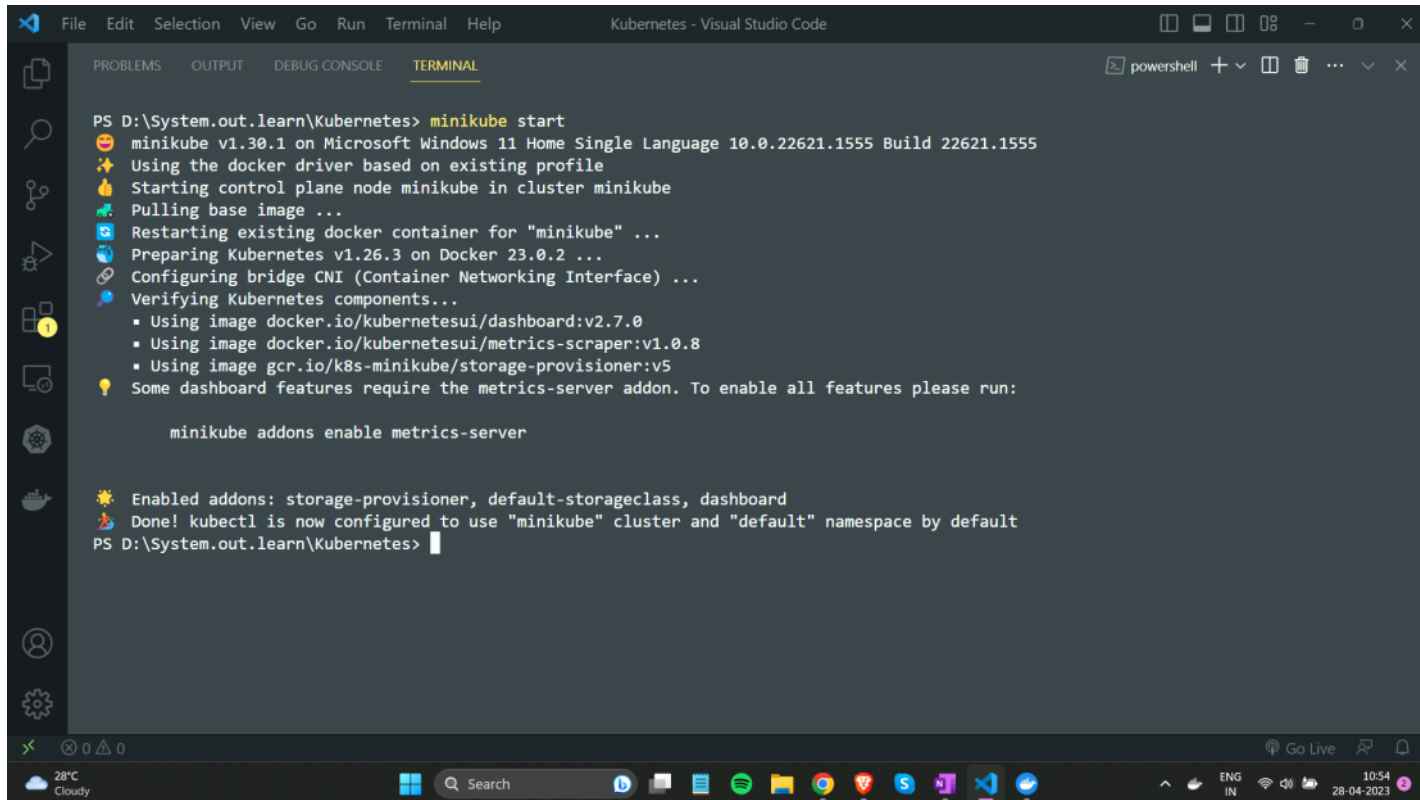


Worked on creating yaml files for kubernetes :

Starting minikube :



```
PS D:\System.out.learn\Kubernetes> minikube start
minikube v1.30.1 on Microsoft Windows 11 Home Single Language 10.0.22621.1555 Build 22621.1555
Using the docker driver based on existing profile
Starting control plane node minikube in cluster minikube
Pulling base image ...
Restarting existing docker container for "minikube" ...
Preparing Kubernetes v1.26.3 on Docker 23.0.2 ...
Configuring bridge CNI (Container Networking Interface) ...
Verifying Kubernetes components...
  Using image docker.io/kubernetesui/dashboard:v2.7.0
  Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
  Using image gcr.io/k8s-minikube/storage-provisioner:v5
Some dashboard features require the metrics-server addon. To enable all features please run:

    minikube addons enable metrics-server

Enabled addons: storage-provisioner, default-storageclass, dashboard
Done! kubectrl is now configured to use "minikube" cluster and "default" namespace by default
PS D:\System.out.learn\Kubernetes>
```

Yaml file for creating pod :

```
1-creating-pod.yml 1 X 2-creating-replica-set.yml
1-creating-pod.yml > {} spec > [] containers > {} 0 > image
io.k8s.api.core.v1.Pod (v1@pod.json)
1  apiVersion: v1
2  kind: Pod
3  metadata:
4    name: my-pod
5    labels:
6      app: my-react-app
7  spec:
8    containers:
9      ~~~~~
10     name: firstcontainer
11     image: saurabh7nt/firstcontainer
12     ports:
13       ~~~~~
14     containerPort: 3000
```

