CC - mini project

A Distributed Systems Cluster Simulation Framework

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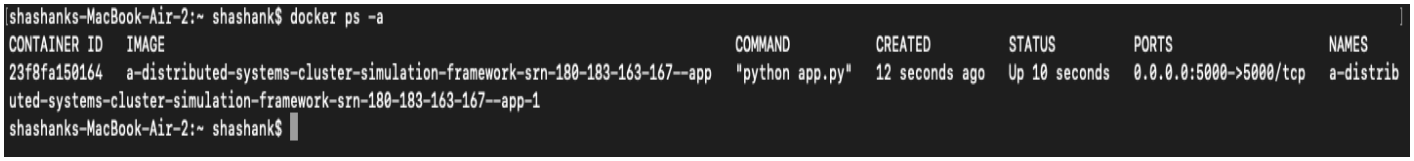
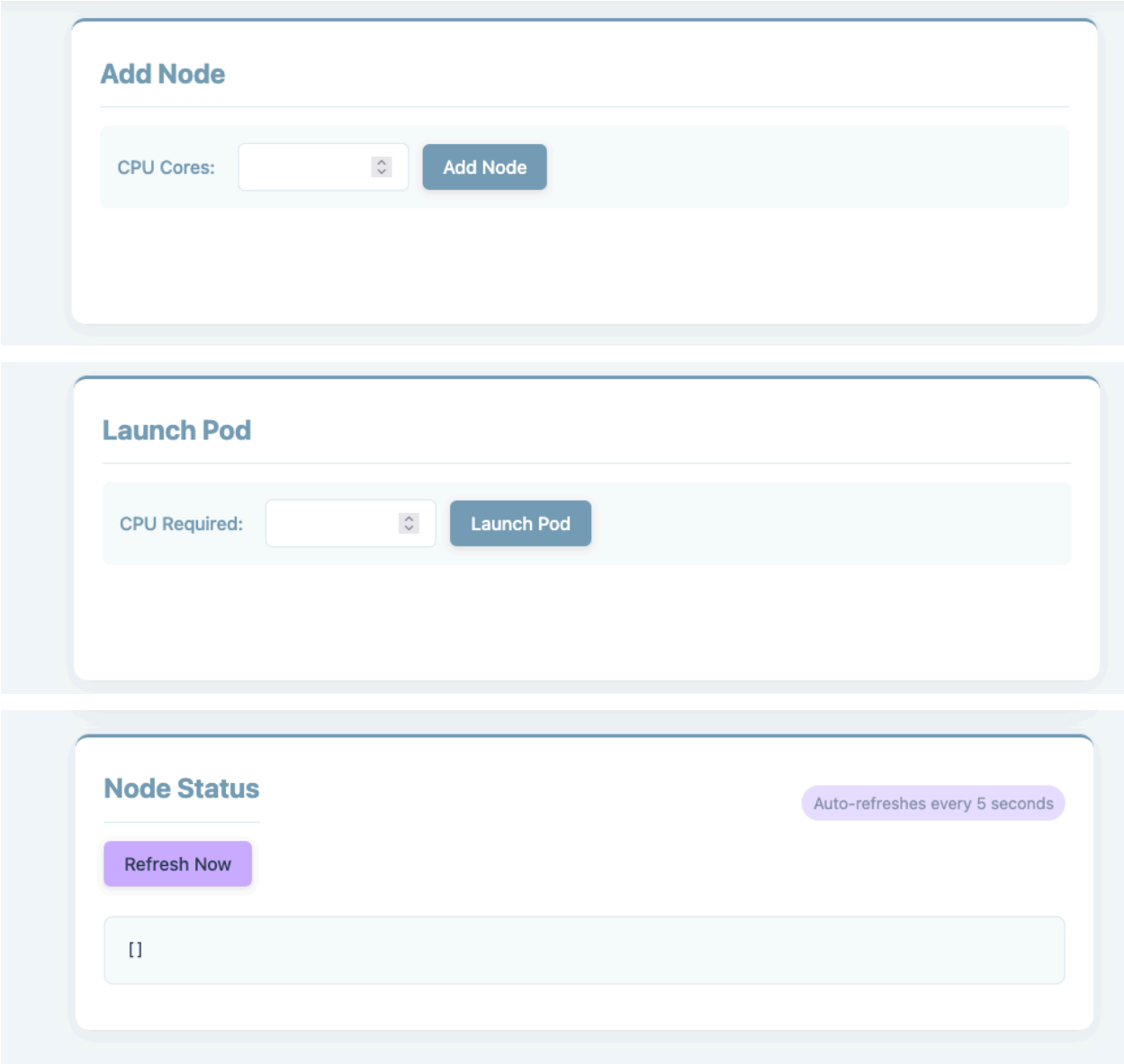
Section C

