S_Docker_02 Lab 2

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MAY 2023
DOCKER – DEVOPS

S_Docker_02 Lab 2

1- Run an instance of nginx:alpine with a name nginx and map port 8080 on the container to 38282 on the host.

2- create ubuntu image and check the size of it

3- Run a container named blue-app using image kodekloud/simplewebapp and set the environment variable APP_COLOR to blue. Make the application available on port 38282 on the host. The application listens on port 8080.

4- Deploy a mysql database using the mysql image and name it mysqldb Set the database password to use db_pass123 then inspect it to check the value

5- pull the code from https://github.com/sabreensalama/dockerizenode- app-task and create a docker file for this flask app

6- Create a volume called mysql_data, Run a mysql container again, but this time map a volume to the container so that the data stored by the container is stored at /opt/data on the host. Use the same name : mysql-db and same password: db_pass123 as before. Mysql stores data at /var/lib/mysql inside the container.

```
  139  docker images
  140  docker ps -a
  141  history
kdawoud@k:~$ docker run -d --name=nginx -p 38282:8080 nginx:alpine
Unable to find image 'nginx:alpine' locally
alpine: Pulling from library/nginx
f56be85fc22e: Pull complete

97c80f11709c: Pull complete

afb503c1f124: Pull complete

f8c948b732dd: Pull complete

d021bba29710: Pull complete

cadcca1af197: Pull complete

4aacde79cec4: Pull complete

Digest: sha256:2e776a66a3556f001aba13431b26e448fe8acba277bf93d2ab1a785571a46d90
Status: Downloaded newer image for nginx:alpine
a6796e70fb7065afb17dfb9834e49ecdac236ab5b02a040a599d3069559086d9
kdawoud@k:~$ docker ps
CONTAINER ID   IMAGE          COMMAND               CREATED           STATUS            PORTS
NAMES
a6796e70fb70   nginx:alpine   "/docker-entrypoint.…" About a minute ago Up About a minute 80/tcp, 0.0.0.0:38282->8080/tcp, :::38282->8080/tcp
nginx
kdawoud@k:~$ sudo systemctl status firewalld
[sudo] password for kdawoud:
Unit firewalld.service could not be found.
kdawoud@k:~$ sudo systemctl status ufw
● ufw.service - Uncomplicated firewall
     Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
     Active: active (exited) since Sat 2023-05-27 15:49:06 +03; 3h 59min ago
       Docs: man:ufw(8)
    Process: 602 ExecStart=/lib/ufw/ufw-init start quiet (code=exited, status=0/SUCCESS)
   Main PID: 602 (code=exited, status=0/SUCCESS)
        CPU: 3ms

May 27 15:49:06 k systemd[1]: Starting Uncomplicated firewall...
May 27 15:49:06 k systemd[1]: Finished Uncomplicated firewall.
kdawoud@k:~$ sudo systemctl stop ufw
kdawoud@k:~$ sudo systemctl status ufw
○ufw.service - Uncomplicated firewall
     Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
```

```
May 27 15:49:06 k systemd[1]: Starting Uncomplicated firewall...
May 27 15:49:06 k systemd[1]: Finished Uncomplicated firewall.
kdawoud@k:~$ sudo systemctl stop ufw
kdawoud@k:~$ sudo systemctl status ufw
○ufw.service - Uncomplicated firewall
     Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
     Active: inactive (dead) since Sat 2023-05-27 19:49:06 +03; 1s ago
       Docs: man:ufw(8)
    Process: 602 ExecStart=/lib/ufw/ufw-init start quiet (code=exited, status=0/SUCCESS)
    Process: 10414 ExecStop=/lib/ufw/ufw-init stop (code=exited, status=0/SUCCESS)
   Main PID: 602 (code=exited, status=0/SUCCESS)
        CPU: 7ms

May 27 15:49:06 k systemd[1]: Starting Uncomplicated firewall...
May 27 15:49:06 k systemd[1]: Finished Uncomplicated firewall.
May 27 19:49:06 k systemd[1]: Stopping Uncomplicated firewall...
May 27 19:49:06 k ufw-init[10414]: Skip stopping firewall: ufw (not enabled)
May 27 19:49:06 k systemd[1]: ufw.service: Deactivated successfully.
May 27 19:49:06 k systemd[1]: Stopped Uncomplicated firewall.
kdawoud@k:~$ sudo systemctl start ufw
kdawoud@k:~$ sudo systemctl status ufw
●ufw.service - Uncomplicated firewall
     Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
     Active: active (exited) since Sat 2023-05-27 19:49:35 +03; 2s ago
       Docs: man:ufw(8)
    Process: 10432 ExecStart=/lib/ufw/ufw-init start quiet (code=exited, status=0/SUCCESS)
   Main PID: 10432 (code=exited, status=0/SUCCESS)
        CPU: 2ms

May 27 19:49:35 k systemd[1]: Starting Uncomplicated firewall...
May 27 19:49:35 k systemd[1]: Finished Uncomplicated firewall.
kdawoud@k:~$ docker run -d ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
dbf6a9befcde: Pull complete

Digest: sha256:dfd64a3b4296d8c9b62aa3309984f8620b98d87e47492599ee20739e8eb54fbf
Status: Downloaded newer image for ubuntu:latest
f19ab32fd543879528b5491ceb2117c89c88cfbebdef6fe42bdcadd9448bb726
kdawoud@k:~$ docker images
REPOSITORY   TAG      IMAGE ID       CREATED        SIZE
nginx        alpine   fe7edaf8a8dc   2 days ago     41.4MB
ubuntu       latest   3b418d7b466a   4 weeks ago    77.8MB
kdawoud@k:~$
```

```
  178  reboot
  179  docker ps
  180  docker ps -a
  181  docker run -d --name blue-app -e APP_COLOR=blue -p 38282:8080 kodekloud/simple-webapp
  182  docker ps -a
  183  docker ps
  184  docker run -d --name blue-ap1p -e APP_COLOR=blue -p 38282:8080 kodekloud/simple-webapp
  185  docker ps
  186  docker container inspect fc2e93a0d8fc
  187  ping 172.17.0.2
  188  history
kdawoud@k:~$
```

