Lab: Kubernetes (done by: 鍾鎮嵥，109006281)

Part I: Creating the cluster

Picture 1.1: screenshot of kubectl get nodes.

Part II: Unit Test result

Picture 2.1: screenshot of passing Unit Test.

Part III:

Scene-1 (checking Prefilter):

Picture 3.1.1: Configuration of Pod nginx-a (similar for the other two pods).

Picture 3.1.2: Initial status of scheduler and pods.

Picture 3.1.3: Final status of scheduler and pods.

Description:

Three similar pods of the same group are created with **minAvailable = 3**. Initially, Pods **nginx-a and nginx-b** are **not scheduled** and **remains pending**. During the check for the third pod of the same group, **nginx-c**, it **meets the minAvailable condition** hence it is selected and scheduled. After some time, the pending pods get reevaluated and are now eligible to get scheduled.

Scene-2 (checking Least mode):


```
NTHU-Scheduler-Plugin > charts >  !  values.yaml
   1    scheduler:
   2      name: my-scheduler
   3      image: my-scheduler:local
   4      imagePullPolicy: Never
   5      replicaCount: 1
   6      leaderElect: false
   7
   8    plugins:
   9      enabled: ["CustomScheduler"]
  10
  11    pluginConfig:
  12    - name: CustomScheduler
  13      args:
  14        mode: Least
```

Picture 3.2.1: Configurations of scheduler.


```
Addresses:
  InternalIP:  172.21.0.4
  Hostname:    kind-worker
Capacity:
  cpu:                  6
  ephemeral-storage:  50620216Ki
  hugepages-2Mi:        0
  memory:             6063024Ki
  pods:                 110
Allocatable:
  cpu:                  6
  ephemeral-storage:  50620216Ki
  hugepages-2Mi:        0
  memory:             1344432Ki
  pods:                 110
```

```
Addresses:
  InternalIP:  172.21.0.3
  Hostname:    kind-worker2
Capacity:
  cpu:                  6
  ephemeral-storage:  50620216Ki
  hugepages-2Mi:        0
  memory:             6063024Ki
  pods:                 110
Allocatable:
  cpu:                  6
  ephemeral-storage:  50620216Ki
  hugepages-2Mi:        0
  memory:             1868720Ki
  pods:                 110
```

Pictures 3.2.2: Information of workers 1 and 2.


```
student@ds-student2:~/NTHU-Scheduler-Plugin$ kubectl get pods -o wide
NAME                            READY   STATUS    RESTARTS   AGE   IP             NODE
my-scheduler-69cfc986c7-mwfcs   1/1     Running   0          10m   10.244.2.11    kind-worker2
nginx-a                         1/1     Running   0          10m   10.244.1.13    kind-worker
nginx-b                         1/1     Running   0          10m   10.244.1.14    kind-worker
nginx-c                         1/1     Running   0          10m   10.244.1.12    kind-worker
```

Pictures 3.2.3: Final status of scheduler and pods.

Description:

Results confirms that under **Least mode**, the scheduler schedules pods to worker (kind-worker) with **lower allocatable memory**, proving that implementation is correct.

Scene-3 (checking Most mode):

Picture 3.3.1: Configurations of scheduler.

Pictures 3.3.2: Information of workers 1 and 2.

Pictures 3.3.3: Final status of scheduler and pods.

Description:

Results confirms that under **Most mode**, the scheduler schedules pods to worker with **higher allocatable memory**, proving that implementation is correct.