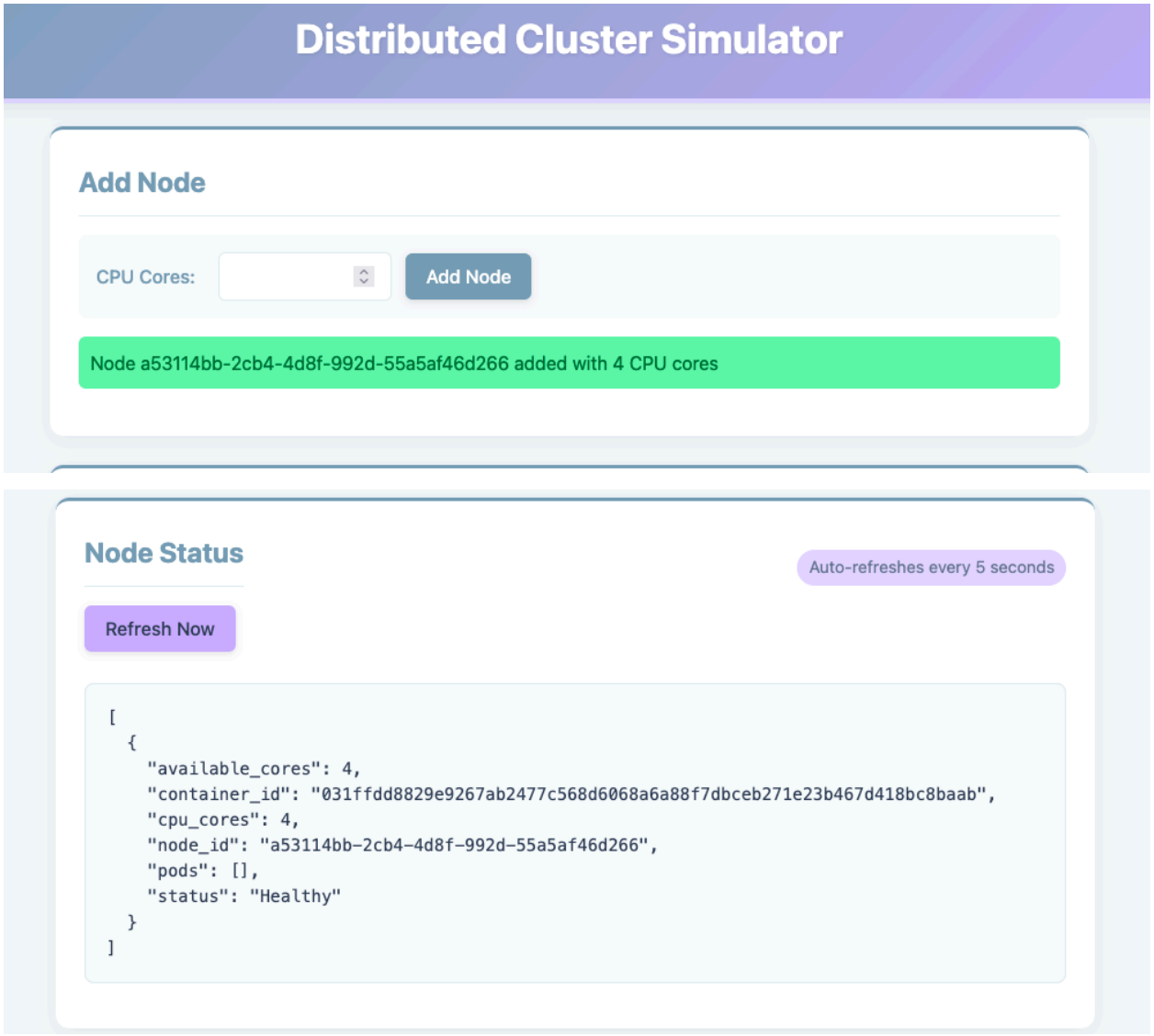
Starting server :



Interface :