Creating a pod :

```
1-creating-pod.yml - Kubernetes - Visual Studio Code
TERMINAL
PS D:\System.out.learn\Kubernetes> kubectl get pods
No resources found in default namespace.
PS D:\System.out.learn\Kubernetes> kubectl apply -f .\1-creating-pod.yml
pod/my-pod created
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
my-pod    1/1     Running   0           6s
PS D:\System.out.learn\Kubernetes>
```

Details about pod :

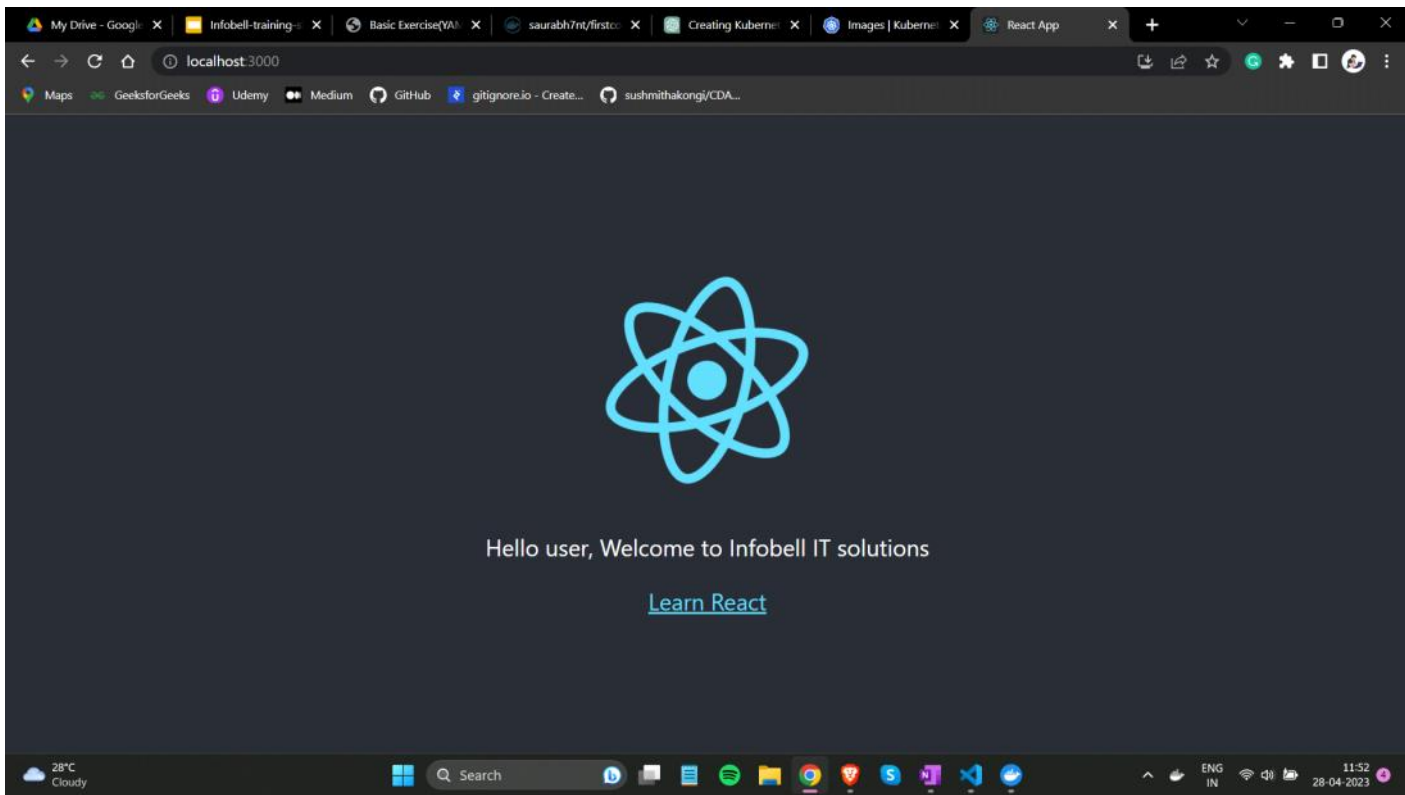
The screenshot shows a Visual Studio Code window with a terminal open. The terminal is running a PowerShell session. The command `kubectl describe pod my-pod` has been executed, and the output is displayed. The output shows the pod's metadata and container details. The pod is named `my-pod` and is in the `default` namespace. It is running on the `minikube/192.168.49.2` node. The pod's status is `Running`. The container is named `firstcontainer` and is using the `saurabh7nt/firstcontainer` image. The container's port is `3000/TCP`. The pod's IP address is `10.244.0.23`.

```
PS D:\System.out.learn\Kubernetes> kubectl describe pod my-pod
Name:          my-pod
Namespace:     default
Priority:       0
Service Account: default
Node:          minikube/192.168.49.2
Start Time:    Fri, 28 Apr 2023 11:48:07 +0530
Labels:        <none>
Annotations:   <none>
Status:        Running
IP:            10.244.0.23
IPs:
  IP: 10.244.0.23
Containers:
  firstcontainer:
    Container ID:  docker://66cc29b2b007c93d53589e62ae51518a880b24188efde1e705ad0323b82a03ad
    Image:         saurabh7nt/firstcontainer
    Image ID:      docker-pullable://saurabh7nt/firstcontainer@sha256:d89f41015427e043509434e69bb1f78a13930d785957e311d916240db6df11e6
    Port:          3000/TCP
    Host Port:     0/TCP
    State:         Running
      Started:     Fri, 28 Apr 2023 11:48:11 +0530
    Ready:         True
    Restart Count: 0
    Environment:   <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-dzb9c (ro)
```

