TASK – 3

Kubernetes Deployment Summary for React E-commerce App

1. Building and Deploying the Application

- **Built the Docker image** for the React E-commerce app with the tag ecommerce:latest.
- **Checked available images** using docker images to confirm successful image creation.
- **Deployed the application** on Minikube using a Kubernetes Deployment (react-ecommerce-deployment).
- **Created a NodePort Service** to expose the application.

2. Initial Issues Faced

- Pods were stuck in **"ErrImageNeverPull"** state.
    - **Cause**: The image pull policy was set to Never, but the image was not available on the Kubernetes node.
    - **Solution**: Built the image locally and ensured Minikube recognized it.

3. Verifying Deployment

- Used kubectl get pods and kubectl get services to confirm that the pods were running.
- Used kubectl logs <pod-name> to check logs, which indicated that **Nginx started successfully**.

4. Exposing the Application

- Tried **port-forwarding** using: bash

CopyEdit

kubectl port-forward service/react-ecommerce-deployment 8080:80

    - **Error**: "Port 8080 already in use."
    - **Solution**: Either used a different port (e.g., 8081:80) or found and killed the process using port 8080.

5. Successfully Accessing the Application

- **Accessed the application using Minikube IP and NodePort:**

cpp

CopyEdit - http://192.168.49.2:32689

- The app is now **running successfully**.

Kubernetes Deployment Report – React E-commerce

1. Installation

Install Minikube and kubectl:

```
sudo apt update && sudo apt install -y curl
curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
sudo install minikube-linux-amd64 /usr/local/bin/minikube
sudo apt install -y kubectl
```

Start Minikube:

```
minikube start
```

2. Docker Image Creation

Build Docker Image:

```
docker build -t ecommerce:latest .
```

Verify Image:

```
docker images
```

3. Kubernetes Deployment

Apply Deployment and Service:

```
kubectl apply -f deployment.yaml
```

Check Pods and Services:

```
kubectl get pods
kubectl get services
```

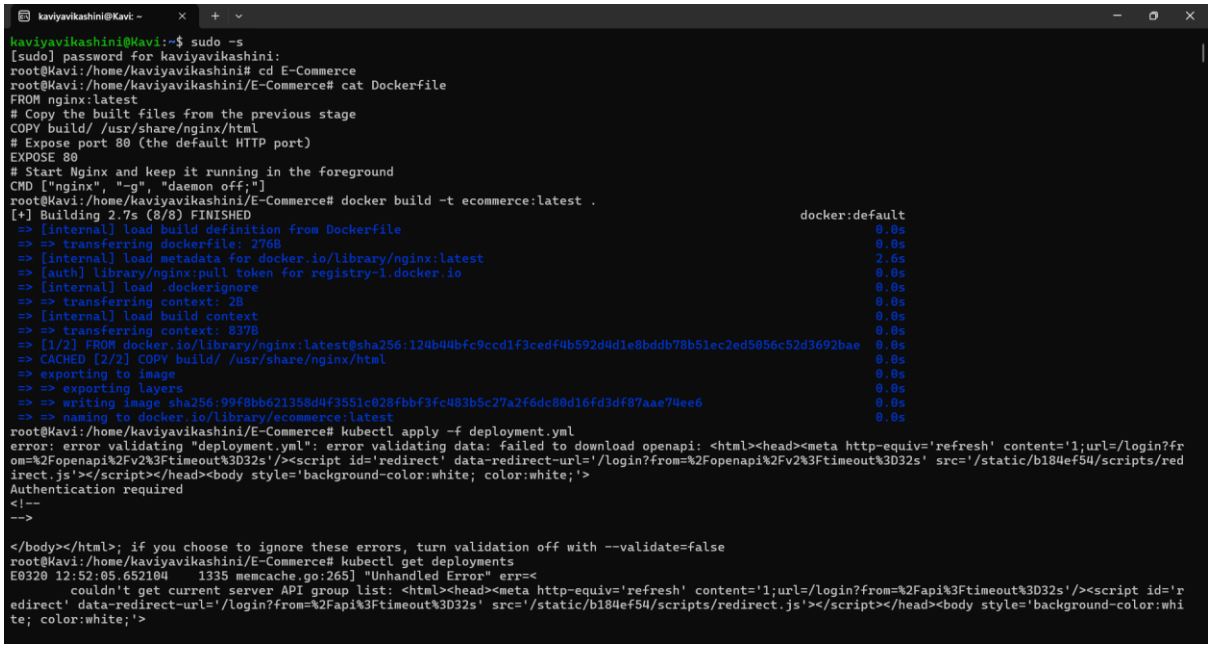
Describe and Debug:

