

# Assignment 5

## Cloud Computing

### Source Code & Video:

<https://drive.google.com/drive/folders/1nIXeQ7t4OkcxctAR2IemKa7VPw14IjbO?usp=sharing>

### Milestone 01:

The image shows a terminal window and a web browser window. The terminal window displays the command `minikube dashboard` and its output, which includes verifying dashboard and proxy health, and opening the dashboard in a browser. The web browser window shows the Kubernetes Dashboard interface, displaying the 'hello-nginx' deployment and its associated pods and replica sets.

**Terminal Output:**

```
talha@talha-VirtualBox:~$ minikube dashboard
Verifying dashboard health ...
Launching proxy ...
Verifying proxy health ...
Opening http://127.0.0.1:39081/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
[ERROR glean_core] Error setting metrics feature config: Json(Error("EOF while parsing a value", line: 1, column: 0))
```

**Kubernetes Dashboard Screenshot:**

The dashboard shows the following resources:

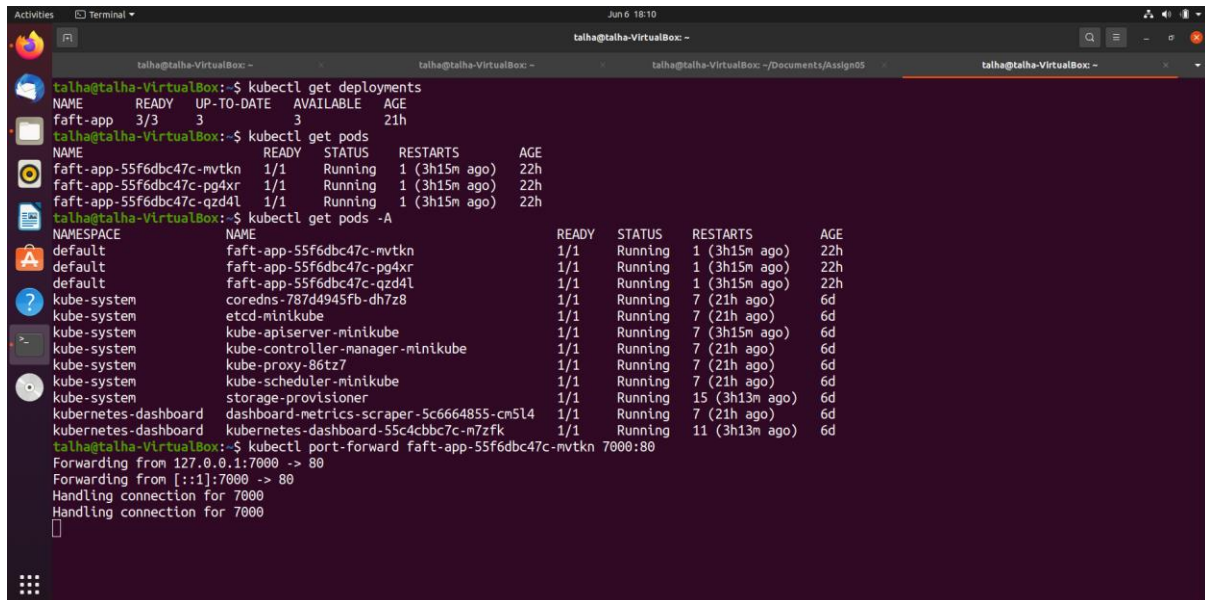
- Deployments:** A table with one entry: `hello-nginx` using the `nginx` image, with 1 pod, created 11 minutes ago.
- Pods:** A table with one entry: `hello-nginx-5cc97659f4` using the `nginx` image, with labels `app: hello-nginx` and `pod-template-hash: 5cc97659f4`, running on the `minikube` node, with 0 restarts, created 11 minutes ago.
- Replica Sets:** A table with one entry: `hello-nginx-5cc97659f4` using the `nginx` image, with labels `app: hello-nginx` and `pod-template-hash: 5cc97659f4`, with 1 pod, created 11 minutes ago.

```
Activities Terminal May 31 18:13
talha@talha-VirtualBox: -
talha@talha-VirtualBox:~$ kubectl get pods
NAME READY STATUS RESTARTS AGE
hello-nginx-5cc97659f4-899mt 1/1 Running 0 9m9s
talha@talha-VirtualBox:~$ kubectl get pods -A
NAMESPACE NAME READY STATUS RESTARTS AGE
default hello-nginx-5cc97659f4-899mt 1/1 Running 0 9m12s
kube-system coredns-787d4945fb-dh7z8 1/1 Running 0 29m
kube-system etcd-minikube 1/1 Running 0 29m
kube-system kube-apiserver-minikube 1/1 Running 0 29m
kube-system kube-controller-manager-minikube 1/1 Running 0 29m
kube-system kube-proxy-86tz7 1/1 Running 0 29m
kube-system kube-scheduler-minikube 1/1 Running 0 29m
kube-system storage-provisioner 1/1 Running 1 (28m ago) 29m
kubernetes-dashboard dashboard-metrics-scraper-5c6664855-cn5l4 1/1 Running 0 18m
kubernetes-dashboard kubernetes-dashboard-55c4cbbc7c-m7zfk 1/1 Running 0 18m
talha@talha-VirtualBox:~$
```

