Screen shots of the mini project- Load Balanced URL-shortner

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Week-1

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load
-Balanced_URL_Shortener>docker login
Authenticating with existing credentials...
Login Succeeded

E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load
-Balanced_URL_Shortener>minikube start
* minikube v1.35.0 on Microsoft Windows 11 Home Single Language 10.0.22631.5
189 Build 22631.5189
* Using the docker driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.46 ...
* Updating the running docker "minikube" container ...
! Failing to connect to https://registry.k8s.io/ from inside the minikube co
ntainer
* To pull new external images, you may need to configure a proxy: https://mi
nikube.sigs.k8s.io/docs/reference/networking/proxy/
* Preparing Kubernetes v1.32.0 on Docker 27.4.1 ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: default-storageclass, storage-provisioner

! C:\Program Files\Docker\Docker\resources\bin\kubectl.exe is version 1.30.5
, which may have incompatibilities with Kubernetes 1.32.0.
  - Want kubectl v1.32.0? Try 'minikube kubectl -- get pods -A'
* Done! kubectl is now configured to use "minikube" cluster and "default" na
mespace by default

E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load
-Balanced_URL_Shortener>
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>minikube tunnel
* Tunnel successfully started

* NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...

* Starting tunnel for service url-shortener-service.
```

Week-2

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>curl -X POST http://localhost:5000/shorten -H "Content-T
ype: application/json" -d "{\"url\":\"https://pes.edu/\"}"
{"short_url":"http://127.0.0.1:5000/RGoB3F"}

E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>curl -X POST http://localhost:5000/shorten -H "Content-T
ype: application/json" -d "{\"url\":\"https://drive.google.com/drive/folders/1T94SU5_zt0TAqVRR-tpbteC4FlOFidBj\"}"
{"short_url":"http://127.0.0.1:5000/Cvsed2"}
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl exec -it redis-5f86f8f9c7-86gmt -- redis-cli
127.0.0.1:6379> keys *
1) "RGoB3F"
2) "Cvsed2"
127.0.0.1:6379>
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl get pods
NAME                              READY   STATUS    RESTARTS       AGE
redis-5f86f8f9c7-86gmt            1/1     Running   2 (20h ago)    34h
url-shortener-7c7d98c46d-77cq2    1/1     Running   1 (20h ago)    21h
url-shortener-7c7d98c46d-9bht2    1/1     Running   2 (20h ago)    34h
url-shortener-7c7d98c46d-jm8xr    1/1     Running   2 (20h ago)    34h
```

Week-3

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl get hpa
NAME            REFERENCE                  TARGETS     MINPODS   MAXPODS   REPLICAS   AGE
url-shortener   Deployment/url-shortener   cpu: 1%/50%   3         6         3          34h
```

Increase in cpu usage

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl get hpa
NAME            REFERENCE                  TARGETS      MINPODS   MAXPODS   REPLICAS   AGE
url-shortener   Deployment/url-shortener   cpu: 75%/50%   3         6         3          34h
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl get pods
NAME                             READY   STATUS    RESTARTS      AGE
ab-stress-test-5dj5s             1/1     Running   0             11s
redis-5f86f8f9c7-86gmt           1/1     Running   2 (21h ago)   35h
url-shortener-7c7d98c46d-5rxc8   1/1     Running   0             4m8s
url-shortener-7c7d98c46d-77cq2   1/1     Running   1 (21h ago)   21h
url-shortener-7c7d98c46d-7krbh   1/1     Running   0             4m8s
url-shortener-7c7d98c46d-9bht2   1/1     Running   2 (21h ago)   34h
url-shortener-7c7d98c46d-bzxcj   1/1     Running   0             4m8s
url-shortener-7c7d98c46d-jm8xr   1/1     Running   2 (21h ago)   34h
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>kubectl logs ab-stress-test-5dj5s
This is ApacheBench, Version 2.3 <$Revision: 1923142 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking url-shortener-service (be patient)
Completed 500 requests
Completed 1000 requests
Completed 1500 requests
Completed 2000 requests
Completed 2500 requests
Completed 3000 requests
Completed 3500 requests
Completed 4000 requests
Completed 4500 requests
Completed 5000 requests
Finished 5000 requests


Server Software:        Werkzeug/3.1.3
Server Hostname:        url-shortener-service
Server Port:            5000

Document Path:          /
Document Length:        207 bytes

Concurrency Level:      100
Time taken for tests:   21.674 seconds
Complete requests:      5000
Failed requests:        0
Non-2xx responses:      5000
Total transferred:      1940000 bytes
HTML transferred:       1035000 bytes
Requests per second:    230.69 [#/sec] (mean)
Time per request:       433.486 [ms] (mean)
Time per request:       4.335 [ms] (mean, across all concurrent requests)
Transfer rate:          87.41 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    4  13.4      1      95
Processing:    13  414 418.0    301    3384
Waiting:        1  344 412.6    211    3308
Total:         13  418 418.9    302    3384

Percentage of the requests served within a certain time (ms)
  50%    302
  66%    411
  75%    505
  80%    598
  90%    802
  95%   1105
  98%   1767
  99%   2294
 100%   3384 (longest request)
```

```
E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>minikube tunnel
* Tunnel successfully started

* NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...

* Starting tunnel for service url-shortener-service.
* Stopped tunnel for service url-shortener-service.

E:\URL SHORTNER\PES2UG22CS164_PES2UG22CS127_PES2UG22CS132_PES2UG22CS188_Load-Balanced_URL_Shortener>minikube tunnel
* Tunnel successfully started

* NOTE: Please do not close this terminal as this process must stay alive for the tunnel to be accessible ...

* Starting tunnel for service url-shortener-service.
```