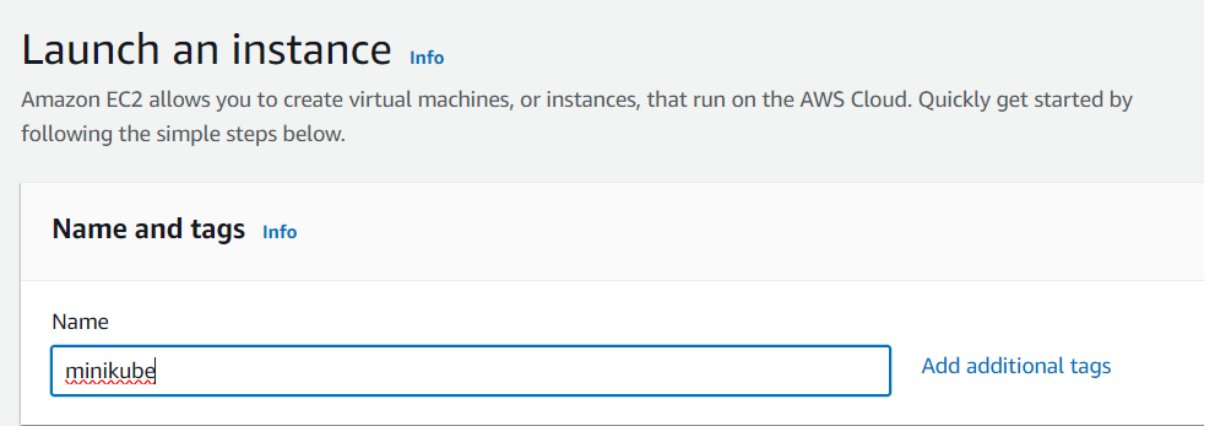
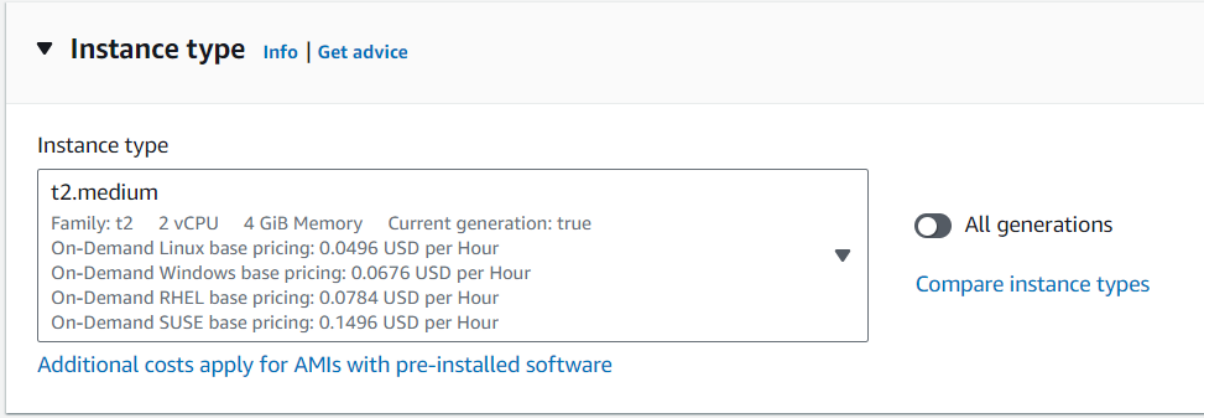
Task 19: Setup minikube at your local and explore creating namespaces (Go through official documentation)

MINIKUBE

1. **Launch an instance:**





1. **Install docker:**

```
ubuntu@ip-172-31-40-193:~$ sudo apt install docker.io
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
```

```
 API version:       1.43
 Go version:        go1.22.2
 Git commit:        24.0.7-0ubuntu4
 Built:             Wed Apr 17 20:08:25 2024
 OS/Arch:           linux/amd64
 Context:           default

Server:
 Engine:
  Version:          24.0.7
  API version:      1.43 (minimum version 1.12)
  Go version:       go1.22.2
  Git commit:       24.0.7-0ubuntu4
  Built:            Wed Apr 17 20:08:25 2024
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
  Version:          1.7.12
  GitCommit:
 runc:
  Version:          1.1.12-0ubuntu3
  GitCommit:
 docker-init:
  Version:          0.19.0
  GitCommit:
ubuntu@ip-172-31-40-193:~$ sudo usermod -aG docker ubuntu
```

