

Lab2

Name : Amr Ahmed Gomaa

1-Create a ReplicaSet using the below yaml

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: new-replica-set
  namespace: default
spec:
  replicas: 4
  selector:
    matchLabels:
      name: busybox-pod
  template:
    metadata:
      labels:
        name: busybox-pod
    spec:
      containers:
        - command:
            - sh
            - -c
            - echo Hello Kubernetes! && sleep 3600
          image: busybox777
          imagePullPolicy: Always
          name: busybox-container
```

create a new yaml file

copy the yaml code to the yaml file

kubectl apply -f <filename.yml>

```
amr@amrgomaa: ~/k8s
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: new-replica-set
  namespace: default
spec:
  replicas: 4
  selector:
    matchLabels:
      name: busybox-pod
  template:
    metadata:
      labels:
        name: busybox-pod
    spec:
      containers:
        - command:
            - sh
            - -c
            - echo Hello Kubernetes! && sleep 3600
          image: busybox777
          imagePullPolicy: Always
          name: busybox-container
```

-- INSERT --

23,32 All



amr@amrgomaa: ~/k8s

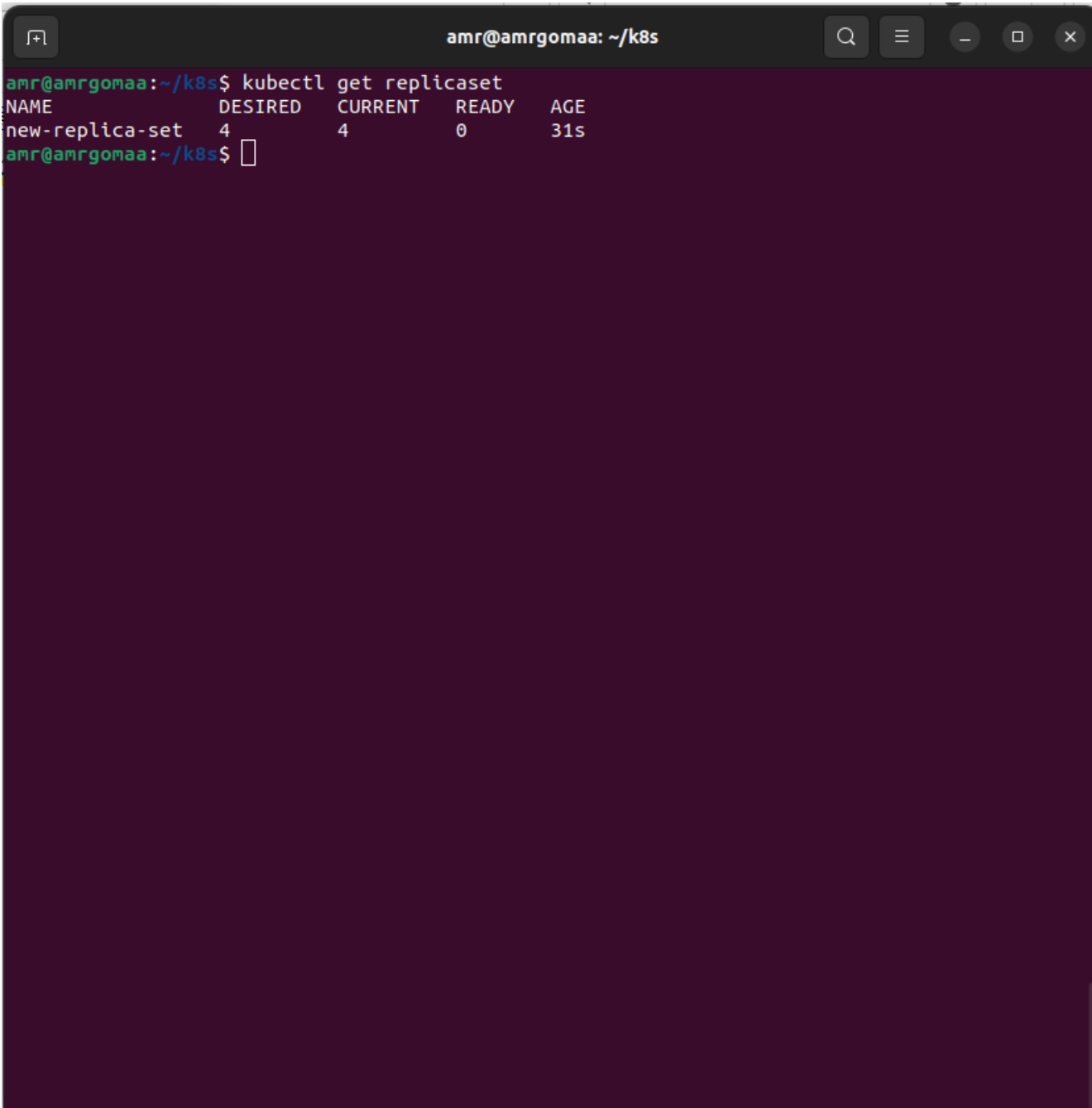