## Milestone 02:

File Used: faft-app-deployment.yaml

For Deployment Command: `kubectl apply -f faft-app-deployment.yaml`

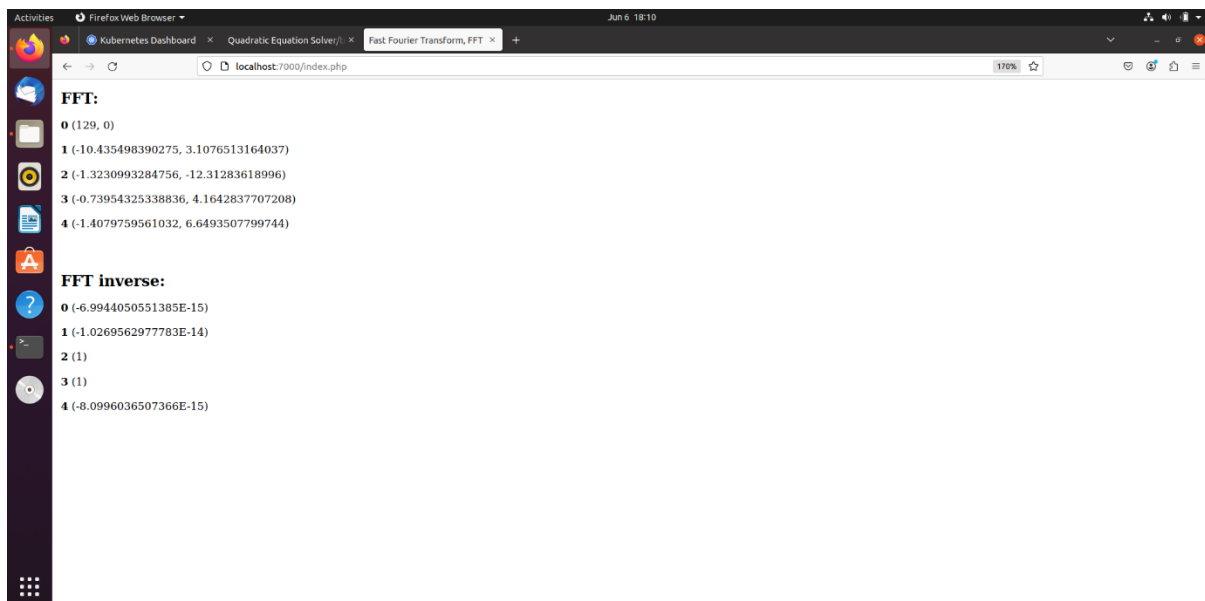


```
talha@talha-VirtualBox:~$ kubectl get deployments
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
faft-app  3/3     3             3            21h

talha@talha-VirtualBox:~$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
faft-app-55f6dbc47c-mvtnk  1/1     Running   1 (3h15m ago)    22h
faft-app-55f6dbc47c-pg4xr  1/1     Running   1 (3h15m ago)    22h
faft-app-55f6dbc47c-qzd4l  1/1     Running   1 (3h15m ago)    22h

talha@talha-VirtualBox:~$ kubectl get pods -A
NAMESPACE      NAME                                     READY   STATUS    RESTARTS   AGE
default        faft-app-55f6dbc47c-mvtnk              1/1     Running   1 (3h15m ago)    22h
default        faft-app-55f6dbc47c-pg4xr              1/1     Running   1 (3h15m ago)    22h
default        faft-app-55f6dbc47c-qzd4l              1/1     Running   1 (3h15m ago)    22h
kube-system    coredns-787d4945fb-dh7z8              1/1     Running   7 (21h ago)      6d
kube-system    etcd-minikube                          1/1     Running   7 (21h ago)      6d
kube-system    kube-apiserver-minikube                1/1     Running   7 (3h15m ago)    6d
kube-system    kube-controller-manager-minikube       1/1     Running   7 (21h ago)      6d
kube-system    kube-proxy-86tz7                       1/1     Running   7 (21h ago)      6d
kube-system    kube-scheduler-minikube                1/1     Running   7 (21h ago)      6d
kube-system    storage-provisioner                    1/1     Running   15 (3h13m ago)   6d
kubernetes-dashboard  dashboard-metrics-scraper-5c6664855-cn5l4  1/1     Running   7 (21h ago)      6d
kubernetes-dashboard  kubernetes-dashboard-55c4cbbc7c-m7zfk     1/1     Running   11 (3h13m ago)   6d

talha@talha-VirtualBox:~$ kubectl port-forward faft-app-55f6dbc47c-mvtnk 7000:80
Forwarding from 127.0.0.1:7000 -> 80
Forwarding from ::1:7000 -> 80
Handling connection for 7000
Handling connection for 7000
```



```
Fast Fourier Transform, FFT

0 (129, 0)
1 (-10.435498390275, 3.1076513164037)
2 (-1.3230993284756, -12.31283618996)
3 (-0.73954325338836, 4.1642837707208)
4 (-1.4079759561032, 6.6493507799744)

FFT inverse:
0 (-6.9944050551385E-15)
1 (-1.0269562977783E-14)
2 (1)
3 (1)
4 (-8.0996036507366E-15)
```