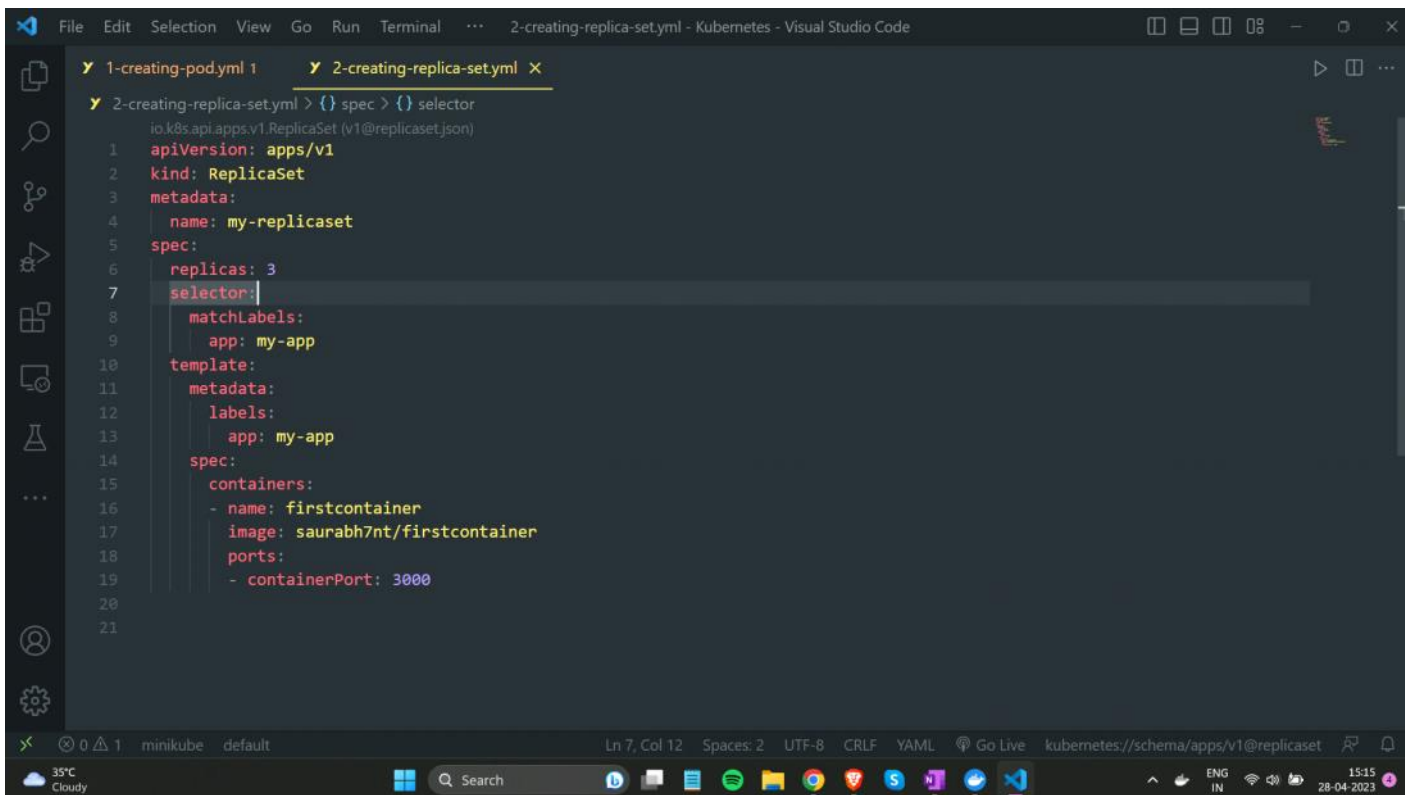
Running the pod into our local environment :

The screenshot shows a Visual Studio Code window with a terminal open. The terminal is running a PowerShell session. The command `kubectl get pods` has been executed, and the output is displayed. The output shows a table with the pod's name, ready status, status, restarts, and age. The pod is named `my-pod` and is in the `default` namespace. It is running on the `minikube/192.168.49.2` node. The pod's status is `Running`. The container is named `firstcontainer` and is using the `saurabh7nt/firstcontainer` image. The container's port is `3000/TCP`. The pod's IP address is `10.244.0.23`.

