvq	1/1	Running	2 (59m ago)	66m
kube-system	etcd-minikube	1/1	Running	2 (59m ago)	66m
kube-system	kube-apiserver-minikube	1/1	Running	2 (59m ago)	66m
kube-system	kube-controller-manager-minikube	1/1	Running	2 (59m ago)	66m
kube-system	kube-proxy-b2s2l	1/1	Running	2 (59m ago)	66m
kube-system	kube-scheduler-minikube	1/1	Running	2 (59m ago)	66m
kube-system	storage-provisioner	1/1	Running	4 (59m ago)	66m
pes2ug23cs925-alpha	citizen	1/1	Running	0	22m
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-22hft	1/1	Running	0	65s
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-7dwcx	1/1	Running	0	14m
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-d42zz	1/1	Running	0	65s
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-tgkcx	1/1	Running	0	64s
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-twhvt	1/1	Running	0	65s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl scale deployment pes2ug23cs925 --replicas=3 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 scaled
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods --all-namespaces
```

NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
default	broken	0/1	Error	0	4m22s
kube-system	coredns-7d764666f9-j7cvq	1/1	Running	2 (60m ago)	67m
kube-system	etcd-minikube	1/1	Running	2 (60m ago)	67m
kube-system	kube-apiserver-minikube	1/1	Running	2 (60m ago)	67m
kube-system	kube-controller-manager-minikube	1/1	Running	2 (60m ago)	67m
kube-system	kube-proxy-b2s2l	1/1	Running	2 (60m ago)	67m
kube-system	kube-scheduler-minikube	1/1	Running	2 (60m ago)	67m
kube-system	storage-provisioner	1/1	Running	4 (60m ago)	67m
pes2ug23cs925-alpha	citizen	1/1	Running	0	23m
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-7dwcx	1/1	Running	0	15m
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-d42zz	1/1	Running	0	104s
pes2ug23cs925-alpha	pes2ug23cs925-7867c57964-tgkcx	1/1	Running	0	103s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS8:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get rs,po -n pes2ug23cs925-alpha
```

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/pes2ug23cs925-7867c57964	3	3	3	17m

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha
```

NAME	READY	STATUS	RESTARTS	AGE
pod/citizen	1/1	Running	0	25m
pod/pes2ug23cs925-7867c57964-7dwcx	1/1	Running	0	17m
pod/pes2ug23cs925-7867c57964-d42zz	1/1	Running	0	4m10s
pod/pes2ug23cs925-7867c57964-tgkcx	1/1	Running	0	4m9s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl set image deployment/pes2ug23cs925 nginx:nginx:1.25 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 image updated
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get rs,po -n pes2ug23cs925-alpha
```

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/pes2ug23cs925-7867c57964	3	3	3	18m
replicaset.apps/pes2ug23cs925-79f959949d	1	1	0	7s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha
```

NAME	READY	STATUS	RESTARTS	AGE
pod/citizen	1/1	Running	0	26m
pod/pes2ug23cs925-7867c57964-7dwcx	1/1	Running	0	18m
pod/pes2ug23cs925-7867c57964-d42zz	1/1	Running	0	5m6s
pod/pes2ug23cs925-7867c57964-tgkcx	1/1	Running	0	5m5s
pod/pes2ug23cs925-79f959949d-8ggb7	0/1	ErrImagePull	0	7s

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS9:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl rollout undo deployment/pes2ug23cs925 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 rolled back
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl rollout status deployment/pes2ug23cs925 -n pes2ug23cs925-alpha
deployment "pes2ug23cs925" successfully rolled out
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl rollout history deployment pes2ug23cs925 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925
REVISION  CHANGE-CAUSE
2          <none>
3          <none>

aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl rollout history deployment pes2ug23cs925 --revision=2 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 with revision #2
Pod Template:
  Labels:      app=pes2ug23cs925
               pod-template-hash=79f959949d
  Containers:
    nginx:
      Image:      nginx:1.25
      Port:       <none>
      Host Port:  <none>
      Environment: <none>
      Mounts:     <none>
      Volumes:    <none>
      Node-Selectors: <none>
      Tolerations: <none>

aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl rollout history deployment pes2ug23cs925 --revision=3 -n pes2ug23cs925-alpha
deployment.apps/pes2ug23cs925 with revision #3
Pod Template:
  Labels:      app=pes2ug23cs925
               pod-template-hash=7867c57964
  Containers:
    nginx:
      Image:      nginx
      Port:       <none>
      Host Port:  <none>
      Environment: <none>
      Mounts:     <none>
      Volumes:    <none>
      Node-Selectors: <none>
      Tolerations: <none>
```