Activities Firefox Web Browser Jun 6 18:12

Kubernetes Dashboard Quadratic Equation Solver Fast Fourier Transform, FFT

127.0.0.1:40533/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard/proxy/#/workloads/namespace=default

kubernetes default Search

Workloads

Workloads Cron Jobs Daemon Sets Deployments Jobs Pods Replica Sets Replication Controllers Stateful Sets Service Ingresses Ingress Classes Services Config and Storage Config Maps Persistent Volume Claims Secrets Storage Classes Cluster Cluster Role Bindings

Running 1 Deployments

Running 3 Pods

Running 1 Replica Sets

Deployments

Name	Images	Labels	Pods	Created ↑
faft-app	pucitcloudnet/fft:latest		3 / 3	22 hours ago

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
faft-app-55f6dbc47c-mvtkn	pucitcloudnet/fft:latest	app: faft-app pod-template-hash: 55f6dbc47c	minikube	Running	1	-	-	22 hours ago
faft-app-55f6dbc47c-pg4xr	pucitcloudnet/fft:latest	app: faft-app pod-template-hash: 55f6dbc47c	minikube	Running	1	-	-	22 hours ago
faft-app-55f6dbc47c-qz64l	pucitcloudnet/fft:latest	app: faft-app pod-template-hash: 55f6dbc47c	minikube	Running	1	-	-	22 hours ago

## Milestone 03:

## Files Used:

file.yaml AND hpa.yaml AND httpperf\_scripts

For Load Balancer: myapp.yaml AND scale.yaml

**For Deployment Command:** `kubectl apply -f file.yaml`  
`kubectl apply -f hpa.yaml`  
`kubectl apply -f myapp.yaml`  
`kubectl apply -f scale.yaml`