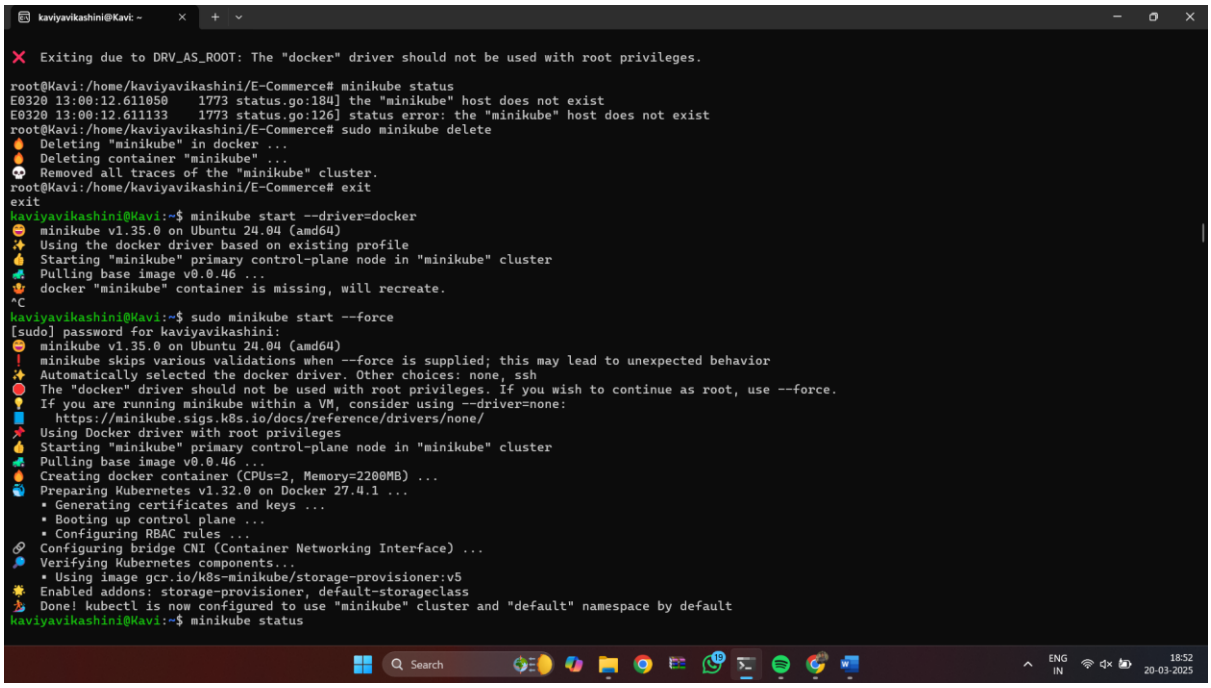
```
kubectl describe pod <pod-name>
kubectl logs <pod-name>
```

