**Step 1: Log in to the Developer Sandbox**

**- Set User Credentials:**

kubectl config set-credentials {username}/{cluster\_name} --token={token}

**- Set Cluster Information:**

kubectl config set-cluster {cluster\_name} --server={api\_server\_url}

**- Set Context:**

kubectl config set-context {context} --user={username}/{cluster\_name} --namespace={username}-dev --cluster={cluster\_name}

**- Use Context:**

kubectl config use-context {context}

**Step 3: Clone the source code repositories**

- **Clone quotesweb Repository:**

git clone https://github.com/redhat-developer-demos/quotesweb.git

**- Clone quotemysql Repository:**

bash

git clone https://github.com/redhat-developer-demos/quotemysql.git

**- Clone qotd-python Repository:**

bash

git clone https://github.com/redhat-developer-demos/qotd-python.git

**Step 4: Create a back-end program called quotes**

**- Create Quotes Deployment:**

kubectl create -f quotes-deployment.yaml

**- Create Quotes Service:**

kubectl create -f service.yaml

- Create Quotes Route:

kubectl create -f route.yaml

**Step 5: Create a React front-end program called quotesweb**

**-Create Quotesweb Deployment:**

kubectl create -f quotesweb-deployment.yaml

**- Create Quotesweb Service:**

kubectl create -f quotesweb-service.yaml

**- Create Quotesweb Route:**

kubectl create -f quotesweb-route.yaml

**Step 6: Scale the back-end app to two pods**

**- Scale Quotes Deployment:**

kubectl scale deployments/quotes --replicas=3

**Step 7: Create a Persistent Volume Claim (PVC) for MariaDB**

**- Create MariaDB PVC:**

kubectl create -f mysqlvolume.yaml

**Step 8: Create a Secret for the database**

- **Create MariaDB Secret:**

kubectl create -f mysql-secret.yaml

**Step 9: Create a MariaDB database**

**Create MariaDB Deployment:**

kubectl create -f mysql-deployment.yaml

**Step 10: Create and populate the table "quotes" in the "quotesdb" database**

**- Copy Files and Execute SQL Commands in MariaDB Pod:**

(Multiple `kubectl cp` and `kubectl exec` commands)

**Step 11: Update the back-end program to version 2**

**- Set Environment Variable:**

kubectl set env deployment/quotes DB\_SERVICE\_NAME=mysql

**- Update Image of Quotes Deployment:**

kubectl set image deploy quotes quotes=quay.io/donschenck/quotes:v2

**Step 12: Destroy the MariaDB pod**

**-Delete Running MariaDB Pod:**

kubectl delete pod ${podname}  