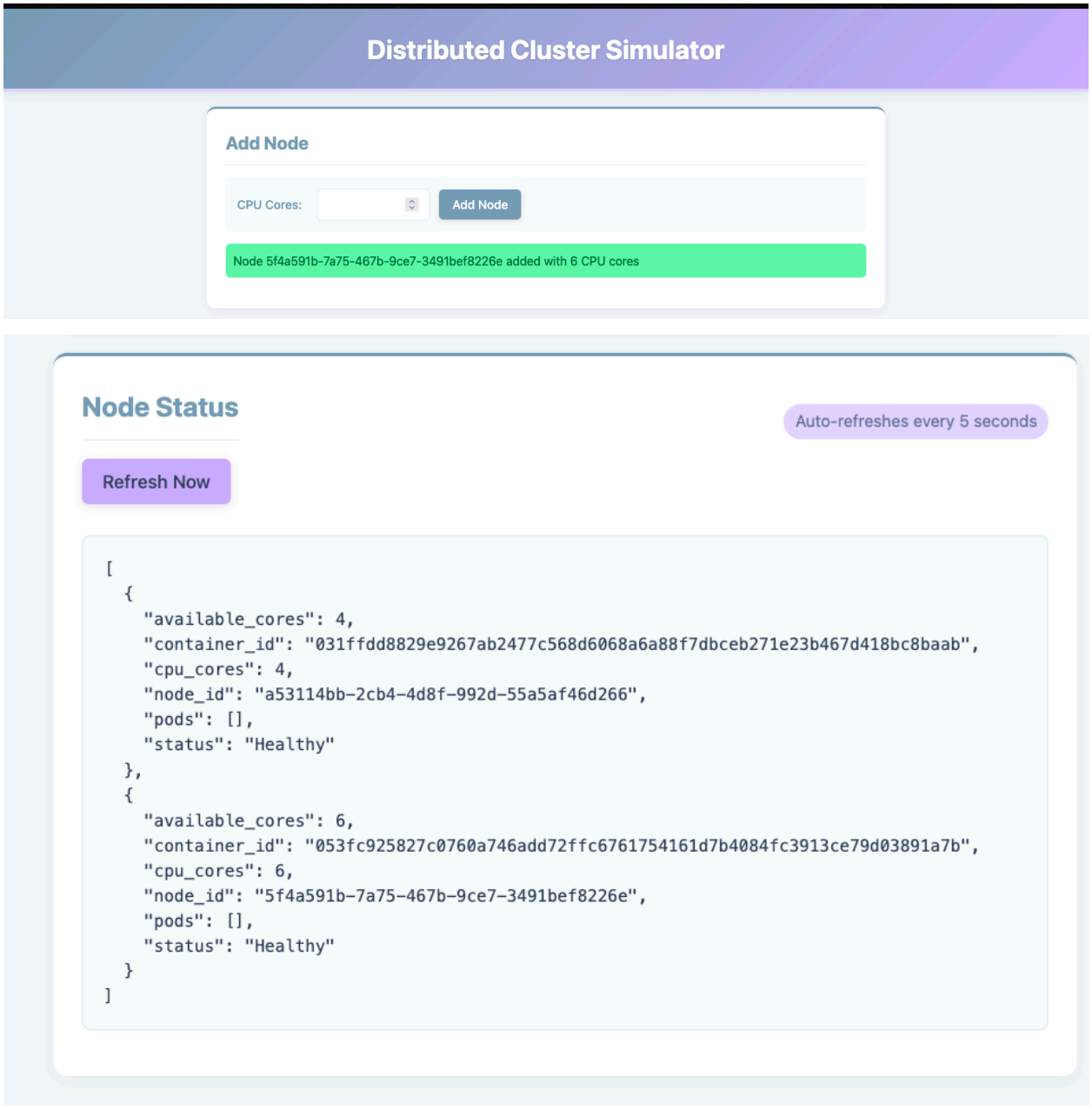

Add Node
CPU Cores:
Add Node
Launch Pod
CPU Required:
Launch Pod
Node Status
Auto-refreshes every 5 seconds
Refresh Now
[]

Adding a Node :