```
amr@amrgomaa:~/k8s$ touch replica1.yml
amr@amrgomaa:~/k8s$ vim replica1.yml
amr@amrgomaa:~/k8s$ kubectl apply -f replica1.yml
replicaset.apps/new-replica-set created
amr@amrgomaa:~/k8s$
```

2-How many PODs are DESIRED in the new-replica-set?

Desired from the yaml file are 4 pods

or get it from the command kubectl get replicaset

A terminal window with a dark background and light green text. The window title is 'amr@amrgomaa: ~/k8s'. The command 'kubectl get replicaset' has been executed, resulting in a table with 5 columns: NAME, DESIRED, CURRENT, READY, and AGE. The output shows one replicaset named 'new-replica-set' with 4 desired pods, 4 current pods, 0 ready pods, and an age of 31s.

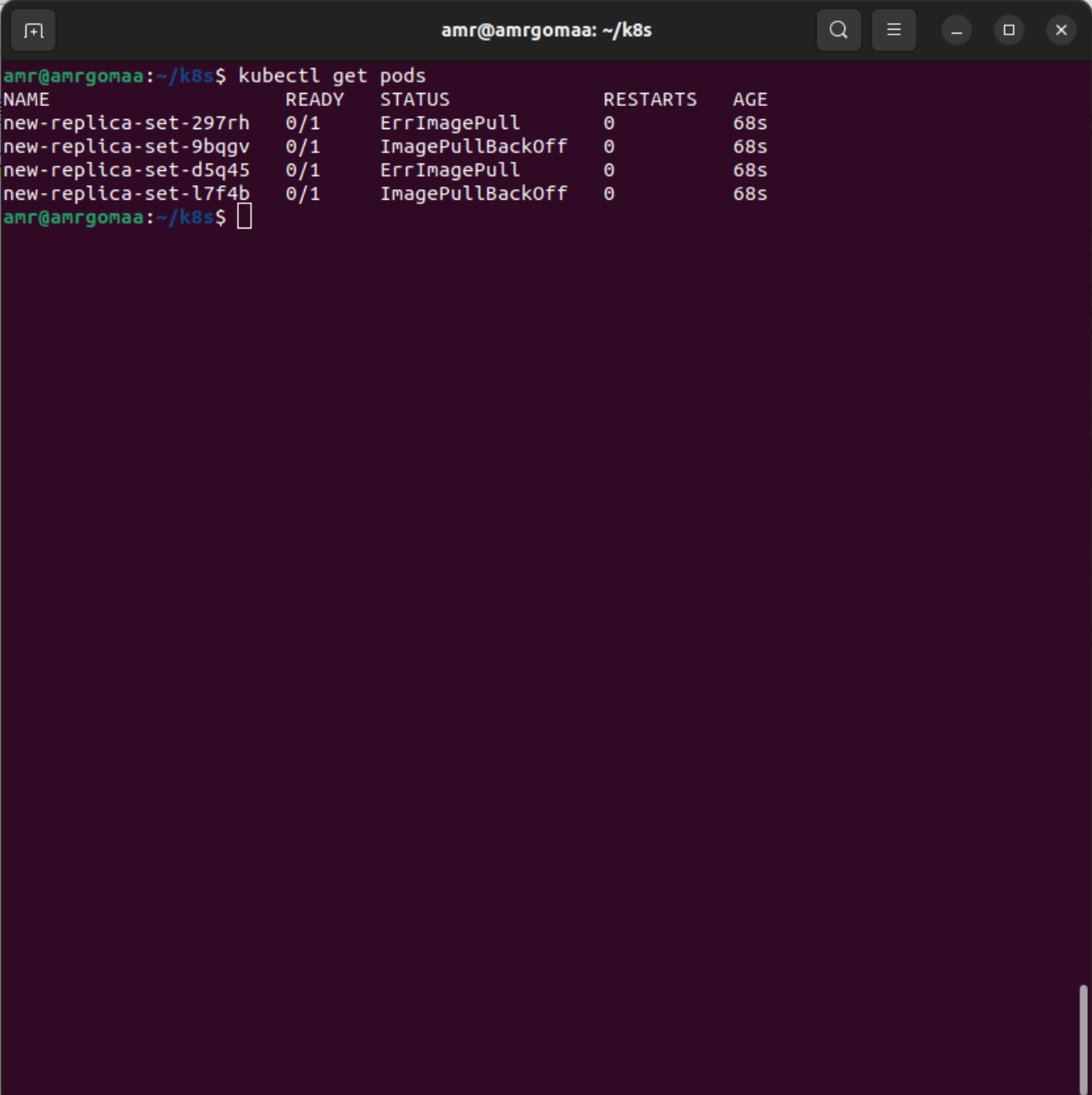
```
amr@amrgomaa:~/k8s$ kubectl get replicaset
NAME           DESIRED  CURRENT  READY  AGE
new-replica-set 4         4        0      31s
amr@amrgomaa:~/k8s$
```

3-What is the image used to create the pods in the new-replica-set?

Image used from the yaml file is busybox777

4-How many PODs are READY in the new-replica-set?

All the pods are not ready – (the pods are waiting if we inspect using describe the pod)

A terminal window titled 'amr@amrgomaa: ~/k8s' showing the command 'kubectl get pods' and its output. The output is a table with columns: NAME, READY, STATUS, RESTARTS, and AGE. It lists four pods, all with a '0/1' ready count and 'ErrImagePull' or 'ImagePullBackOff' status, indicating they are not ready.

NAME	READY	STATUS	RESTARTS	AGE
new-replica-set-297rh	0/1	ErrImagePull	0	68s
new-replica-set-9bqgv	0/1	ImagePullBackOff	0	68s
new-replica-set-d5q45	0/1	ErrImagePull	0	68s
new-replica-set-l7f4b	0/1	ImagePullBackOff	0	68s

5-Why do you think the PODs are not ready?

After running `kubectl describe pod <any pod name>`

there is an error in pulling the image

There is no image called `busybox777`