The image shows a terminal window with a dark background and light-colored text. At the top, the title bar indicates the date and time as 'Jun 8 20:24'. The terminal prompt is 'talha@talha-VirtualBox: ~/Documents/Assign05'. The output shows a series of 'Handling connection for 7000' messages, indicating that the server is accepting connections. Below this, the terminal displays the output of the 'httpperf' command, which includes a warning about the open file limit and a summary of test results. The summary shows a connection rate of 10.0 conn/s, a connection time of 9700.4 ms, a request rate of 10.0 req/s, and a reply rate of 1.6 replies/s. The terminal also shows the output of the 'db.sh' script, which is a simple database script that returns a list of URLs.

```
Jun 8 20:31
talha@talha-VirtualBox: ~/Documents/Assign05

talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  1%/50%          1                10               1                132m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  1%/50%          1                10               1                132m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  86%/50%         1                10               1                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  86%/50%         1                10               1                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               2                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               4                134m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               7                134m
talha@talha-VirtualBox:~/Documents/Assign05$
```

```
Jun 8 20:31
talha@talha-VirtualBox: ~/Documents/Assign05

talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get pods
NAME          READY          STATUS          RESTARTS          AGE
faft-app-Sb9464575b-qfwq9  1/1            Running         0                 40m
faft-app-Sb9464575b-sqz56  0/1            ContainerCreating 0                 22s
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get pods
NAME          READY          STATUS          RESTARTS          AGE
faft-app-Sb9464575b-4fkr1  0/1            ContainerCreating 0                 20s
faft-app-Sb9464575b-fprzp  0/1            Pending         0                 4s
faft-app-Sb9464575b-ltw5p  0/1            ContainerCreating 0                 5s
faft-app-Sb9464575b-qfwq9  1/1            Running         0                 40m
faft-app-Sb9464575b-smdh6  0/1            ContainerCreating 0                 20s
faft-app-Sb9464575b-smfjf  0/1            Pending         0                 4s
faft-app-Sb9464575b-sqz56  0/1            ContainerCreating 0                 53s
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get pods
NAME          READY          STATUS          RESTARTS          AGE
faft-app-Sb9464575b-4fkr1  0/1            ContainerCreating 0                 77s
faft-app-Sb9464575b-fprzp  0/1            Pending         0                 61s
faft-app-Sb9464575b-ltw5p  0/1            ContainerCreating 0                 62s
faft-app-Sb9464575b-qfwq9  1/1            Running         0                 41m
faft-app-Sb9464575b-smdh6  0/1            ContainerCreating 0                 77s
faft-app-Sb9464575b-smfjf  0/1            Pending         0                 61s
faft-app-Sb9464575b-sqz56  0/1            ContainerCreating 0                 110s
talha@talha-VirtualBox:~/Documents/Assign05$
```

```
Jun 8 20:33
talha@talha-VirtualBox: ~/Documents/Assign05

talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  1%/50%          1                10               1                132m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  1%/50%          1                10               1                132m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  86%/50%         1                10               1                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  86%/50%         1                10               1                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               2                133m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               4                134m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  308%/50%        1                10               7                134m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  417%/50%        1                10               7                136m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME          REFERENCE          TARGETS          MINPODS          MAXPODS          REPLICAS          AGE
faft-app-hpa  Deployment/faft-app  417%/50%        1                10               9                137m
talha@talha-VirtualBox:~/Documents/Assign05$
```

Activities Firefox Web Browser Jun 8 20:36

Kubernetes Dashboard

127.0.0.1:37173/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard/proxy/#/workloads?namespace=default

kubernetes default Search

### Workloads

Workloads								
faft-app-Sb9464575b-smjyf	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Pending	0	-	-	5 minutes ago	:
faft-app-Sb9464575b-ltw5p	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Running	0	18.46Mi	18.46Mi	5 minutes ago	:
faft-app-Sb9464575b-4fkr1	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Running	0	18.46Mi	18.46Mi	5 minutes ago	:
faft-app-Sb9464575b-smdh6	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Running	0	18.46Mi	18.46Mi	5 minutes ago	:
faft-app-Sb9464575b-sqz56	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Running	0	18.46Mi	18.46Mi	6 minutes ago	:
faft-app-Sb9464575b-qfwq9	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	Running	0	453.0Mi	202.25Mi	46 minutes ago	:

### Replica Sets

Name	Images	Labels	Pods	Created
faft-app-Sb9464575b	puctcloudnet/ft.latest	app: faft-app pod-template-hash: Sb9464575b	5 / 9	46 minutes ago