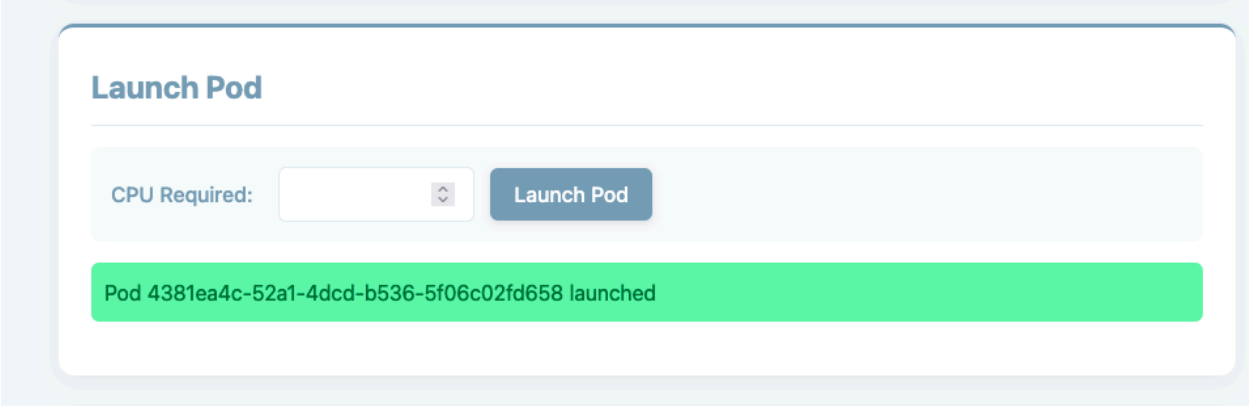


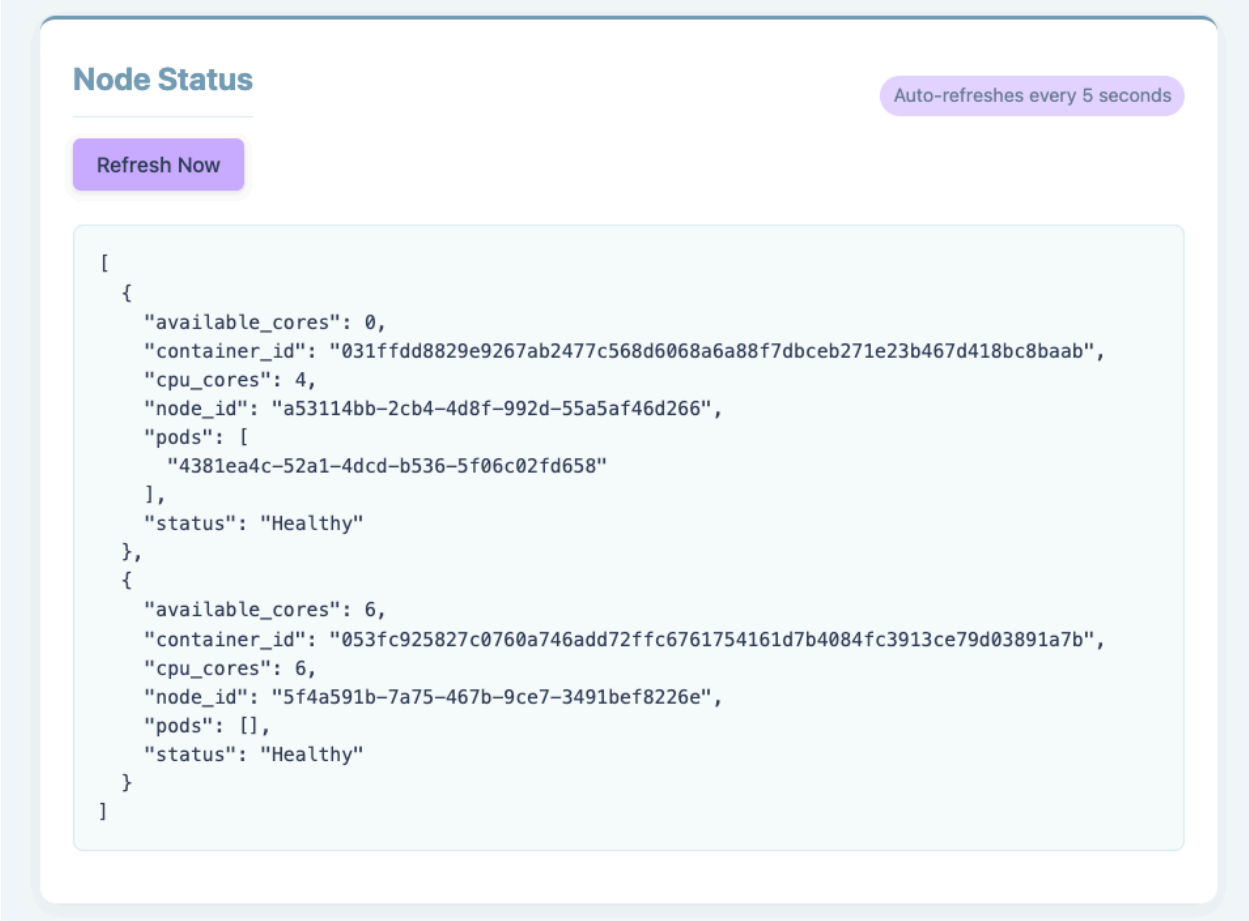

```
CONTAINER ID   IMAGE                                                                 COMMAND           CREATED              STATUS              PORTS
NAMES
031ffdd8829e   cluster-node                                                          "python node.py"  19 seconds ago       Up 18 seconds
tender_shtern
23f0fa150164   a-distributed-systems-cluster-simulation-framework-srn-180-183-163-167--app  "python app.py"   About a minute ago   Up About a minute   0.0.0.0:5000->5000/tcp
a-distributed-systems-cluster-simulation-framework-srn-180-183-163-167--app-1
shashanks-MacBook-Air-2:~ shashank$
```

Adding second node :



Launching Pod :





As we can see it is First fit scheduling so the pod created has chosen the first node that meets the CPU requirements.