2. Install kubectl

```
ubuntu@ip-172-31-40-193:~$ curl -o kubectl https://amazon-eks.s3.us-west-2.amazonaws.com/1.19.6/2021-01-05/bin/linux/amd64/kubectl
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 57.4M  100 57.4M    0     0  6263k      0  0:00:09  0:00:09 --:--:-- 8059k
ubuntu@ip-172-31-40-193:~$ chmod +x ./kubectl
ubuntu@ip-172-31-40-193:~$ sudo mv ./kubectl /usr/local/bin
ubuntu@ip-172-31-40-193:~$ kubectl version --short -client
Client Version: v1.19.6-eks-49a6c0
```

3. Install eksctl:

```
ubuntu@ip-172-31-40-193:~$ curl --silent --location "https://github.com/weaveworks/eksctl/releases/latest/download/eksctl_$(uname -s)_amd64.tar.gz" | tar xz -C /t
mp
ubuntu@ip-172-31-40-193:~$ sudo mv /tmp/eksctl /usr/local/bin
ubuntu@ip-172-31-40-193:~$ eksctl version
0.188.0
```

4. Install minikube:

```
ubuntu@ip-172-31-40-193:~$ curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 91.1M  100 91.1M    0     0  11.3M      0  0:00:08  0:00:08 --:--:-- 15.9M
ubuntu@ip-172-31-40-193:~$ sudo install minikube-linux-amd64 /usr/local/bin/minikube && rm minikube-linux-amd64
ubuntu@ip-172-31-40-193:~$
```

5. Start minicube:

```
ubuntu@ip-172-31-40-193:~$ sudo usermod -aG docker ubuntu
newgrp docker
ubuntu@ip-172-31-40-193:~$ minikube start
* minikube v1.33.1 on Ubuntu 24.04 (xen/amd64)
* Automatically selected the docker driver. Other choices: ssh, none
* Using Docker driver with root privileges
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.44 ...
* Downloading Kubernetes v1.30.0 preload ...
    > preloaded-images-k8s-v18-v1...:  342.90 MiB / 342.90 MiB  100.00% 14.69 M
    > gcr.io/k8s-minikube/kicbase...:  481.58 MiB / 481.58 MiB  100.00% 14.58 M
* Creating docker container (CPUs=2, Memory=2200MB) ...
* Preparing Kubernetes v1.30.0 on Docker 26.1.1 ...
  - 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

! /usr/local/bin/kubectl is version 1.19.6-eks-49a6c0, which may have incompatibilities with Kubernetes 1.30.0.
  - Want kubectl v1.30.0? Try 'minikube kubectl -- get pods -A'
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
ubuntu@ip-172-31-40-193:~$
```

6. Minikube status:

```
ubuntu@ip-172-31-40-193:~$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
```

NAMESPACE

7. Namespace:

1. Create custom namespace:

```
ubuntu@ip-172-31-40-193:~$ kubectl create namespace my-namespace
namespace/my-namespace created
ubuntu@ip-172-31-40-193:~$ kubectl get namespaces
NAME              STATUS   AGE
default           Active   2m43s
kube-node-lease   Active   2m43s
kube-public       Active   2m43s
kube-system       Active   2m43s
my-namespace      Active   12s
```

2. Namespace.yaml file:[use kubectl / namespace.yaml for creating namespace]

Billing and Cost Management

```yaml
apiVersion: v1
kind: Namespace
metadata:
  name: my-namespace
~
```

```
ubuntu@ip-172-31-40-193:~$ vi namespace.yaml
ubuntu@ip-172-31-40-193:~$ kubectl apply -f namespace.yaml

Warning: kubectl apply should be used on resource created by either kubectl create --save-config or kubectl apply
namespace/my-namespace configured
```