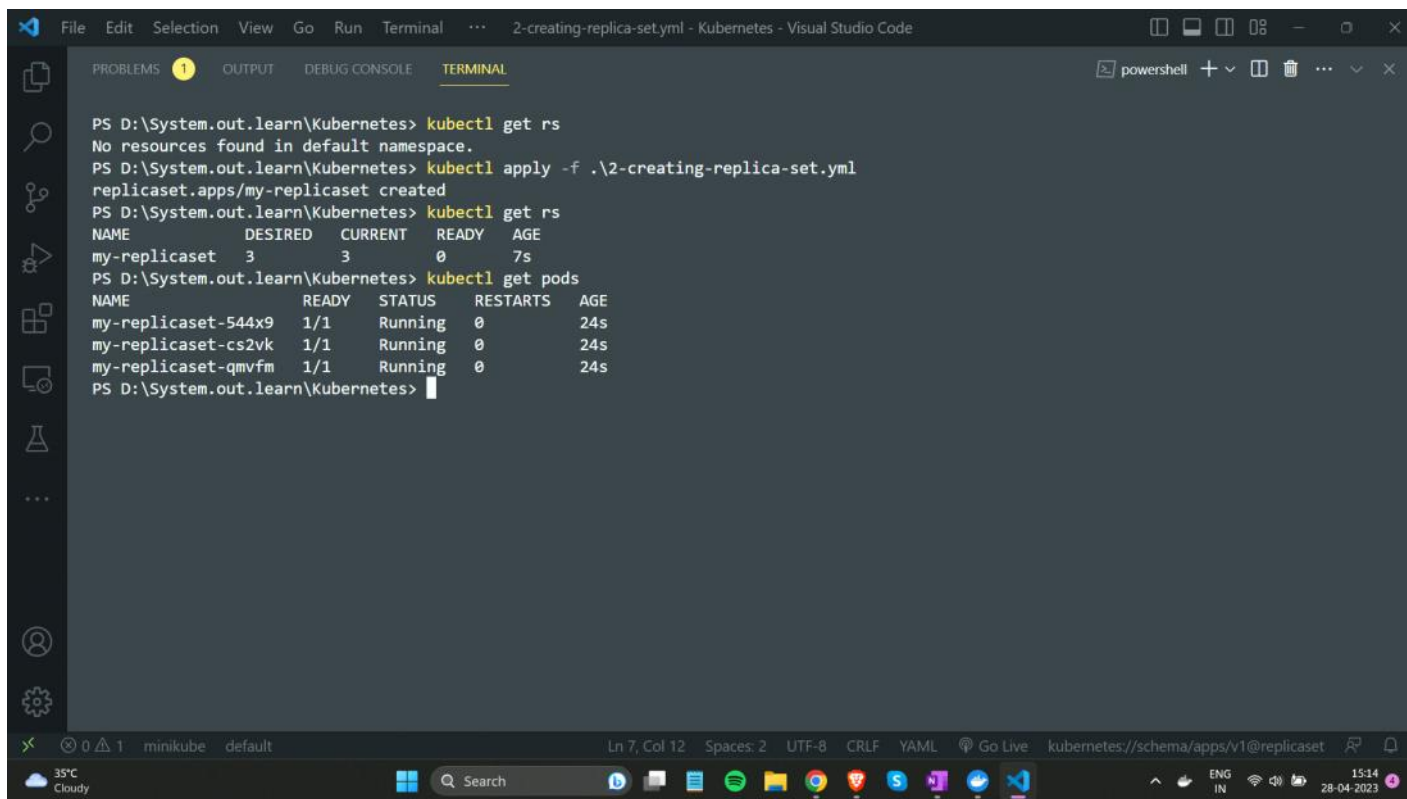
```
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
my-pod    1/1     Running   0           3m16s
PS D:\System.out.learn\Kubernetes> kubectl port-forward my-pod 3000:3000
Forwarding from 127.0.0.1:3000 -> 3000
Forwarding from [::1]:3000 -> 3000
Handling connection for 3000
Handling connection for 3000
Handling connection for 3000
```



Yaml file for replica-set :



Creating a replica-set :