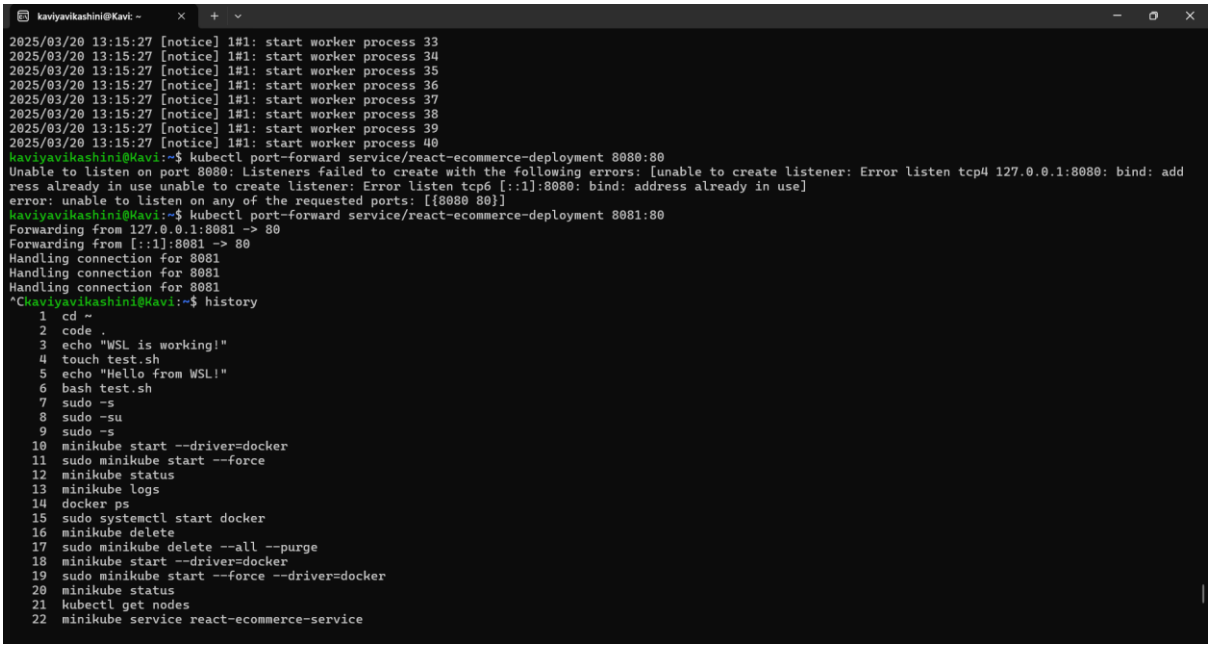
4. Port Forwarding

Expose Service:

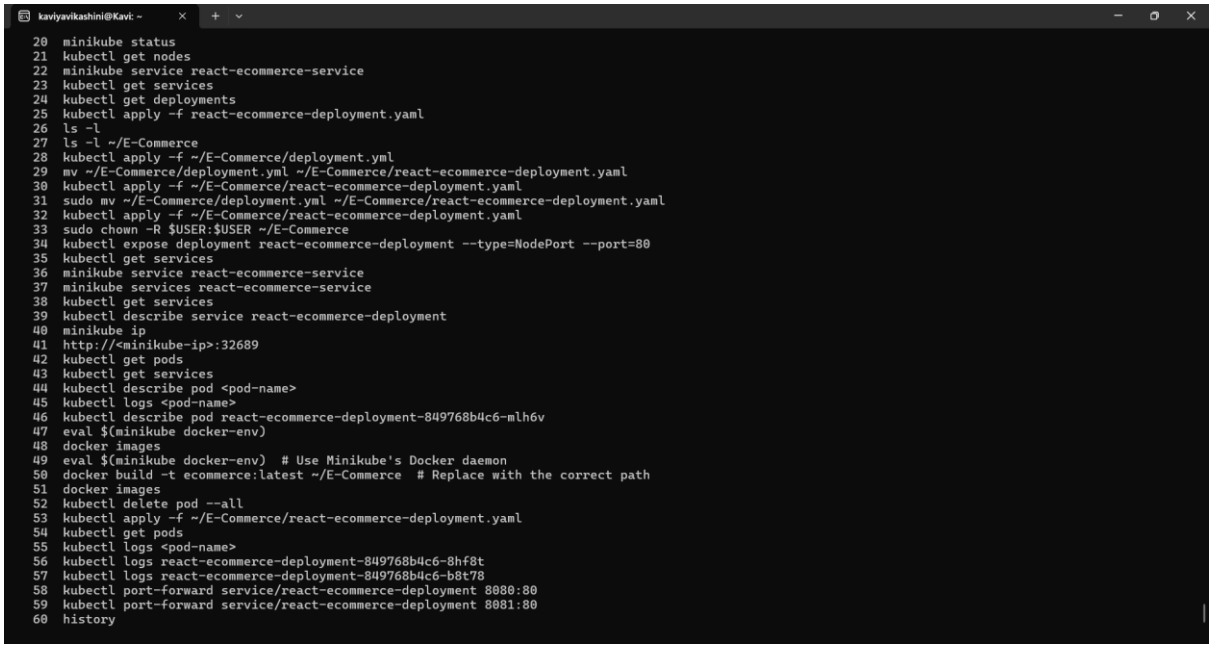
```
kubectl port-forward service/react-ecommerce-deployment 8080:80
```


