1- How many Namespaces exist on the system?

```
Editor  Tab 1  +
controlplane:~$ kubectl get namespaces
NAME                   STATUS   AGE
default                Active   31d
kube-node-lease        Active   31d
kube-public            Active   31d
kube-system            Active   31d
local-path-storage     Active   31d
controlplane:~$
```

2- How many pods exist in the `kube-system` namespace?

```
Editor  Tab 1  +
controlplane:~$ kubectl get pods -n kube-system --no-headers
calico-kube-controllers-fdf5f5495-dgc76   1/1   Running   2 (29m ago)   31d
canal-9hc7x                               2/2   Running   2 (29m ago)   31d
canal-b5cnm                               2/2   Running   2 (29m ago)   31d
coredns-7695687499-2vdd4                  1/1   Running   1 (29m ago)   31d
coredns-7695687499-ltw2v                  1/1   Running   1 (29m ago)   31d
etcd-controlplane                         1/1   Running   3 (29m ago)   31d
kube-apiserver-controlplane               1/1   Running   2 (29m ago)   31d
kube-controller-manager-controlplane      1/1   Running   2 (29m ago)   31d
kube-proxy-f7jnk                          1/1   Running   2 (29m ago)   31d
kube-proxy-fbkjh                          1/1   Running   1 (29m ago)   31d
kube-scheduler-controlplane               1/1   Running   2 (29m ago)   31d
controlplane:~$
```

3- Create a deployment

with Name: beta

Image: redis

Replicas: 2

Namespace: finance

Resources

Requests:

CPU: .5 vcpu

Mem: 1G

Resources

Limits: CPU: 1 vcpu Mem: 2G

```
Editor  Tab 1  +
apiVersion: apps/v1
kind: Deployment
metadata:
  name: beta
  namespace: finance
spec:
  replicas: 2
  selector:
    matchLabels:
      app: beta
  template:
    metadata:
      labels:
        app: beta
    spec:
      containers:
      - name: redis
        image: redis
        resources:
          requests:
            cpu: "500m"
            memory: "1Gi"
          limits:
```

```
controlplane:~$ vi beta-deployment.yml
controlplane:~$ kubectl apply -f beta-deployment.yml
Error from server (NotFound): error when creating "beta-deployment.yml": namespaces "finance" not found
controlplane:~$ kubectl create namespace finance
namespace/finance created
controlplane:~$ kubectl apply -f beta-deployment.yml
deployment.apps/beta created
controlplane:~$ k get po
No resources found in default namespace.
controlplane:~$ k get pods
No resources found in default namespace.
controlplane:~$ k get po all
Error from server (NotFound): pods "all" not found
controlplane:~$ k get po -n finance
NAME                    READY   STATUS    RESTARTS   AGE
beta-76549c7d7c-d8tnb   1/1     Running   0          95s
beta-76549c7d7c-dd6t2   1/1     Running   0          95s
controlplane:~$
```

4- How many Nodes exist on the system?

```
controlplane:~$ k get nodes
NAME           STATUS   ROLES           AGE   VERSION
controlplane   Ready    control-plane   31d   v1.32.1
node01         Ready    <none>          31d   v1.32.1
controlplane:~$
```

5- Do you see any taints on `master`?

```
controlplane:~$ kubectl describe node | grep Taints
Taints:             <none>
Taints:             <none>
controlplane:~$
```

6- Apply a label `color=blue` to the master node

```
controlplane:~$ k get nodes
NAME           STATUS   ROLES           AGE   VERSION
controlplane   Ready    control-plane   31d   v1.32.1
node01         Ready    <none>          31d   v1.32.1
controlplane:~$ kubectl label node node01 color=blue
node/node01 labeled
controlplane:~$
```

7- Create a new deployment named `blue` with the `nginx` image and 3 replicas Set Node Affinity to the deployment to place the pods on `master` only NodeAffinity:
requiredDuringSchedulingIgnoredDuringExecution
Key: color
values: blue

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: blue
spec:
  replicas: 3
  selector:
    matchLabels:
      app: blue
  template:
    metadata:
      labels:
        app: blue
    spec:
      affinity:
        nodeAffinity:
          requiredDuringSchedulingIgnoredDuringExecution:
            nodeSelectorTerms:
              - matchExpressions:
                  - key: color
                    operator: In
                    values:
                      - blue
      containers:
        - name: nginx
          image: nginx
```

```
controlplane:~$ vi blue-deployment.yaml
controlplane:~$ kubectl apply -f blue-deployment.yaml
deployment.apps/blue created
controlplane:~$ kubectl get pods -o wide
NAME                    READY   STATUS              RESTARTS   AGE   IP       NODE     NOMINATED NODE   READINESS GATES
blue-7bd99994c-2x4sg    0/1     ContainerCreating   0          7s    <none>   node01   <none>           <none>
blue-7bd99994c-9pqvn    0/1     ContainerCreating   0          7s    <none>   node01   <none>           <none>
blue-7bd99994c-md9mw    0/1     ContainerCreating   0          7s    <none>   node01   <none>           <none>
controlplane:~$ kubectl get pods -o wide
NAME                    READY   STATUS    RESTARTS   AGE   IP            NODE     NOMINATED NODE   READINESS GATES
blue-7bd99994c-2x4sg    1/1     Running   0          19s   192.168.1.5   node01   <none>           <none>
blue-7bd99994c-9pqvn    1/1     Running   0          19s   192.168.1.7   node01   <none>           <none>
blue-7bd99994c-md9mw    1/1     Running   0          19s   192.168.1.6   node01   <none>           <none>
controlplane:~$
```