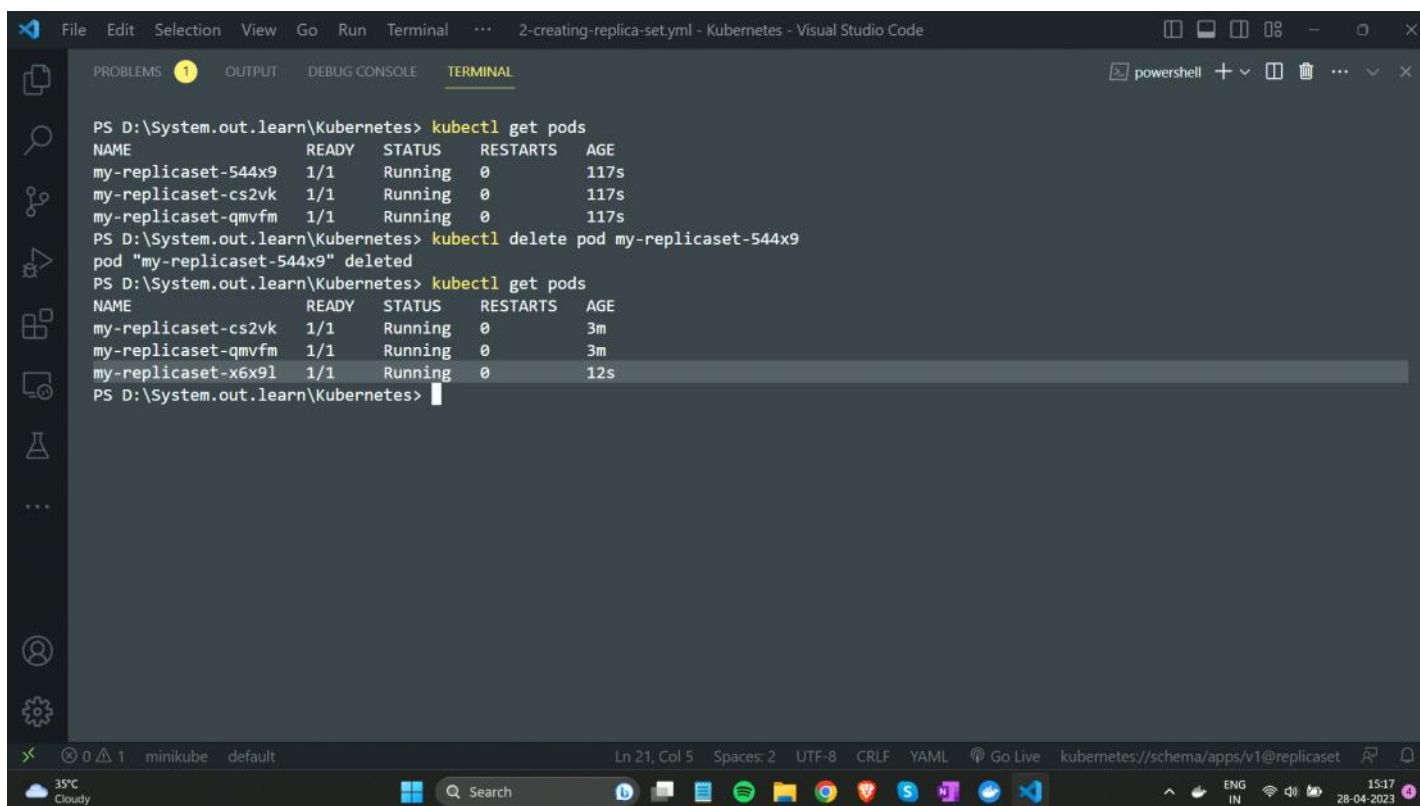
The screenshot shows a Visual Studio Code terminal window with the following commands and output:

```
PS D:\System.out.learn\Kubernetes> kubectl get rs
No resources found in default namespace.
PS D:\System.out.learn\Kubernetes> kubectl apply -f .\2-creating-replica-set.yml
replicaset.apps/my-replicaset created
PS D:\System.out.learn\Kubernetes> kubectl get rs
NAME           DESIRED   CURRENT   READY   AGE
my-replicaset   3         3         0       7s
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-544x9                 1/1     Running   0           24s
my-replicaset-cs2vk                 1/1     Running   0           24s
my-replicaset-qmvfm                 1/1     Running   0           24s
PS D:\System.out.learn\Kubernetes>
```

The terminal window is titled "2-creating-replica-set.yml - Kubernetes - Visual Studio Code". The status bar at the bottom shows "Ln 7, Col 12", "Spaces: 2", "UTF-8", "CRLF", "YAML", "Go Live", and "kubernetes://schema/apps/v1@replicaset".

Deleting a pod in replica-set:

(Here even after deleting a pod replica-set will again create a new pod to maintain the desired number of pods in replica-set)



The screenshot shows a Visual Studio Code terminal window with the following commands and output:

```
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-544x9                 1/1     Running   0           117s
my-replicaset-cs2vk                 1/1     Running   0           117s
my-replicaset-qmvfm                 1/1     Running   0           117s
PS D:\System.out.learn\Kubernetes> kubectl delete pod my-replicaset-544x9
pod "my-replicaset-544x9" deleted
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-cs2vk                 1/1     Running   0           3m
my-replicaset-qmvfm                 1/1     Running   0           3m
my-replicaset-x6x9l                 1/1     Running   0           12s
PS D:\System.out.learn\Kubernetes>
```

The terminal window is titled "2-creating-replica-set.yml - Kubernetes - Visual Studio Code". The status bar at the bottom shows "Ln 21, Col 5", "Spaces: 2", "UTF-8", "CRLF", "YAML", "Go Live", and "kubernetes://schema/apps/v1@replicaset".

Scaling up an application :