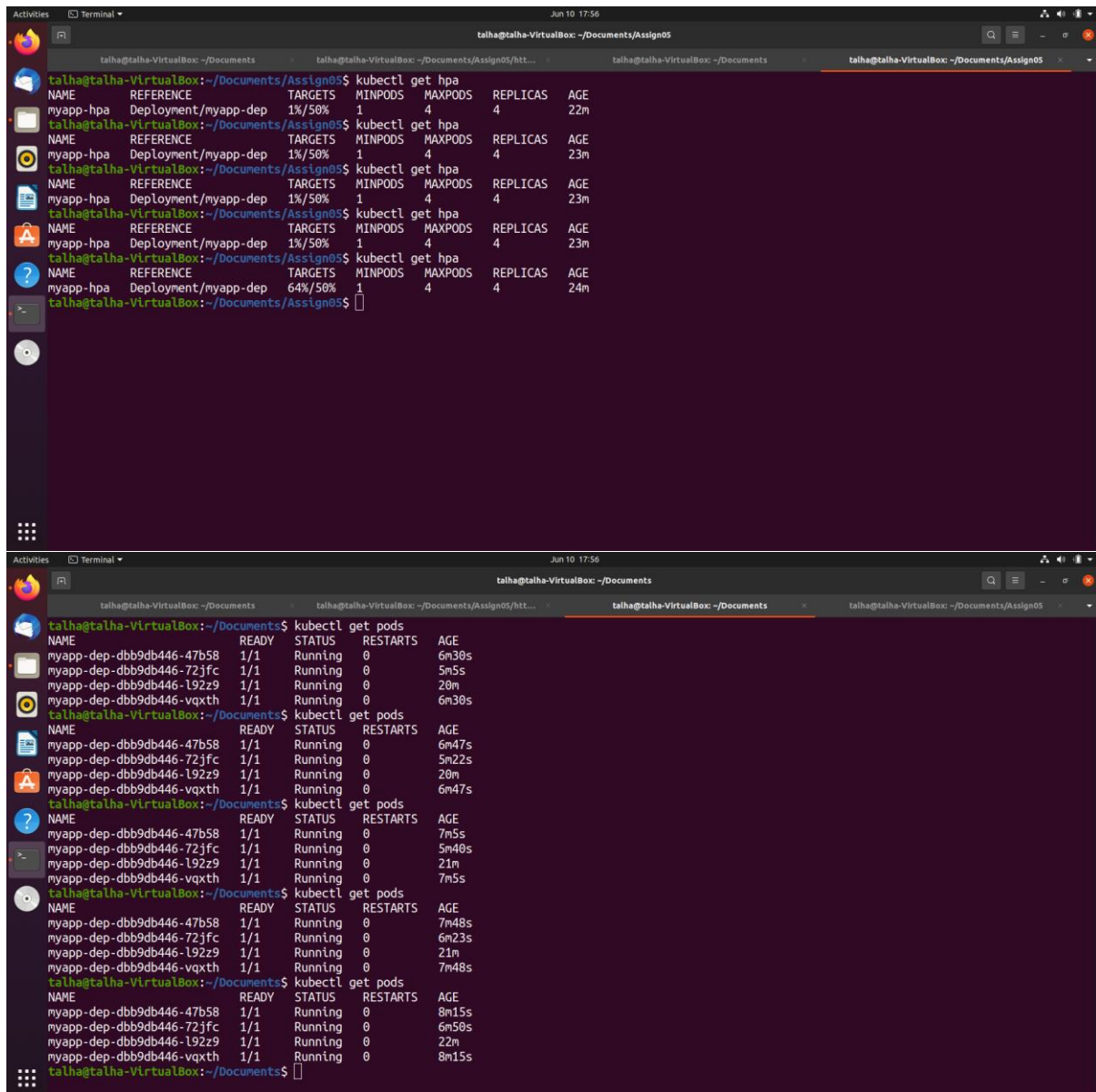
Activities Terminal Jun 8 20:43

talha@talha-VirtualBox: ~/Documents/Assign05

```
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
faft-app-Sb9464575b-4fkr1           1/1     Running   0           9m31s
faft-app-Sb9464575b-cglg9           0/1     Pending   0           6m39s
faft-app-Sb9464575b-fprzp           0/1     Pending   0           9m15s
faft-app-Sb9464575b-ltw5p           1/1     Running   0           9m16s
faft-app-Sb9464575b-qfwq9           1/1     Running   0           50m
faft-app-Sb9464575b-smdh6           1/1     Running   0           9m31s
faft-app-Sb9464575b-smjyf           0/1     Pending   0           9m15s
faft-app-Sb9464575b-sqz56           1/1     Running   0           10m
faft-app-Sb9464575b-x7n5q           0/1     Pending   0           6m40s
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
faft-app-Sb9464575b-qfwq9           1/1     Running   0           53m
talha@talha-VirtualBox:~/Documents/Assign05$
```



## Load Balancing:



The screenshot shows a terminal window with two tabs. The top tab is titled 'talha@talha-VirtualBox: ~/Documents/Assign05' and displays the output of the command 'kubectl get hpa'. The bottom tab is titled 'talha@talha-VirtualBox: ~/Documents' and displays the output of the command 'kubectl get pods'.

**Top Tab Output: kubectl get hpa**

NAME	REFERENCE	TARGETS	MINPODS	MAXPODS	REPLICAS	AGE
myapp-hpa	Deployment/myapp-dep	1%/50%	1	4	4	22m

**Bottom Tab Output: kubectl get pods**

NAME	READY	STATUS	RESTARTS	AGE
myapp-dep-dbb9db446-47b58	1/1	Running	0	6m30s
myapp-dep-dbb9db446-72jfc	1/1	Running	0	5m5s
myapp-dep-dbb9db446-192z9	1/1	Running	0	20m
myapp-dep-dbb9db446-vqxth	1/1	Running	0	6m30s



Activities Terminal Jun 10 17:56

talha@talha-VirtualBox: ~/Documents/Assign05/httpperf\_scripts

```
talha@talha-VirtualBox:~/Documents/Assign05/httpperf_scripts$ ./db.sh > output.txt
httpperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
httpperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
httpperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
httpperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
httpperf: warning: open file limit > FD_SETSIZE; limiting max. # of open files to FD_SETSIZE
```

Activities Firefox Web Browser Jun 10 18:00

Fast Fourier Transform, FFT