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ |
```

SS10:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl apply
-f nginx-pes2ug23cs925.yaml -n pes2ug23cs925-beta
deployment.apps/nginx-pes2ug23cs925 configured
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get p
ods -n pes2ug23cs925-beta
NAME                                READY   STATUS    RESTARTS   AGE
nginx-pes2ug23cs925-7644d7dc7-cbdsj 1/1     Running   0           5s
nginx-pes2ug23cs925-7644d7dc7-dxzh9 1/1     Running   0           7s
nginx-pes2ug23cs925-7644d7dc7-mmrtw 1/1     Running   0           8s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get d
eployments -n pes2ug23cs925-beta
NAME              READY   UP-TO-DATE   AVAILABLE   AGE
nginx-pes2ug23cs925 3/3      3             3           3m49s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ |
```

SS11:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl apply -f pes2ug23cs925-service.yaml
service/pes2ug23cs925-service configured
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get services -n pes2ug23cs925-beta
NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
pes2ug23cs925-service              ClusterIP    10.103.65.22     <none>            80/TCP           6m57s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl describe service pes2ug23cs925-service -n pes2ug23cs925-beta
Name:                             pes2ug23cs925-service
Namespace:                         pes2ug23cs925-beta
Labels:                             <none>
Annotations:                       <none>
Selector:                           app=nginx
Type:                               ClusterIP
IP Family Policy:                   SingleStack
IP Families:                        IPv4
IP:                                 10.103.65.22
IPs:                                10.103.65.22
Port:                               <unset> 80/TCP
TargetPort:                         80/TCP
Endpoints:                          10.244.0.34:80,10.244.0.32:80,10.244.0.33:80
Session Affinity:                   None
Internal Traffic Policy:             Cluster
Events:                             <none>
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get endpoints pes2ug23cs925-service -n pes2ug23cs925-beta
Warning: v1 Endpoints is deprecated in v1.33+; use discovery.k8s.io/v1 EndpointSlice
NAME                                ENDPPOINTS      AGE
pes2ug23cs925-service              10.244.0.32:80,10.244.0.33:80,10.244.0.34:80 7m21s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```

SS12:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl delete pod -l app=nginx -n pes2ug23cs925-beta
pod "nginx-pes2ug23cs925-7644d7dc7-4rm7w" deleted from pes2ug23cs925-beta namespace
pod "nginx-pes2ug23cs925-7644d7dc7-6gtd7" deleted from pes2ug23cs925-beta namespace
pod "nginx-pes2ug23cs925-7644d7dc7-c2q6f" deleted from pes2ug23cs925-beta namespace
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get endpoints pes2ug23cs925-service -n pes2ug23cs925-beta
Warning: v1 Endpoints is deprecated in v1.33+; use discovery.k8s.io/v1 EndpointSlice
NAME                                ENDPPOINTS      AGE
pes2ug23cs925-service              10.244.0.38:80,10.244.0.39:80,10.244.0.40:80 8m49s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl describe service pes2ug23cs925-service -n pes2ug23cs925-beta
Name:                             pes2ug23cs925-service
Namespace:                         pes2ug23cs925-beta
Labels:                             <none>
Annotations:                       <none>
Selector:                           app=nginx
Type:                               ClusterIP
IP Family Policy:                   SingleStack
IP Families:                        IPv4
IP:                                 10.103.65.22
IPs:                                10.103.65.22
Port:                               <unset> 80/TCP
TargetPort:                         80/TCP
Endpoints:                          10.244.0.40:80,10.244.0.39:80,10.244.0.38:80
Session Affinity:                   None
Internal Traffic Policy:             Cluster
Events:                             <none>
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ |
```

SS13:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl port-forward deployment/nginx-pes2ug23cs925 8080:80 -n pes2ug23cs925-beta
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
```



All Bookmarks

Hello from district PES2UG23CS925-beta running in Kubernetes

SS14:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl delete namespace pes2ug23cs925-alpha
namespace "pes2ug23cs925-alpha" deleted
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl delete namespace pes2ug23cs925-beta
namespace "pes2ug23cs925-beta" deleted
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$ kubectl get namespaces
NAME                STATUS    AGE
default              Active   125m
kube-node-lease      Active   125m
kube-public          Active   125m
kube-system          Active   125m
aakanksha@Aakanksha:/mnt/c/Users/aakan/sem-6/CC/PES2UG23CS925$
```