kaviyavikashini@Kavi: ~
kaviyavikashini@Kavi:~$ sudo -s
[sudo] password for kaviyavikashini:
root@Kavi:/home/kaviyavikashini# cd E-Commerce
root@Kavi:/home/kaviyavikashini/E-Commerce# cat Dockerfile
FROM nginx:latest
Copy the built files from the previous stage
COPY build/ /usr/share/nginx/html
Expose port 80 (the default HTTP port)
EXPOSE 80
Start Nginx and keep it running in the foreground
CMD ["nginx", "-g", "daemon off;"]
root@Kavi:/home/kaviyavikashini/E-Commerce# docker build -t ecommerce:latest .
[+] Building 2.7s (8/8) FINISHED docker:default
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 276B 0.0s
=> [internal] load metadata for docker.io/library/nginx:latest 2.6s
=> [auth] library/nginx:pull token for registry-1.docker.io 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load build context 0.0s
=> => transferring context: 837B 0.0s
=> [1/2] FROM docker.io/library/nginx:latest@sha256:124b44bfc9ccd1f3cedf4b592d4d1e8bddb78b51ec2ed5056c52d3692bae 0.0s
=> CACHED [2/2] COPY build/ /usr/share/nginx/html 0.0s
=> exporting to image 0.0s
=> => exporting layers 0.0s
=> => writing image sha256:99f8bb621358d4f3551c028fbbf3fc483b5c27a2f6dc80d16fd3df87aae74ee6 0.0s
=> => naming to docker.io/library/ecommerce:latest 0.0s
root@Kavi:/home/kaviyavikashini/E-Commerce# kubectl apply -f deployment.yml
error: error validating "deployment.yml": error validating data: failed to download openapi: <html><head><meta http-equiv='refresh' content='1;url=/login?from=%2Fopenapi%2Fv2%3Ftimeout%3D32s'/><script id='redirect' data-redirect-url='/login?from=%2Fopenapi%2Fv2%3Ftimeout%3D32s' src='/static/b184ef54/scripts/redirect.js'></script></head><body style='background-color:white; color:white;'>
Authentication required
<!--
-->
</body></html>; if you choose to ignore these errors, turn validation off with --validate=false
root@Kavi:/home/kaviyavikashini/E-Commerce# kubectl get deployments
E0320 12:52:05.652104 1335 memcache.go:265] "Unhandled Error" err=<
couldn't get current server API group list: <html><head><meta http-equiv='refresh' content='1;url=/login?from=%2Fapi%3Ftimeout%3D32s'/><script id='redirect' data-redirect-url='/login?from=%2Fapi%3Ftimeout%3D32s' src='/static/b184ef54/scripts/redirect.js'></script></head><body style='background-color:white; color:white;'>