192.168.49.2:32239/index.php

FFT:

0 (124, 0)

1 (-3.2637310661341, -2.8395724951205)

2 (-3.3096244311706, -13.930799102384)

3 (-3.0096104605227, -1.0661995261297)

4 (1.5447504632042, 2.3862505033309)

FFT inverse:

0 (0.00000000000000)

1 (-7.7157752235466, 15)

2 (-6.99280549940385, 15)

3 (1)

4 (-7.8253352196044E-15)

Activities Terminal Jun 10 18:04

talha@talha-VirtualBox: ~/Documents/Assign05

```
talha@talha-VirtualBox:~/Documents$ kubectl get hpa
NAME            Deployment/myapp-dep  1%/50%  1  4  4  23m
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  1%/50%  1  4  4  23m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  1%/50%  1  4  4  23m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  64%/50%  1  4  4  24m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  148%/50%  1  4  4  27m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  29m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  30m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  30m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  176%/50%  1  4  4  31m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  281%/50%  1  4  4  33m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  281%/50%  1  4  4  33m
talha@talha-VirtualBox:~/Documents/Assign05$
```

Activities Firefox Web Browser Jun 10 18:04

Fast Fourier Transform, FFT x Kubernetes Dashboard

127.0.0.1:40985/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard/proxy/#/workloads?namespace=default

kubernetes default Search

Workloads

Name	Images	Labels	Pods	Created
myapp-dep	pucitcloudnet/fft:latest	-	4 / 4	33 minutes ago

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
myapp-dep-dbb9db446-72jc	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Running	0	292.40%	201.24Mi	15 minutes ago
myapp-dep-dbb9db446-47b58	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Running	0	281.60%	206.24Mi	17 minutes ago
myapp-dep-dbb9db446-vqth	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Running	0	292.40%	200.18Mi	17 minutes ago
myapp-dep-dbb9db446-92z9	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Running	0	281.60%	201.24Mi	31 minutes ago

Replica Sets

Name	Images	Labels	Pods	Created
myapp-dep-dbb9db446	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	4 / 4	33 minutes ago