Hello from Flask   ×   +

localhost:38282

Hello from fc2e93a0d8fc!
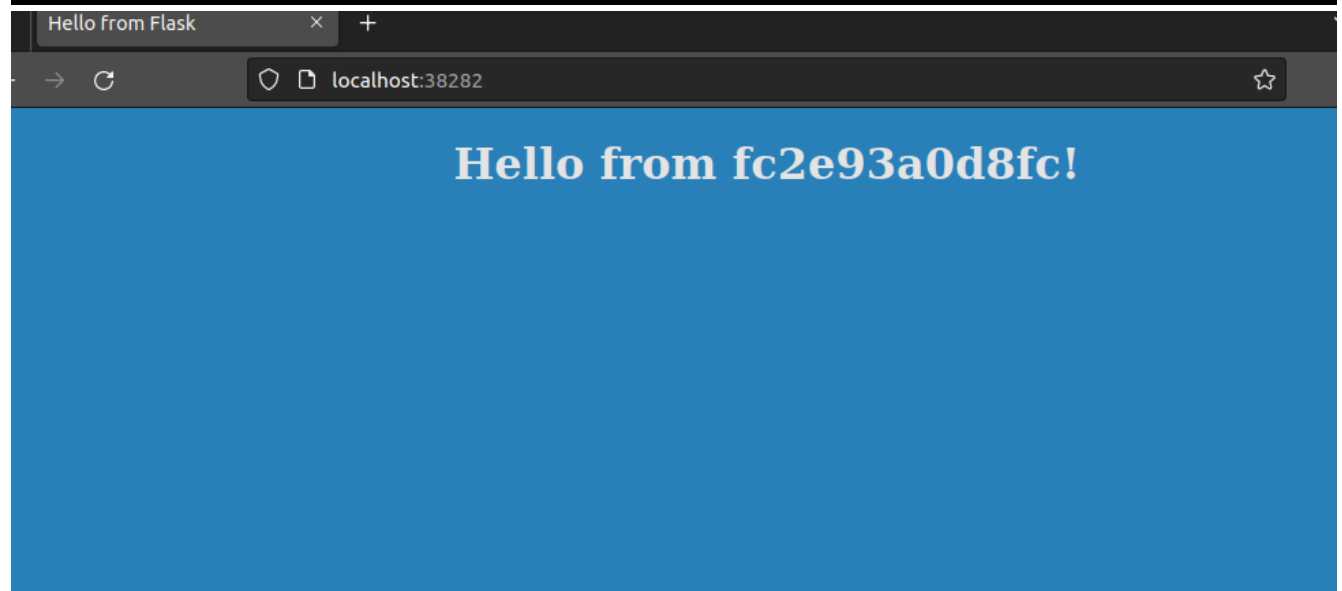
Activities   Terminal   May 29 8:10 PM