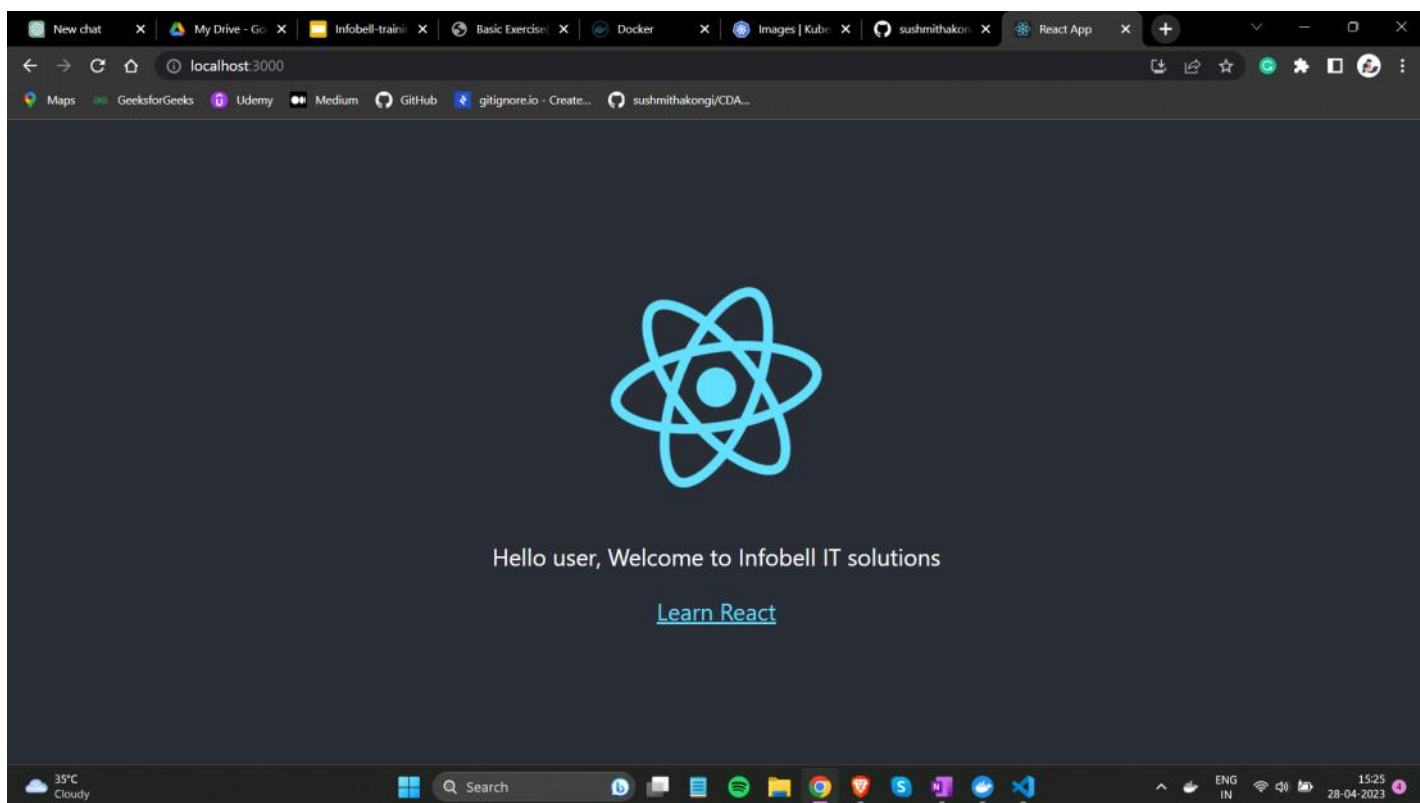

```
File Edit Selection View Go Run Terminal ... 2-creating-replica-set.yml - Kubernetes - Visual Studio Code
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
PS D:\System.out.learn\Kubernetes> kubectl get rs
NAME          DESIRED  CURRENT  READY  AGE
my-replicaset 3         3        3      6m50s
PS D:\System.out.learn\Kubernetes> kubectl scale rs my-replicaset --replicas=5
replicaset.apps/my-replicaset scaled
PS D:\System.out.learn\Kubernetes> kubectl get rs
NAME          DESIRED  CURRENT  READY  AGE
my-replicaset 5         5        3      7m36s
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY  STATUS   RESTARTS  AGE
my-replicaset-cs2vk                 1/1    Running   0          7m48s
my-replicaset-ljjsx                 1/1    Running   0          16s
my-replicaset-lpjkn                 1/1    Running   0          16s
my-replicaset-qmvfm                 1/1    Running   0          7m48s
my-replicaset-x6x9l                 1/1    Running   0          5m
PS D:\System.out.learn\Kubernetes>
```

To see the details of replica set:

