- Install Docker by running the following commands:

```
sudo apt-get update
sudo apt-get install -y apt-transport-https ca-certificates curl gnupg-agent
software-properties-common
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu
$(lsb_release -cs) stable"
sudo apt-get update
sudo apt-get install -y docker-ce docker-ce-cli containerd.io
sudo usermod -aG docker ${USER}
newgrp docker
docker version
```

- Navigate to https://www.docker.com/products/docker-desktop/ and show that you can install Docker Desktop for Windows or macOS.
- Install `kubectl` by runnig the following command:

```
curl -LO "https://dl.k8s.io/release/$(curl -L -s
https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
sudo mv kubectl /usr/local/bin
sudo chmod +x /usr/local/bin/kubectl
kubectl version --client
```

- Go to https://github.com/kubernetes-sigs/kind/releases
- Scroll down till you find the downloadable files.
- Right click on the Linux AMD64 and copy the link.
- In the terminal, run the following:

```
wget https://github.com/kubernetes-sigs/kind/releases/download/v0.18.0/kind-linux-
amd64
sudo mv kind-linux-amd64 /usr/local/bin/kind
sudo chmod +x /usr/local/bin/kind
kind version
kind create cluster # don't run this command yet
```

- Create a cluster configuration file as follows:

```
# cluster.yaml
kind: Cluster
apiVersion: kind.x-k8s.io/v1alpha4
nodes:
- role: control-plane
  kubeadmConfigPatches:
```

```
  - |
    kind: InitConfiguration
    nodeRegistration:
      kubeletExtraArgs:
        node-labels: "ingress-ready=true"
  extraPortMappings:
  - containerPort: 80
    hostPort: 80
    protocol: TCP
  - containerPort: 443
    hostPort: 443
    protocol: TCP
```

- Create a cluster by running the following command:

```
kind create cluster --config=cluster.yaml
kubectl cluster-info --context kind-kind
```