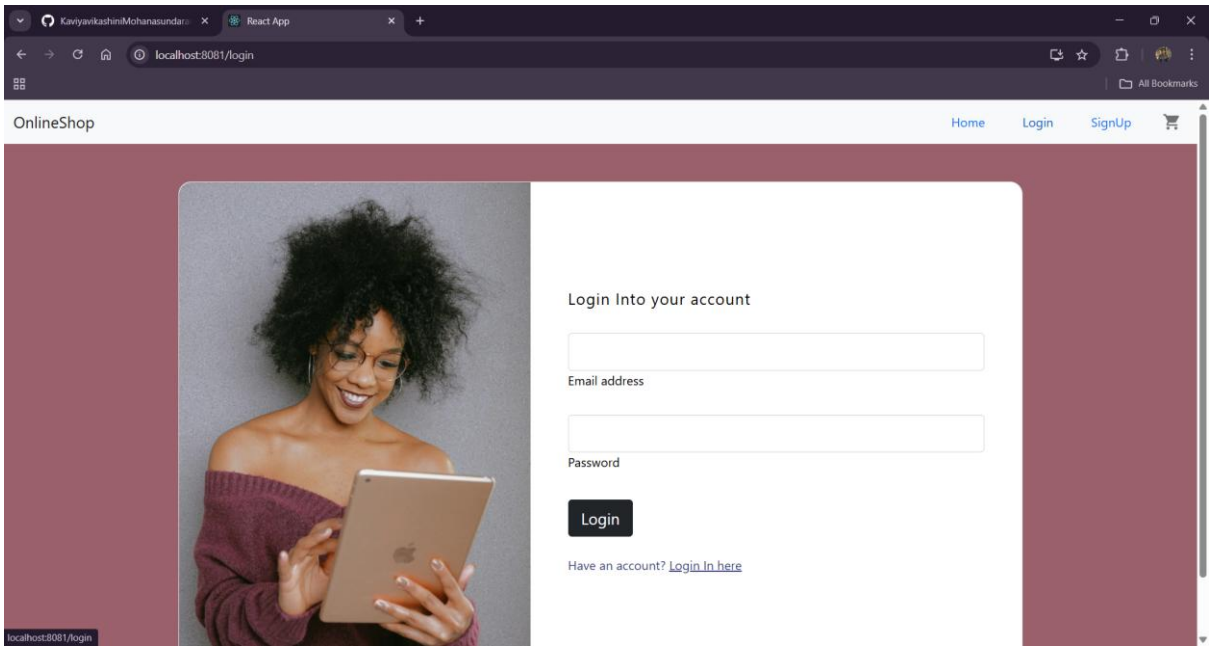

kaviyavikashini@Kavi: ~
Exiting due to DRV_AS_ROOT: The "docker" driver should not be used with root privileges.
root@Kavi:/home/kaviyavikashini/E-Commerce# minikube status
E0320 13:00:12.611050 1773 status.go:184] the "minikube" host does not exist
E0320 13:00:12.611133 1773 status.go:126] status error: the "minikube" host does not exist
root@Kavi:/home/kaviyavikashini/E-Commerce# sudo minikube delete
Deleting "minikube" in docker ...
Deleting container "minikube" ...
Removed all traces of the "minikube" cluster.
root@Kavi:/home/kaviyavikashini/E-Commerce# exit
exit
kaviyavikashini@Kavi:~$ minikube start --driver=docker
minikube v1.35.0 on Ubuntu 24.04 (amd64)
Using the docker driver based on existing profile
Starting "minikube" primary control-plane node in "minikube" cluster
Pulling base image v0.0.46 ...
docker "minikube" container is missing, will recreate.
^C
kaviyavikashini@Kavi:~$ sudo minikube start --force
[sudo] password for kaviyavikashini:
minikube v1.35.0 on Ubuntu 24.04 (amd64)
minikube skips various validations when --force is supplied; this may lead to unexpected behavior
Automatically selected the docker driver. Other choices: none, ssh
The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
If you are running minikube within a VM, consider using --driver=none:
https://minikube.sigs.k8s.io/docs/reference/drivers/none/
Using Docker driver with root privileges
Starting "minikube" primary control-plane node in "minikube" cluster
Pulling base image v0.0.46 ...
Creating docker container (CPUs=2, Memory=2200MB) ...
Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
• Generating certificates and keys ...
• Booting up control plane ...
• Configuring RBAC rules ...
Configuring bridge CNI (Container Networking Interface) ...
Verifying Kubernetes components...
• Using image gcr.io/k8s-minikube/storage-provisioner:v5
Enabled addons: storage-provisioner, default-storageclass
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
kaviyavikashini@Kavi:~$ minikube status
Search
ENG
IN
18:52
20-03-2025

