**DOCKER Hands on Lab 03.**

1. Run four HTTPD Docker containers with distinct, meaningful names, and apply restart policies (NO, On-Failure, Always, and Unless-Stopped) to each of the four containers, respectively. Demonstrate that the restart policies function as expected.

Sol: -

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker pull httpd**

Using default tag: **latest**

latest: Pulling from library/httpd

Digest: sha256:f0a93744d8006e6f7ee5086c9ddccdcfa33d1091f15269a00547b4c382459c1f

Status: Image is up to date for httpd:latest

docker.io/library/httpd:latest

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker container create httpd**

c4ccc796fd846ffbf900f18e6ed518a503db3dcdc961b8f73efc0db68175b9d9

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container ls -a

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

c4ccc796fd84 httpd "httpd-foreground" 58 seconds ago Created **vigorous\_yalow**

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container rename vigorous\_yalow lab3\_assign

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container ls -a

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

c4ccc796fd84 httpd "httpd-foreground" 2 minutes ago Created lab3\_assign

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container run -itd --name lab3\_assignment --restart no httpd

5ba9a84a7d17c7637d22636c3695d8b06d9ccc9a3b11688562609878379b3070

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx#

**root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_assignment**

[

{

"Config": {}

},

"NetworkMode": "default",

"PortBindings": {},

"RestartPolicy": {

"Name**": "no",**

"MaximumRetryCount": 0

* **docker container update --restart on-failure:5 lab3\_assignment**

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker container update --restart on-failure:5 lab3\_assignment**

lab3\_assignment

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_assignment

[

{

"Id": "5ba9a84a7d17c7637d22636c3695d8b06d9ccc9a3b11688562609878379b3070",

"Created": "2024-01-11T13:47:34.5317109Z",

"Path": "httpd-foreground",

"Args": [],

"Type": "json-file",

"Config": {}

},

"NetworkMode": "default",

"PortBindings": {},

"RestartPolicy": {

"Name": **"on-failure",**

"MaximumRetryCount": 5

},

* docker container update --restart always

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container update --restart always lab3\_assignment

lab3\_assignment

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_assignment

[

{

"Id": "5ba9a84a7d17c7637d22636c3695d8b06d9ccc9a3b11688562609878379b3070",

"Created": "2024-01-11T13:47:34.5317109Z",

"Path": "httpd-foreground",

"Args": [],

},

"NetworkMode": "default",

"PortBindings": {},

"RestartPolicy": {

"Name**": "always",**

"MaximumRetryCount": 0

* **docker container update --restart unless-stopped lab3\_assignment**

oot@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker container update --restart unless-stopped lab3\_assignment**

lab3\_assignment

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_assignment

[

{

"Id": "5ba9a84a7d17c7637d22636c3695d8b06d9ccc9a3b11688562609878379b3070",

"Created": "2024-01-11T13:47:34.5317109Z",

"Path": "httpd-foreground",

"Args": [],

"State": {

"Status": "running",

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2. Change the restart policy of a above running container from the default to a custom policy using the docker update command. e.g. docker update –help

Sol: -

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container run -itd --name lab3\_task httpd

b4978a20d3cd63ab5ab0e8e404dc59f832163cbf8aa5a004ffc21ad892e0f981

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_task httpd

[

{

"Id": "b4978a20d3cd63ab5ab0e8e404dc59f832163cbf8aa5a004ffc21ad892e0f981",

"Created": "2024-01-11T14:23:47.3238933Z",

"Path": "httpd-foreground",

"Config": {}

},

"NetworkMode": "default",

"PortBindings": {},

"RestartPolicy": {

"Name": "no",

"MaximumRetryCount": 0

},

* **docker container update --restart no lab3\_task**

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container update --restart no lab3\_task

lab3\_task

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx#

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container inspect lab3\_task

[

{

"Id": "b4978a20d3cd63ab5ab0e8e404dc59f832163cbf8aa5a004ffc21ad892e0f981",

"Created": "2024-01-11T14:23:47.3238933Z",

"Path": "httpd-foreground",

"Args": [],

"State": {

"Status": **"running",**

"Config": {}

},

"NetworkMode": "default",

"PortBindings": {},

"RestartPolicy": {

"Name": "no",

"MaximumRetryCount": 0

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3. Launch an NGINX container with a meaningful name and expose it on the host's port 80. Create an "index.html" file containing the text "Hello there, Let's be the Team CloudEthiX," and copy the file to the container's "/usr/share/nginx/html/" location. Access the container in a browser to verify that the webpage displays correctly.