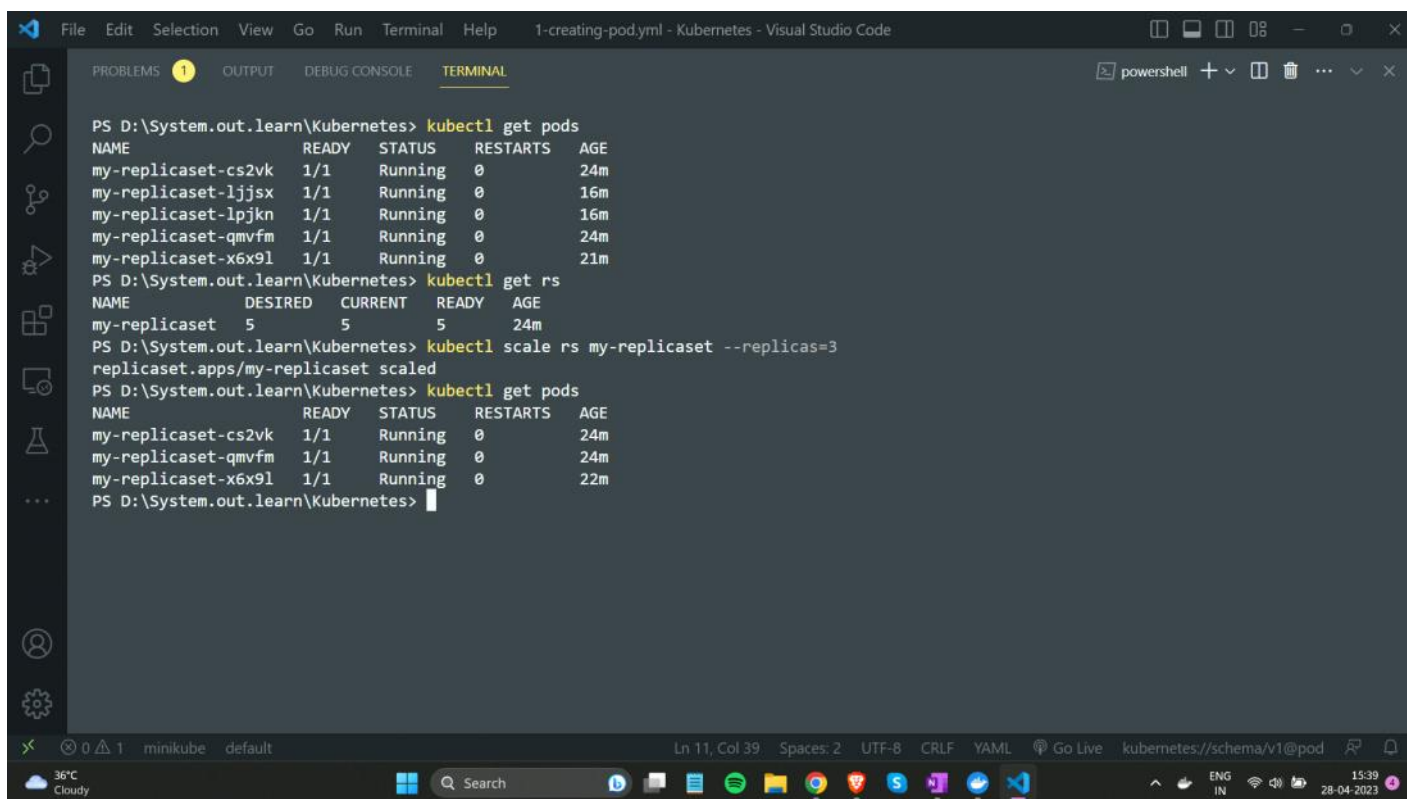
```
File Edit Selection View Go Run Terminal ... 2-creating-replica-set.yml - Kubernetes - Visual Studio Code
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
PS D:\System.out.learn\Kubernetes> kubectl describe rs my-replicaset
Name:          my-replicaset
Namespace:     default
Selector:      app=my-app
Labels:        <none>
Annotations:   <none>
Replicas:      5 current / 5 desired
Pods Status:   5 Running / 0 Waiting / 0 Succeeded / 0 Failed
Pod Template:
  Labels:  app=my-app
  Containers:
    firstcontainer:
      Image:      saurabh7nt/firstcontainer
      Port:       3000/TCP
      Host Port:  0/TCP
      Environment: <none>
      Mounts:      <none>
      Volumes:     <none>
  Events:
    Type     Reason             Age   From                  Message
    ----     -
    Normal   SuccessfulCreate   12m   replicaset-controller Created pod: my-replicaset-cs2vk
    Normal   SuccessfulCreate   12m   replicaset-controller Created pod: my-replicaset-544x9
    Normal   SuccessfulCreate   12m   replicaset-controller Created pod: my-replicaset-qmvfm
    Normal   SuccessfulCreate   9m13s replicaset-controller Created pod: my-replicaset-x6x9l
    Normal   SuccessfulCreate   4m29s replicaset-controller Created pod: my-replicaset-lpjkn
    Normal   SuccessfulCreate   4m29s replicaset-controller Created pod: my-replicaset-ljjsx
PS D:\System.out.learn\Kubernetes>
```

Accessing the react application by one of the running pod :

```
File Edit Selection View Go Run Terminal ... 2-creating-replica-set.yml - Kubernetes - Visual Studio Code
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                READY   STATUS    RESTARTS   AGE
my-replicaset-cs2vk  1/1     Running   0           10m
my-replicaset-ljjsx  1/1     Running   0          2m38s
my-replicaset-lpjkn  1/1     Running   0          2m38s
my-replicaset-qmvfm  1/1     Running   0           10m
my-replicaset-x6x9l  1/1     Running   0          7m22s
PS D:\System.out.learn\Kubernetes> kubectl port-forward my-replicaset-x6x9l 3000:3000
Forwarding from 127.0.0.1:3000 -> 3000
Forwarding from [::1]:3000 -> 3000
Handling connection for 3000
Handling connection for 3000
Handling connection for 3000
```



Scaling down an application :