Activities Terminal Jun 10 18:08

talha@talha-VirtualBox: ~/Documents/Assign05

```
talha@talha-VirtualBox:~/Documents$ kubectl get hpa
NAME            Deployment/myapp-dep  148%/50%  1  4  4  27m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  29m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  30m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  182%/50%  1  4  4  30m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  176%/50%  1  4  4  31m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  281%/50%  1  4  4  33m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  281%/50%  1  4  4  33m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  6%/50%  1  4  4  35m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  3%/50%  1  4  4  36m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  3%/50%  1  4  4  36m
talha@talha-VirtualBox:~/Documents/Assign05$ kubectl get hpa
NAME            REFERENCE            TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
myapp-hpa       Deployment/myapp-dep  1%/50%  1  4  4  37m
talha@talha-VirtualBox:~/Documents/Assign05$
```

Activities Firefox Web Browser Jun 10 18:11

Fast Fourier Transform, FFT x Kubernetes Dashboard x

127.0.0.1:40985/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard/proxy/#/workloads?namespace=default

kubernetes default Search

Workloads

Workloads

Name	Images	Labels	Pods	Created
myapp-dep	pucitcloudnet/fft:latest	-	4 / 1	40 minutes ago

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created
myapp-dep-dbb9db446-72jfc	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Terminating	0			22 minutes ago
myapp-dep-dbb9db446-47b58	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Terminating	0			23 minutes ago
myapp-dep-dbb9db446-vqxth	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Terminating	0			23 minutes ago
myapp-dep-dbb9db446-l92z9	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	minikube	Running	0			37 minutes ago

Replica Sets

Name	Images	Labels	Pods	Created
myapp-dep-dbb9db446	pucitcloudnet/fft:latest	app: myapp pod-template-hash: dbb9db446	4 / 1	40 minutes ago

Activities Terminal Jun 10 18:11

talha@talha-VirtualBox: ~/Documents

```
talha@talha-VirtualBox:~/Documents$ kubectl get pods
NAME                  READY   STATUS    RESTARTS   AGE
myapp-dep-dbb9db446-47b58   1/1     Running   0           19m
myapp-dep-dbb9db446-72jfc   1/1     Running   0           19m
myapp-dep-dbb9db446-l92z9   1/1     Running   0           34m
myapp-dep-dbb9db446-vqxth   1/1     Running   0           20m
talha@talha-VirtualBox:~/Documents$ kubectl get pods
NAME                  READY   STATUS    RESTARTS   AGE
myapp-dep-dbb9db446-47b58   1/1     Running   0           20m
myapp-dep-dbb9db446-72jfc   1/1     Running   0           19m
myapp-dep-dbb9db446-l92z9   1/1     Running   0           34m
myapp-dep-dbb9db446-vqxth   1/1     Running   0           20m
talha@talha-VirtualBox:~/Documents$ kubectl get pods
NAME                  READY   STATUS    RESTARTS   AGE
myapp-dep-dbb9db446-47b58   1/1     Running   0           21m
myapp-dep-dbb9db446-72jfc   1/1     Running   0           20m
myapp-dep-dbb9db446-l92z9   1/1     Running   0           35m
myapp-dep-dbb9db446-vqxth   1/1     Running   0           21m
talha@talha-VirtualBox:~/Documents$ kubectl get pods
NAME                  READY   STATUS    RESTARTS   AGE
myapp-dep-dbb9db446-47b58   1/1     Running   0           21m
myapp-dep-dbb9db446-72jfc   1/1     Running   0           20m
myapp-dep-dbb9db446-l92z9   1/1     Running   0           35m
myapp-dep-dbb9db446-vqxth   1/1     Running   0           21m
talha@talha-VirtualBox:~/Documents$ kubectl get pods
NAME                  READY   STATUS    RESTARTS   AGE
myapp-dep-dbb9db446-47b58   1/1     Terminating   0           24m
myapp-dep-dbb9db446-72jfc   1/1     Terminating   0           22m
myapp-dep-dbb9db446-l92z9   1/1     Running        0           38m
myapp-dep-dbb9db446-vqxth   1/1     Terminating   0           24m
talha@talha-VirtualBox:~/Documents$
```

Graph:

