1. Scaling the pods:

```
devops@master:~$ kubectl get pods
NAME                     READY   STATUS    RESTARTS   AGE
pyapp-c486fff5c-ljndn    1/1     Running   0          42s
pyapp-c486fff5c-w2jfc    1/1     Running   0          42s

devops@master:~$ kubectl get nodes
NAME       STATUS   ROLES    AGE     VERSION
master     Ready    master   5h53m   v1.14.1
worker01   Ready    <none>   20s     v1.14.1
worker02   Ready    worker   5h48m   v1.14.1

devops@master:~$ kubectl scale --replicas=4 deployment/pyapp
deployment.extensions/pyapp scaled

devops@master:~$ kubectl get deployments
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
pyapp   2/4     4            2           143m

devops@master:~$ kubectl get deployments
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
pyapp   2/4     4            2           143m

devops@master:~$ kubectl get pods
NAME                     READY   STATUS    RESTARTS   AGE
pyapp-c486fff5c-64cs5    1/1     Running   0          39s
pyapp-c486fff5c-9qsh5    1/1     Running   0          39s
pyapp-c486fff5c-ljndn    1/1     Running   0          144m
pyapp-c486fff5c-w2jfc    1/1     Running   0          144m

devops@master:~$ kubectl get deployments
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
pyapp   4/4     4            4           144m

devops@master:~$ kubectl describe pod pyapp-c486fff5c-64cs5
Name:               pyapp-c486fff5c-64cs5
Namespace:          default
Priority:           0
PriorityClassName:  <none>
Node:               worker01/192.168.56.121
Start Time:         Sun, 05 May 2019 21:20:22 +0530
Labels:             pod-template-hash=c486fff5c
                    run=pyapp
Annotations:        cni.projectcalico.org/podIP: 10.244.2.3/32
Status:             Running
IP:                 10.244.2.3
Controlled By:      ReplicaSet/pyapp-c486fff5c
```

```
Containers:
  pyapp:
    Container ID:
docker://65e72966d5bc68c55fb35ebf8bfd4e8903db879c8ff2d79248c1a6b370e16
bb5
    Image:          prakaram/sayhello:latest
    Image ID:       docker-
pullable://prakaram/sayhello@sha256:33dfdfa51c1a8822b91163741e83bfb775
534eb96055e7cb29e92a3b76852553
    Port:           80/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Sun, 05 May 2019 21:20:55 +0530
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from default-
token-ss6kc (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  default-token-ss6kc:
    Type:       Secret (a volume populated by a Secret)
    SecretName: default-token-ss6kc
    Optional:   false
QoS Class:        BestEffort
Node-Selectors:   <none>
Tolerations:      node.kubernetes.io/not-ready:NoExecute for 300s
                  node.kubernetes.io/unreachable:NoExecute for 300s
Events:
  Type    Reason    Age   From              Message
  ----    ------    ----  ----              -------
  Normal  Pulling   32m   kubelet, worker01 Pulling image
"prakaram/sayhello:latest"
  Normal  Scheduled 32m   default-scheduler Successfully assigned
default/pyapp-c486fff5c-64cs5 to worker01
  Normal  Pulled    32m   kubelet, worker01 Successfully pulled
image "prakaram/sayhello:latest"
  Normal  Created   32m   kubelet, worker01 Created container pyapp
  Normal  Started   32m   kubelet, worker01 Started container pyapp
```

```
devops@master:~$ kubectl describe pod pyapp-c486fff5c-9qsh5
Name:              pyapp-c486fff5c-9qsh5
Namespace:         default
Priority:          0
PriorityClassName: <none>
Node:              worker01/192.168.56.121
Start Time:        Sun, 05 May 2019 21:20:22 +0530
Labels:            pod-template-hash=c486fff5c
                   run=pyapp
Annotations:       cni.projectcalico.org/podIP: 10.244.2.2/32
Status:            Running
IP:                10.244.2.2
Controlled By:     ReplicaSet/pyapp-c486fff5c
Containers:
  pyapp:
    Container ID:
docker://2066b23711d49037750b85ccd70ee0e21199905a08271424cb74ff69f6929
c30
    Image:         prakaram/sayhello:latest
    Image ID:      docker-
pullable://prakaram/sayhello@sha256:33dfdfa51c1a8822b91163741e83bfb775
534eb96055e7cb29e92a3b76852553
    Port:          80/TCP
    Host Port:     0/TCP
    State:         Running
      Started:     Sun, 05 May 2019 21:20:52 +0530
    Ready:         True
    Restart Count: 0
    Environment:   <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from default-
token-ss6kc (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  default-token-ss6kc:
    Type:          Secret (a volume populated by a Secret)
    SecretName:    default-token-ss6kc
    Optional:      false
QoS Class:         BestEffort
Node-Selectors:    <none>
Tolerations:       node.kubernetes.io/not-ready:NoExecute for 300s
                   node.kubernetes.io/unreachable:NoExecute for 300s
Events:
```

```
 Type      Reason     Age    From                Message
 ----      ------     ----   ----                -------
 Normal    Pulling    33m    kubelet, worker01   Pulling image
"prakaram/sayhello:latest"
 Normal    Scheduled  33m    default-scheduler   Successfully assigned
default/pyapp-c486fff5c-9qsh5 to worker01
 Normal    Pulled     33m    kubelet, worker01   Successfully pulled
image "prakaram/sayhello:latest"
 Normal    Created    33m    kubelet, worker01   Created container pyapp
 Normal    Started    33m    kubelet, worker01   Started container pyapp
```