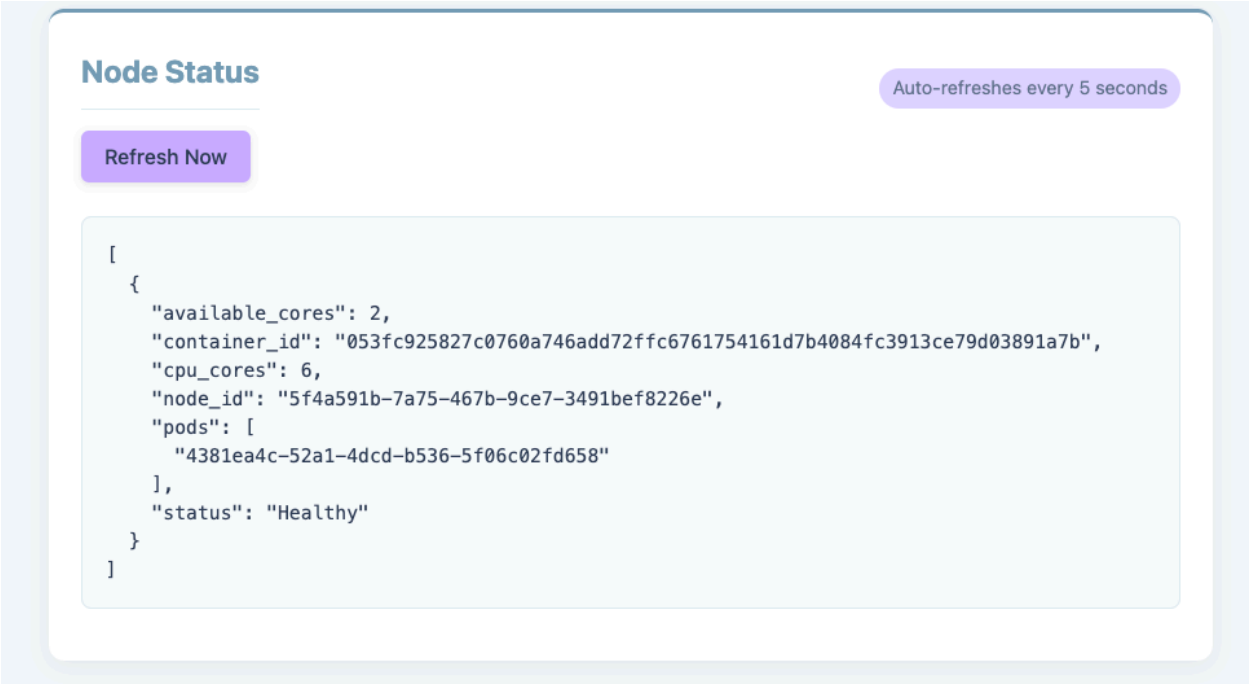
All the nodes :

```
shashanks-MacBook-Air-2:~ shashank$ docker ps -a
CONTAINER ID   IMAGE                                                                COMMAND           CREATED              STATUS              PORTS
NAMES
053fc925827c   cluster-node                                                         "python node.py"  47 seconds ago       Up 46 seconds
pensive_cartwright
031ffdd8829e   cluster-node                                                         "python node.py"  About a minute ago   Up About a minute
tender_shtern
23f8fa150164   a-distributed-systems-cluster-simulation-framework-srn-180-183-163-167--app   "python app.py"   2 minutes ago        Up 2 minutes        0.0.0.0:5000->5000/tcp
a-distributed-systems-cluster-simulation-framework-srn-180-183-163-167--app-1
shashanks-MacBook-Air-2:~ shashank$
```

Fault tolerance :

We will be manually stopping a node now

```
shashanks-MacBook-Air-2:~ shashank$ docker stop tender_shtern
tender_shtern
shashanks-MacBook-Air-2:~ shashank$
```



As we can see after the node has been stopped, the node has a pod running in it so when the node stopped we have recognised it stopping with heartbeats.

We have reallocated the pods to the next node using the First-fit that meets the CPU requirements.