

CLOUD COMPUTING LAB-5

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SEC: A

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

SS1:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-6/CC/PES2UG23CS925$ kubectl create namespace pes2ug23cs925-alpha
namespace/pes2ug23cs925-alpha created
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-6/CC/PES2UG23CS925$ kubectl create namespace pes2ug23cs925-beta
namespace/pes2ug23cs925-beta created
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-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/sems-6/CC/PES2UG23CS925$ |
```

SS2:

```
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-6/CC/PES2UG23CS925$ kubectl run citizen --image=nginx --restart=Never
pod/citizen created
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-6/CC/PES2UG23CS925$ kubectl get pods -n pes2ug23cs925-alpha
No resources found in pes2ug23cs925-alpha namespace.
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-6/CC/PES2UG23CS925$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
citizen   0/1     ImagePullBackOff   0          2m6s
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-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 08:56:14 +0000
Labels:         run=citizen
Annotations:   <none>
Status:        Pending
IP:             192.168.0.5
IPs:
  IP: 192.168.0.5
Containers:
  citizen:
    Container ID:  nginx
    Image:          nginx
    Image ID:       sha256:98...
    Port:          <none>
    Host Port:     <none>
    State:         Waiting
    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: 3600
    ConfigMapName:   kube-root-ca.crt
    Optional:       false
    DownwardAPI:   true
    BestEffort:    true
    Mode:          Name
    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  3m4s  default-scheduler  Successfully assigned default/citizen to minikube
  Normal  Pulling    2s2x (x4 over 3m3s)  kubelet, minikube  Pulling image "nginx"
  Warning Failed    2s2x (x4 over 3m3s)  kubelet, minikube  Failed to pull image "nginx": Error response from daemon: toomanyrequests: You have reached your unauthenticated pull rate limit. https://www.docker.com/increase-rate-limit
  Normal  BackOff    62s  (x1 over 3m9s)   kubelet, minikube  Back-off pulling image "nginx"
  Warning Failed    10s (x1 over 3m9s)   kubelet, minikube  Error: ImagePullBackOff
aakanksha@Aakanksha:/mnt/c/Users/aakan/sems-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-twhtv 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

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

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 pods -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 deployments -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           ENDPOINTS   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           ENDPOINTS   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
```



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 ns
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$
```