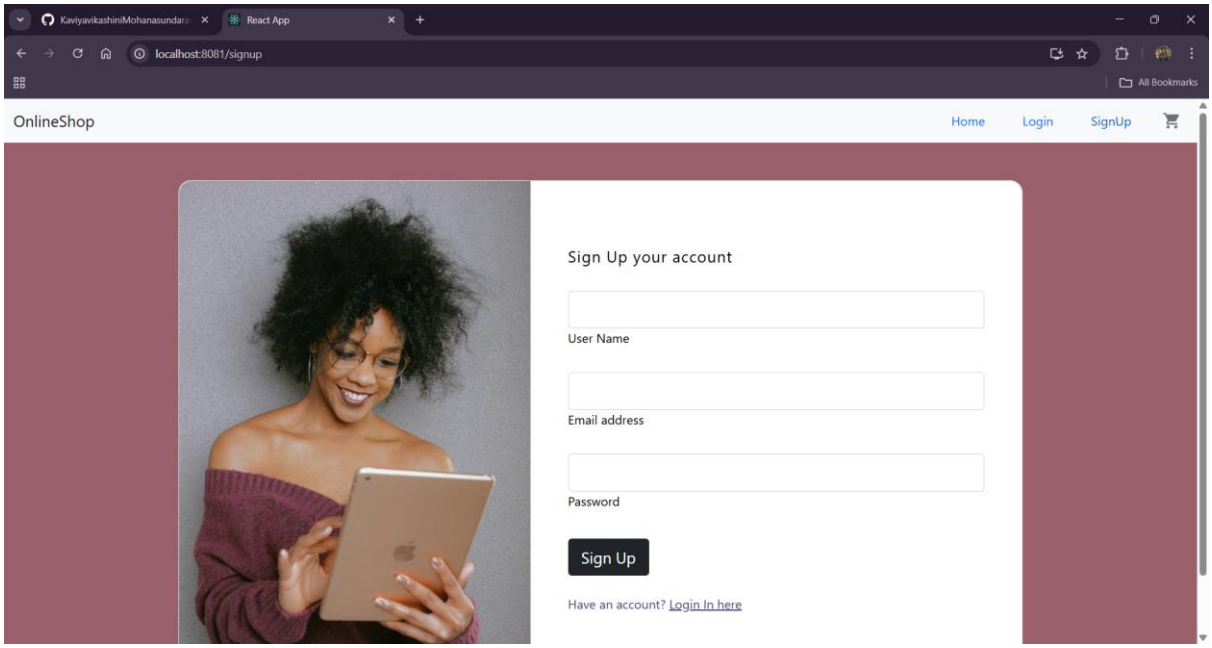


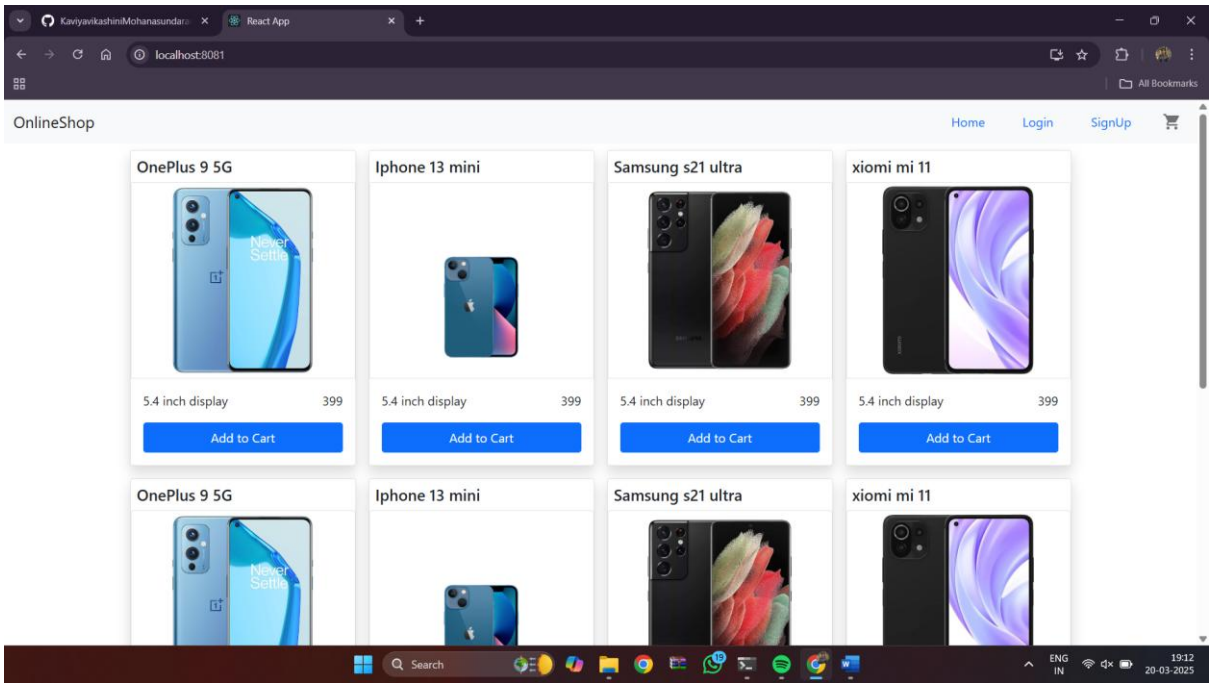
```
kaviyavikashini@Kavi: ~
2025/03/20 13:15:27 [notice] 1#1: start worker process 33
2025/03/20 13:15:27 [notice] 1#1: start worker process 34
2025/03/20 13:15:27 [notice] 1#1: start worker process 35
2025/03/20 13:15:27 [notice] 1#1: start worker process 36
2025/03/20 13:15:27 [notice] 1#1: start worker process 37
2025/03/20 13:15:27 [notice] 1#1: start worker process 38
2025/03/20 13:15:27 [notice] 1#1: start worker process 39
2025/03/20 13:15:27 [notice] 1#1: start worker process 40
kaviyavikashini@Kavi:~$ kubectl port-forward service/react-ecommerce-deployment 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: add
ress already in use unable to create listener: Error listen tcp6 [::1]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
kaviyavikashini@Kavi:~$ kubectl port-forward service/react-ecommerce-deployment 8081:80
Forwarding from 127.0.0.1:8081 -> 80
Forwarding from [::1]:8081 -> 80
Handling connection for 8081
Handling connection for 8081
Handling connection for 8081
^Ckaviyavikashini@Kavi:~$ history
    1  cd ~
    2  code .
    3  echo "WSL is working!"
    4  touch test.sh
    5  echo "Hello from WSL!"
    6  bash test.sh
    7  sudo -s
    8  sudo -su
    9  sudo -s
   10  minikube start --driver=docker
   11  sudo minikube start --force
   12  minikube status
   13  minikube logs
   14  docker ps
   15  sudo systemctl start docker
   16  minikube delete
   17  sudo minikube delete --all --purge
   18  minikube start --driver=docker
   19  sudo minikube start --force --driver=docker
   20  minikube status
   21  kubectl get nodes
   22  minikube service react-ecommerce-service
```