Sol: -

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker pull nginx**

Using default tag: latest

latest: Pulling from library/nginx

Digest: sha256:2bdc49f2f8ae8d8dc50ed00f2ee56d00385c6f8bc8a8b320d0a294d9e3b49026

Status: Image is up to date for nginx:latest

docker.io/library/nginx:latest

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# **docker container create nginx**

4037e12434d8391994ee3667fdc93c5ad36552ea86d446ef1999f017ba3a0590

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container ls

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

root@DESKTOP-SQGRBLG:/mnt/e/ubuntu-nginx# docker container ls -a

CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES

4037e12434d8 nginx "/docker-entrypoint.…" 20 seconds ago Created quizzical\_faraday

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4. Run a docker container with CPU and Memory limit. docker container run --help

ref links :- https://phoenixnap.com/kb/docker-memory-and-cpu-limit

<https://www.baeldung.com/ops/docker-memory-limit>

Sol: -

root@DESKTOP-SQGRBLG:/mnt/e# docker run -dit --memory="256m" nginx

a597ca7b277e24223bae46813fa0a12fafe2a6b1de16496d5e309bd31dff3019

root@DESKTOP-SQGRBLG:/mnt/e#

root@DESKTOP-SQGRBLG:/mnt/e# docker run -dit --memory="256m" nginx

a597ca7b277e24223bae46813fa0a12fafe2a6b1de16496d5e309bd31dff3019

root@DESKTOP-SQGRBLG:/mnt/e# docker stats

CONTAINER ID NAME CPU % MEM USAGE / LIMIT MEM % NET I/O BLOCK I/O PIDS

a597ca7b277e stoic\_edison 0.01% 12.31MiB / 256MiB 4.81% 1.31kB / 0B 0B / 0B 9

CONTAINER ID NAME CPU % MEM USAGE / LIMIT MEM % NET I/O BLOCK I/O PIDS

a597ca7b277e stoic\_edison 0.01% 12.31MiB / 256MiB 4.81% 1.31kB / 0B 0B / 0B 9

CONTAINER ID NAME CPU % MEM USAGE / LIMIT MEM % NET I/O BLOCK I/O PIDS

root@DESKTOP-SQGRBLG:/mnt/e# docker inspect stoic\_edison | grep MemorySwap

"MemorySwap": 536870912,

"MemorySwappiness": null,

root@DESKTOP-SQGRBLG:/mnt/e#

root@DESKTOP-SQGRBLG:/mnt/e# docker run -dit --cpus="1.0" nginx

2e13fd159d6ae842857e45d16710cbb5ec32ce9785f70dedf9810bc9401ee5ea

root@DESKTOP-SQGRBLG:/mnt/e# docker run -dit --cpu-shares="2048" nginx

fccbc01e9817a2a5e4ce45e03ba3e067791052f5401905ec012815653302b485

root@DESKTOP-SQGRBLG:/mnt/e#

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5. Update CPU and Memory of docker container using docker update.

ref links :- https://docs.docker.com/engine/reference/commandline/update/

Sol: -

root@DESKTOP-SQGRBLG:/mnt/e# docker update --cpu-shares 512 cpu\_update

cpu\_update

root@DESKTOP-SQGRBLG:/mnt/e#

root@DESKTOP-SQGRBLG:/mnt/e# docker update --cpu-shares 256 -m 100M --memory-swap 100M cpu\_update

cpu\_update

root@DESKTOP-SQGRBLG:/mnt/e#

root@DESKTOP-SQGRBLG:/mnt/e# docker run -itd --name best --kernel-memory 100M nginx bash

67f02a7383a85069ded8eb5f7e04d90a8aac3e071bc8ef0150b15db7dfd71f36

root@DESKTOP-SQGRBLG:/mnt/e#

root@DESKTOP-SQGRBLG:/mnt/e# docker run -itd --name best2 --memory 100M nginx bash

9e47c7a1b64a749d28d12d13cd50e52637658519a2e113f37848944e0311ab82

root@DESKTOP-SQGRBLG:/mnt/e#