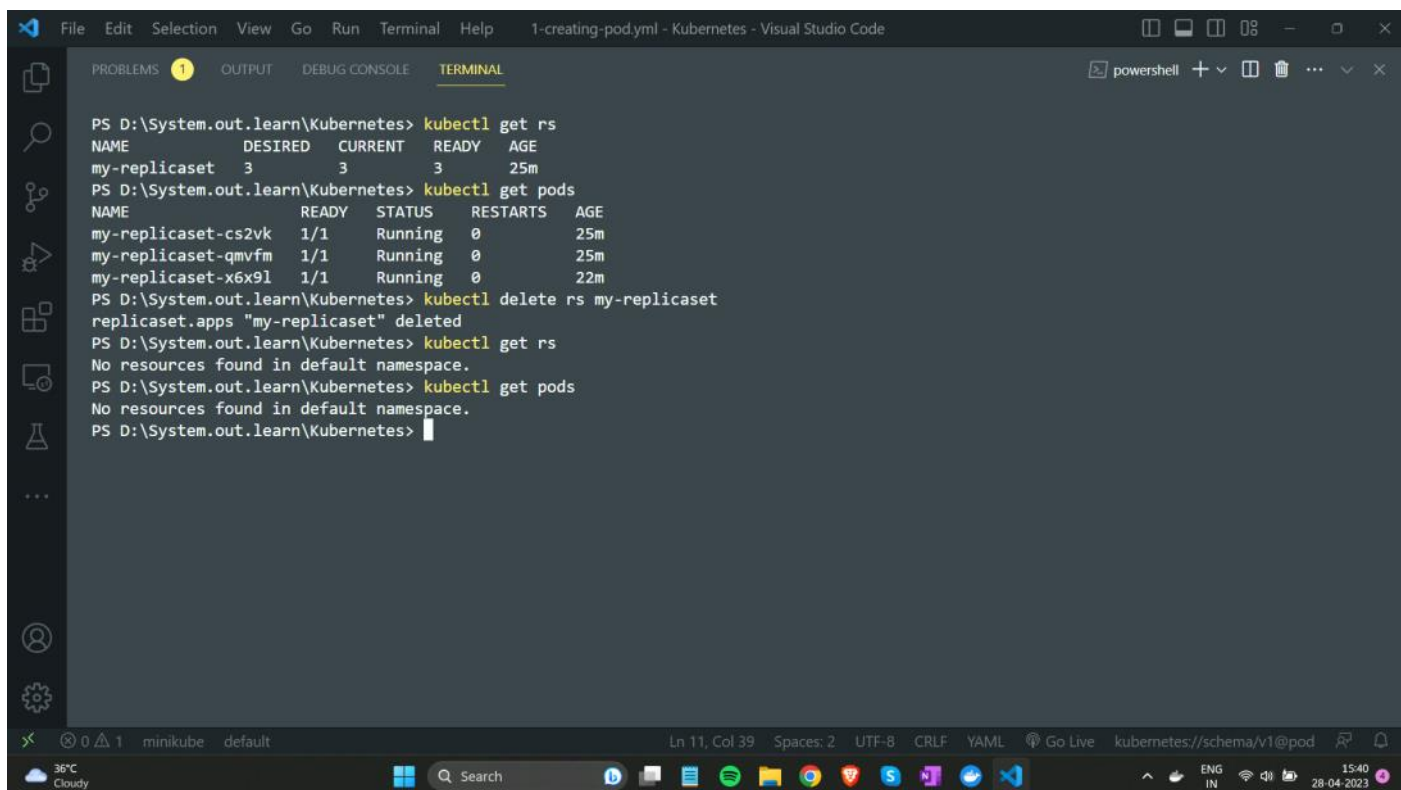


The screenshot shows a Visual Studio Code terminal window with the following commands and output:

```
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-cs2vk                 1/1     Running   0           24m
my-replicaset-ljjsx                 1/1     Running   0           16m
my-replicaset-lpjkn                 1/1     Running   0           16m
my-replicaset-qmvfm                 1/1     Running   0           24m
my-replicaset-x6x9l                 1/1     Running   0           21m
PS D:\System.out.learn\Kubernetes> kubectl get rs
NAME            DESIRED   CURRENT   READY   AGE
my-replicaset   5         5         5       24m
PS D:\System.out.learn\Kubernetes> kubectl scale rs my-replicaset --replicas=3
replicaset.apps/my-replicaset scaled
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-cs2vk                 1/1     Running   0           24m
my-replicaset-qmvfm                 1/1     Running   0           24m
my-replicaset-x6x9l                 1/1     Running   0           22m
PS D:\System.out.learn\Kubernetes>
```

The terminal window is titled "1-creating-pod.yml - Kubernetes - Visual Studio Code". The status bar at the bottom shows "Ln 11, Col 39", "Spaces: 2", "UTF-8", "CRLF", "YAML", "Go Live", and "kubernetes://schema/v1@pod". The system tray at the bottom shows a temperature of 36°C, a search bar, and various application icons.

Deleting a replica-set :



The screenshot shows a Visual Studio Code terminal window with the following commands and output:

```
PS D:\System.out.learn\Kubernetes> kubectl get rs
NAME            DESIRED   CURRENT   READY   AGE
my-replicaset   3         3         3       25m
PS D:\System.out.learn\Kubernetes> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
my-replicaset-cs2vk                 1/1     Running   0           25m
my-replicaset-qmvfm                 1/1     Running   0           25m
my-replicaset-x6x9l                 1/1     Running   0           22m
PS D:\System.out.learn\Kubernetes> kubectl delete rs my-replicaset
replicaset.apps "my-replicaset" deleted
PS D:\System.out.learn\Kubernetes> kubectl get rs
No resources found in default namespace.
PS D:\System.out.learn\Kubernetes> kubectl get pods
No resources found in default namespace.
PS D:\System.out.learn\Kubernetes>
```

The terminal window is titled "1-creating-pod.yml - Kubernetes - Visual Studio Code". The status bar at the bottom shows "Ln 11, Col 39", "Spaces: 2", "UTF-8", "CRLF", "YAML", "Go Live", and "kubernetes://schema/v1@pod". The system tray at the bottom shows a temperature of 36°C, a search bar, and various application icons.