kdawoud@k: ~

```
  188  history
kdawoud@k:~$ docker run -d --name mysql-db -e MYSQL_ROOT_PASSWOED=db_pass123 mysql:latest
Unable to find image 'mysql:latest' locally
latest: Pulling from library/mysql
90e2fb2facff: Pull complete
ba60eb20fd5f: Pull complete
4f509402d469: Pull complete
496c2cfa6815: Pull complete
8ec1dfa9522c: Pull complete
6dec7ba896f8: Pull complete
dc9ff75362b0: Pull complete
73e4682f9014: Pull complete
9ffdeecd6fb6: Pull complete
a4346ccfb53f: Pull complete
434c13bc32de: Pull complete
Digest: sha256:d6164ff4855b9b3f2c7748c6ec564ccff841f79a7023db0f9293143481a44b6e
Status: Downloaded newer image for mysql:latest
9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11
kdawoud@k:~$ docker images
REPOSITORY               TAG       IMAGE ID       CREATED        SIZE
nginx                    alpine    fe7edaf8a8dc   4 days ago     41.4MB
mysql                    latest    05db07cd74c0   4 days ago     565MB
ubuntu                   latest    3b418d7b466a   4 weeks ago    77.8MB
kodekloud/simple-webapp  latest    c6e3cd9aae36   4 years ago    84.8MB
kdawoud@k:~$ docker image inspect 05db07cd74c0
[
    {
        "Id": "sha256:05db07cd74c0520c8ffe5f7638063719a886f9115cecacc0654d981caf5d27f7",
        "RepoTags": [
            "mysql:latest"
        ],
        "RepoDigests": [
            "mysql@sha256:d6164ff4855b9b3f2c7748c6ec564ccff841f79a7023db0f9293143481a44b6e"
        ],
        "Parent": "",
        "Comment": "",
        "Created": "2023-05-24T21:43:13.237785913Z",
        "Container": "f38d8f23cf17014cd5f9a6025dd60d0aac71eb192926e2021c03d06c5d5f5dd3",
        "ContainerConfig": {
            "Hostname": "f38d8f23cf17",
            "Domainname": "",
            "User": "",
            "AttachStdin": false,
            "AttachStdout": false,
            "AttachStderr": false,
            "ExposedPorts": {
```

```
Activities          Terminal                           May 29  8:11 PM

                                         kdawoud@k: ~

kdawoud@k:~$ docker ps -a
CONTAINER ID   IMAGE                     COMMAND                  CREATED         STATUS                   PORTS                                          NAMES
9631408929f7   mysql:latest              "docker-entrypoint.s…"   3 minutes ago   Exited (1) 2 minutes ago                                                mysql-db
fc2e93a0d8fc   kodekloud/simple-webapp   "python app.py"          25 hours ago    Up 25 hours                                                             blue-ap1p
009b4b554f66   kodekloud/simple-webapp   "python app.py"          2 days ago      Created                                                                 blue-app
f19ab32fd543   ubuntu                    "/bin/bash"              2 days ago      Exited (0) 2 days ago                                                    busy_lalande
a6796e70fb70   nginx:alpine              "/docker-entrypoint.…"   2 days ago      Exited (0) 26 hours ago                                                  nginx
kdawoud@k:~$ docker container inspect 9631408929f7
[
    {
        "Id": "9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11",
        "Created": "2023-05-29T17:06:00.815639031Z",
        "Path": "docker-entrypoint.sh",
        "Args": [
            "mysqld"
        ],
        "State": {
            "Status": "exited",
            "Running": false,
            "Paused": false,
            "Restarting": false,
            "OOMKilled": false,
            "Dead": false,
            "Pid": 0,
            "ExitCode": 1,
            "Error": "",
            "StartedAt": "2023-05-29T17:06:02.93277833Z",
            "FinishedAt": "2023-05-29T17:06:03.694589705Z"
        },
        "Image": "sha256:05db07cd74c0520c8ffe5f7638063719a886f9115cecacc0654d981caf5d27f7",