```
amr@amrgomaa: ~/k8s
amr@amrgomaa:~/k8s$ kubectl get pods
NAME                                READY   STATUS              RESTARTS   AGE
new-replica-set-297rh               0/1     ErrImagePull        0           68s
new-replica-set-9bqgv               0/1     ImagePullBackOff    0           68s
new-replica-set-d5q45               0/1     ErrImagePull        0           68s
new-replica-set-l7f4b               0/1     ImagePullBackOff    0           68s
amr@amrgomaa:~/k8s$ kubectl describe replica
error: unknown command "describe" for "kubectl"

Did you mean this?
    describe
amr@amrgomaa:~/k8s$ kubectl describe replica new-replica-set
error: the server doesn't have a resource type "replica"
amr@amrgomaa:~/k8s$ kubectl describe replicaset new-replica-set
Name:                new-replica-set
Namespace:            default
Selector:              name=busybox-pod
Labels:                <none>
Annotations:           <none>
Replicas:              4 current / 4 desired
Pods Status:  0 Running / 4 Waiting / 0 Succeeded / 0 Failed
Pod Template:
  Labels:  name=busybox-pod
  Containers:
    busybox-container:
      Image:          busybox777
      Port:           <none>
      Host Port:      <none>
      Command:
        sh
        -c
        echo Hello Kubernetes! && sleep 3600
      Environment:    <none>
      Mounts:          <none>
      Volumes:         <none>
Events:
  Type      Reason              Age   From                      Message
  ----      -
  Normal    SuccessfulCreate    3m18s replicaset-controller      Created pod: new-replica-set-9bqgv
  Normal    SuccessfulCreate    3m18s replicaset-controller      Created pod: new-replica-set-297rh
  Normal    SuccessfulCreate    3m18s replicaset-controller      Created pod: new-replica-set-l7f4b
  Normal    SuccessfulCreate    3m18s replicaset-controller      Created pod: new-replica-set-d5q45
amr@amrgomaa:~/k8s$
```