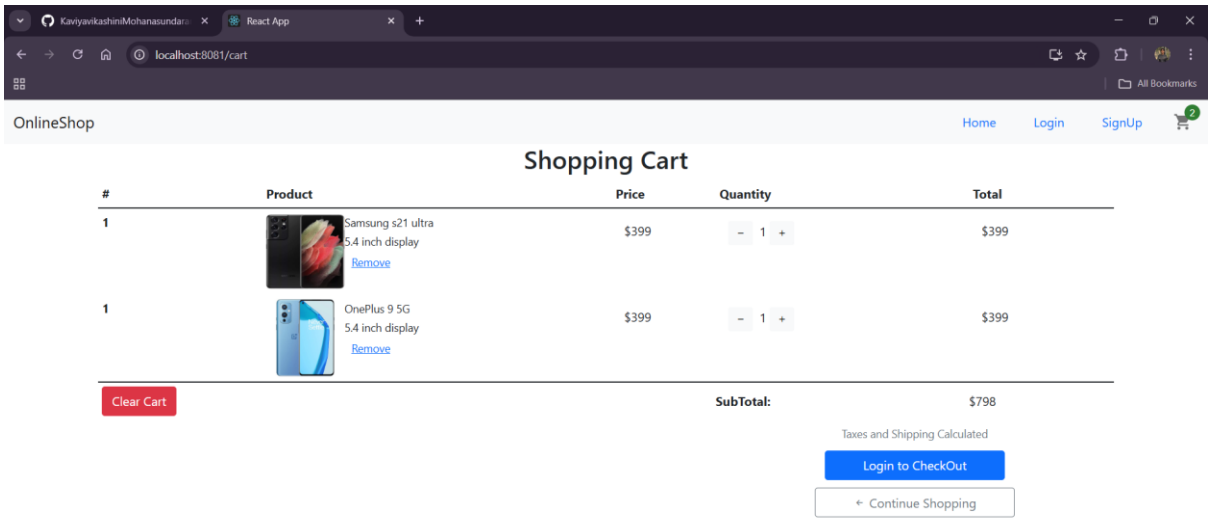


```
kaviyavikashini@Kavi: ~
   20  minikube status
   21  kubectl get nodes
   22  minikube service react-ecommerce-service
   23  kubectl get services
   24  kubectl get deployments
   25  kubectl apply -f react-ecommerce-deployment.yaml
   26  ls -l
   27  ls -l ~/E-Commerce
   28  kubectl apply -f ~/E-Commerce/deployment.yml
   29  mv ~/E-Commerce/deployment.yml ~/E-Commerce/react-ecommerce-deployment.yaml
   30  kubectl apply -f ~/E-Commerce/react-ecommerce-deployment.yaml
   31  sudo mv ~/E-Commerce/deployment.yml ~/E-Commerce/react-ecommerce-deployment.yaml
   32  kubectl apply -f ~/E-Commerce/react-ecommerce-deployment.yaml
   33  sudo chown -R $USER:$USER ~/E-Commerce
   34  kubectl expose deployment react-ecommerce-deployment --type=NodePort --port=80
   35  kubectl get services
   36  minikube service react-ecommerce-service
   37  minikube services react-ecommerce-service
   38  kubectl get services
   39  kubectl describe service react-ecommerce-deployment
   40  minikube ip
   41  http://<minikube-ip>:32689
   42  kubectl get pods
   43  kubectl get services
   44  kubectl describe pod <pod-name>
   45  kubectl logs <pod-name>
   46  kubectl describe pod react-ecommerce-deployment-849768b4c6-mlh6v
   47  eval $(minikube docker-env)
   48  docker images
   49  eval $(minikube docker-env)  # Use Minikube's Docker daemon
   50  docker build -t ecommerce:latest ~/E-Commerce  # Replace with the correct path
   51  docker images
   52  kubectl delete pod --all
   53  kubectl apply -f ~/E-Commerce/react-ecommerce-deployment.yaml
   54  kubectl get pods
   55  kubectl logs <pod-name>
   56  kubectl logs react-ecommerce-deployment-849768b4c6-8hf8t
   57  kubectl logs react-ecommerce-deployment-849768b4c6-b8t78
   58  kubectl port-forward service/react-ecommerce-deployment 8080:80
   59  kubectl port-forward service/react-ecommerce-deployment 8081:80
   60  history
```


KaviyavikashiniMohanasundara
React App
localhost:8081/login
All Bookmarks
OnlineShop
Home
Login
SignUp
Login Into your account
Email address
Password
Login
Have an account? Login In here
localhost:8081/login


KaviyavikashiniMohanasundara
React App
localhost:8081/signup
All Bookmarks
OnlineShop
Home
Login
SignUp
Sign Up your account
User Name
Email address
Password
Sign Up
Have an account? Login In here


KaviyavikashiniMohanasundara
React App
localhost:8081
All Bookmarks
OnlineShop
Home
Login
SignUp
OnePlus 9 5G
Iphone 13 mini
Samsung s21 ultra
xiomi mi 11
5.4 inch display
399
Add to Cart
Search
ENG
IN
19:12
20-03-2025


KaviyavikashiniMohanasundara
React App
localhost:8081/cart
All Bookmarks
OnlineShop
Home
Login
SignUp
Shopping Cart
#
Product
Price
Quantity
Total
1
Samsung s21 ultra
5.4 inch display
Remove
$399
1
$399
1
OnePlus 9 5G
5.4 inch display
Remove
$399
1
$399
Clear Cart
SubTotal:
$798
Taxes and Shipping Calculated
Login to CheckOut
Continue Shopping