2. To allow pods to be scheduled to master nodes run the following command on master node.

```
kubectl taint nodes --all node-role.kubernetes.io/master-
```

```
devops@master:~$ kubectl taint nodes --all node-
role.kubernetes.io/master-
node/master untainted
taint "node-role.kubernetes.io/master:" not found
taint "node-role.kubernetes.io/master:" not found
```

3. Increase scale to 5

```
devops@master:~$ kubectl scale --replicas=5 deployment/pyapp
deployment.extensions/pyapp scaled

devops@master:~$ kubectl get deployments
NAME      READY    UP-TO-DATE    AVAILABLE    AGE
pyapp     4/5      5             4            3h3m

devops@master:~$ kubectl get pods
NAME                      READY    STATUS     RESTARTS    AGE
pyapp-c486fff5c-64cs5     1/1      Running    0           40m
pyapp-c486fff5c-6m7sl     1/1      Running    0           23s
pyapp-c486fff5c-9qsh5     1/1      Running    0           40m
pyapp-c486fff5c-ljndn     1/1      Running    0           3h3m
pyapp-c486fff5c-w2jfc     1/1      Running    0           3h3m

devops@master:~$ kubectl get deployments
NAME      READY    UP-TO-DATE    AVAILABLE    AGE
pyapp     5/5      5             5            3h3m

devops@master:~$ kubectl describe pod pyapp-c486fff5c-6m7sl
Name:             pyapp-c486fff5c-6m7sl
```

```
Namespace:         default
Priority:          0
PriorityClassName: <none>
Node:              master/192.168.56.120
Start Time:        Sun, 05 May 2019 22:00:20 +0530
Labels:            pod-template-hash=c486fff5c
                   run=pyapp
Annotations:       cni.projectcalico.org/podIP: 10.244.0.6/32
Status:            Running
IP:                10.244.0.6
Controlled By:     ReplicaSet/pyapp-c486fff5c
Containers:
  pyapp:
    Container ID:
docker://ea2c0d349305c8bc691b6391254fa46f3e416f9d29e03510b1fac7628269b
813
    Image:         prakaram/sayhello:latest
    Image ID:      docker-
pullable://prakaram/sayhello@sha256:33dfdfa51c1a8822b91163741e83bfb775
534eb96055e7cb29e92a3b76852553
    Port:          80/TCP
    Host Port:     0/TCP
    State:         Running
      Started:     Sun, 05 May 2019 22:00:39 +0530
    Ready:         True
    Restart Count: 0
    Environment:   <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from default-
token-ss6kc (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  default-token-ss6kc:
    Type:        Secret (a volume populated by a Secret)
    SecretName:  default-token-ss6kc
    Optional:    false
QoS Class:       BestEffort
Node-Selectors:  <none>
Tolerations:     node.kubernetes.io/not-ready:NoExecute for 300s
                 node.kubernetes.io/unreachable:NoExecute for 300s
Events:
  Type    Reason    Age    From               Message
  ----    ------    ----   ----               -------
```

```
  Normal  Scheduled  2m10s  default-scheduler  Successfully assigned
default/pyapp-c486fff5c-6m7sl to master
  Normal  Pulling   2m8s   kubelet, master   Pulling image
"prakaram/sayhello:latest"
  Normal  Pulled    111s   kubelet, master   Successfully pulled
image "prakaram/sayhello:latest"
  Normal  Created   111s   kubelet, master   Created container pyapp
  Normal  Started   111s   kubelet, master   Started container pyapp
```

4. Containers of scheduled Pod on nodes:

```
devops@master:~$ sudo docker container ls
[sudo] password for devops:
CONTAINER ID        IMAGE               COMMAND
CREATED             STATUS              PORTS               NAMES
ea2c0d349305        prakaram/sayhello   "python app.py"          7
minutes ago      Up 7 minutes
k8s_pyapp_pyapp-c486fff5c-6m7sl_default_13566120-6f53-11e9-b479-
080027aad68a_0


[devops@worker01 ~]$ sudo docker container ls
[sudo] password for devops:
CONTAINER ID        IMAGE               COMMAND
CREATED             STATUS              PORTS               NAMES
65e72966d5bc        prakaram/sayhello   "python app.py"
About an hour ago    Up About an hour
k8s_pyapp_pyapp-c486fff5c-64cs5_default_7f551f54-6f4d-11e9-b479-
080027aad68a_0
2066b23711d4        prakaram/sayhello   "python app.py"
About an hour ago    Up About an hour
k8s_pyapp_pyapp-c486fff5c-9qsh5_default_7f539852-6f4d-11e9-b479-
080027aad68a_0


devops@worker02:~$ sudo docker container ls
[sudo] password for devops:
CONTAINER ID        IMAGE               COMMAND
CREATED             STATUS              PORTS               NAMES
0d6e6e8d83bf        prakaram/sayhello   "python app.py"          3
hours ago        Up 3 hours
k8s_pyapp_pyapp-c486fff5c-w2jfc_default_7454d0b2-6f39-11e9-b479-
080027aad68a_0
929d6bd2cbe9        prakaram/sayhello   "python app.py"          3
hours ago        Up 3 hours
k8s_pyapp_pyapp-c486fff5c-ljndn_default_74528276-6f39-11e9-b479-
080027aad68a_0
```