```
amr@amrgomaa: ~/k8s

Command:
  sh
  -c
  echo Hello Kubernetes! && sleep 3600
State:      Waiting
Reason:     ErrImagePull
Ready:      False
Restart Count: 0
Environment:  <none>
Mounts:
  /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-wssjq (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             False
  ContainersReady   False
  PodScheduled      True
Volumes:
  kube-api-access-wssjq:
    Type:      Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds: 3607
    ConfigMapName: kube-root-ca.crt
    ConfigMapOptional: <nil>
    DownwardAPI: true
QoS Class:      BestEffort
Node-Selectors:  <none>
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   6m18s    default-scheduler   Successfully assigned default/new-replica-set-297rh to minikube
  Normal   Pulling     4m36s (x4 over 6m16s)  kubelet             Pulling image "busybox777"
  Warning   Failed      4m33s (x4 over 6m14s)  kubelet             Failed to pull image "busybox777": rpc error: code = Unknown desc = Error response from daemon: pull access denied for busybox777, repository does not exist or may require 'docker login': denied: requested access to the resource is denied
  Warning   Failed      4m33s (x4 over 6m14s)  kubelet             Error: ErrImagePull
  Warning   Failed      4m23s (x6 over 6m14s)  kubelet             Error: ImagePullBackOff
  Normal   BackOff     71s (x19 over 6m14s)  kubelet             Back-off pulling image "busybox777"
amr@amrgomaa:~/k8s$
```

6-Delete any one of the 4 PODs.

How many pods now

still 4 pods ,

kubectl get delete pod <pod name>

still 4 pods

```
amr@amrgomaa: ~/k8s
amr@amrgomaa:~/k8s$ kubectl get pods
NAME                READY   STATUS              RESTARTS   AGE
new-replica-set-297rh 0/1     ImagePullBackOff    0          7m57s
new-replica-set-9bqgv 0/1     ImagePullBackOff    0          7m57s
new-replica-set-d5q45 0/1     ImagePullBackOff    0          7m57s
new-replica-set-l7f4b 0/1     ImagePullBackOff    0          7m57s
amr@amrgomaa:~/k8s$ kubectl delete pod new-replica-set-297rh
pod "new-replica-set-297rh" deleted
amr@amrgomaa:~/k8s$ kubectl get pods
NAME                READY   STATUS              RESTARTS   AGE
new-replica-set-9bqgv 0/1     ImagePullBackOff    0          8m13s
new-replica-set-d5q45 0/1     ImagePullBackOff    0          8m13s
new-replica-set-l7f4b 0/1     ImagePullBackOff    0          8m13s
new-replica-set-s49hb 0/1     ContainerCreating   0          4s
amr@amrgomaa:~/k8s$
```

7-Why are there still 4 PODs, even after you deleted one?

as the replicas= 4 in the yml file so it will automatically recover and run another pod to be 4 again

8-Create a ReplicaSet using the below yml

There is an issue with the file, so try to fix it.

```
apiVersion: v1
kind: ReplicaSet
metadata:
  name: replicaset-1
spec:
  replicas: 2
  selector:
    matchLabels:
      tier: frontend
  template:
    metadata:
      labels:
        tier: frontend
    spec:
      containers:
      - name: nginx
        image: nginx
```

in apiVersion the value should be = apps/v1

The **ApiVersion** supports the resource ReplicaSet. Every API supports certain resources and together with Kind we can unequivocally define them

below there are screenshots for the solution after modifying the yml file

