

CARA MENJALANKAN PROGRAM

1. Install Docker dengan cara copy perintah dibawah ini ke terminal linux

```
sudo apt-get update

sudo apt-get install \
  apt-transport-https \
  ca-certificates \
  curl \
  gnupg-agent \
  software-properties-common

curl -fsSL https://download.docker.com/linux/ubuntu/gpg
| sudo apt-key add -

sudo apt-get update

sudo apt-get install docker-ce docker-ce-cli
containerd.io
```

2. Konfigurasi NFS dengan cara copy perintah dibawah ini ke terminal linux

```
apt-get update

apt-get install nfs-kernel-server

mkdir /var/nfs/web -p

chown nobody:nogroup /var/nfs/web

nano /etc/exports
#Tambahkan perintah dibawah ini dan simpan
/var/nfs/web *(rw, sync, no_subtree_check)

systemctl restart nfs-kernel-server
```

3. Implementasi Docker Swarm dan Haproxy dengan cara copy perintah dibawah ini ke terminal linux

```
docker swarm init
#copy dan paste ke node worker join tokennya

docker volume create --driver local --opt
type=addr=192.168.43.99 --opt device=:/var/nfs/web
htdocs
#lakukan juga membuat volume di node worker

cd /
```

```
mkdir mysql

nano app.yml
#Tambahkan perintah dibawah ini dan simpan
version: "3.3"
volumes:
  htdocs:
    driver: local
    driver_opts:
      type: nfs
      o: addr=192.168.43.99
      device: ":/var/nfs/web"
services:
  web:
    image: tutum/apache-php
    environment:
      - ALLOW_OVERRIDE=true
    volumes:
      - type: volume
        source: htdocs
        target: /app
    ports:
      - "80:80"
    networks:
      - overlay
    deploy:
      replicas: 1
      restart_policy:
        condition: on-failure
  mysql:
    image: mariadb
    volumes:
      - type: bind
        source: ./mysql
        target: /var/lib/mysql
    environment:
      MYSQL_ROOT_PASSWORD: root
      MYSQL_USER: root
      MYSQL_PASSWORD: root
    ports:
      - "8889:3306"
    networks:
      - overlay
    deploy:
      replicas: 1
      restart_policy:
        condition: on-failure
networks:
  overlay:

mkdir /opt/haproxy

nano haproxy.cfg
```

```

#masukkan config dibawah ini dan simpan
global
    debug

defaults
    log global
    mode http
    timeout connect 5000
    timeout client 5000
    timeout server 5000

frontend main
    bind *:80
    default_backend app

backend app
    balance roundrobin
    mode http
    server osboxes 192.168.43.99:80
    server osboxes1 192.168.43.98:80
    server osboxes2 192.168.43.97:80

```

4. Implementasi Aplikasi website dengan cara copy website yang berada folder software pendukung ke /var/nfs/web/ selanjutnya copy perintah dibawah ini kedalam terminal linux

```

docker ps
#lihat container id DB Servicenya

docker exec -it containerID_DBservice bash

mysql -u root -p

create database malasngoding_kios;

docker exec -i namaDBservice mysql -u root -proot --
database=malasngoding_kios < malasngoding_kios.sql

docker stack deploy -c app.yml Thomas

docker service scale thomas_web=4

docker ps
#lihat nama id DB Servicenya dan copy

nano /var/nfs/web/config/connect.php
#pastekan nama id DB service nya

```

5. Untuk melakukan uji coba performa dengan Apache Benchmark dengan perintah dibawah ini dengan keterangan -n adalah jumlah request dan -c adalah jumlah concurrent

```
ab -n 2000 -c 200 http://192.168.43.99/
```

```
#ab -n 2000 -c 100 http://192.168.43.164:80/
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.43.164 (be patient)
Completed 200 requests
Completed 400 requests
Completed 600 requests
Completed 800 requests
Completed 1000 requests
Completed 1200 requests
Completed 1400 requests
Completed 1600 requests
Completed 1800 requests
Completed 2000 requests
Finished 2000 requests

Server Software:      Apache/2.4.7
Server Hostname:     192.168.43.164
Server Port:         80

Document Path:       /
Document Length:     1807 bytes

Concurrency Level:   100
Time taken for tests: 7.887 seconds
Complete requests:   2000
Failed requests:     0
Total transferred:   4040000 bytes
HTML transferred:    3614000 bytes
Requests per second: 253.58 [#/sec] (mean)
Time per request:    394.353 [ms] (mean)
Time per request:    3.944 [ms] (mean, across all concurrent requests)
Transfer rate:       500.23 [Kbytes/sec] received

Connection Times (ms)
      min  mean[+/-sd] median  max
Connect:    0    1  1.9    0   12
Processing: 71   389 117.3   379 1116
Waiting:    3   356 105.5   343 1115
Total:     71   390 117.1   380 1116

Percentage of the requests served within a certain time (ms)
 50%    380
 66%    427
 75%    455
 80%    476
 90%    537
 95%    583
 98%    681
 99%    759
100%   1116 (longest request)
```