        "ResolvConfPath": "/var/lib/docker/containers/9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11/resolv.conf",
        "HostnamePath": "/var/lib/docker/containers/9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11/hostname",
        "HostsPath": "/var/lib/docker/containers/9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11/hosts",
        "LogPath": "/var/lib/docker/containers/9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11/9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00825297cf11-json.log",
        "Name": "/mysql-db",
        "RestartCount": 0,
        "Driver": "overlay2",
        "Platform": "linux",
        "MountLabel": "",
        "ProcessLabel": "",
        "AppArmorProfile": "docker-default",
        "ExecIDs": null,
        "HostConfig": {
            "Binds": null,
            "ContainerIDFile": "",
            "LogConfig": {
                "Type": "json-file",
                "Config": {}
            },
            "NetworkMode": "default",
            "PortBindings": {},
            "RestartPolicy": {
                "Name": "no",
                "MaximumRetryCount": 0
```

```
Activities          Terminal                           May 29  8:11 PM

                                         kdawoud@k: ~

                "WorkDir": "/var/lib/docker/overlay2/74d6ac02687476ddbd168f8d0292d55aef1c4a58c96f20bdeba02625d7c4d199/work"
            },
            "Name": "overlay2"
        },
        "Mounts": [
            {
                "Type": "volume",
                "Name": "67c2e0ddc1ef7ec6684dbfb28de99362a024b07caa2448805de56ca4dbb7bf38",
                "Source": "/var/lib/docker/volumes/67c2e0ddc1ef7ec6684dbfb28de99362a024b07caa2448805de56ca4dbb7bf38/_data",
                "Destination": "/var/lib/mysql",
                "Driver": "local",
                "Mode": "",
                "RW": true,
                "Propagation": ""
            }
        ],
        "Config": {
            "Hostname": "9631408929f7",
            "Domainname": "",
            "User": "",
            "AttachStdin": false,
            "AttachStdout": false,
            "AttachStderr": false,
            "ExposedPorts": {
                "3306/tcp": {},
                "33060/tcp": {}
            },
            "Tty": false,
            "OpenStdin": false,
            "StdinOnce": false,
            "Env": [
                "MYSQL_ROOT_PASSWOED=db_pass123",
                "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
                "GOSU_VERSION=1.16",
                "MYSQL_MAJOR=8.0",
                "MYSQL_VERSION=8.0.33-1.el8",
                "MYSQL_SHELL_VERSION=8.0.33-1.el8"
            ],
            "Cmd": [
                "mysqld"
            ],
            "Image": "mysql:latest",
            "Volumes": {
                "/var/lib/mysql": {}
            },
            "WorkingDir": "",
            "Entrypoint": [
                "docker-entrypoint.sh"
            ],
            "OnBuild": null,
            "Labels": {}
        },
        "NetworkSettings": {
            "Bridge": "",
            "SandboxID": "3a6931eab728131fdf3abcf6c4418c5087ca3b822067b99c80e1e5d427075d48"
```

kdawoud@k: ~/node-app

```
           clone
kdawoud@k:~$ git clone https://github.com/sabreensalama/dockerize-node-app-task ./node-app
Cloning into './node-app'...
remote: Enumerating objects: 12, done.
remote: Counting objects: 100% (12/12), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 12 (delta 1), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (12/12), done.
Resolving deltas: 100% (1/1), done.
kdawoud@k:~$ npm install
Command 'npm' not found, but can be installed with:
sudo apt install npm
kdawoud@k:~$ ls
Desktop  Documents  Downloads  Music  node-app  Pictures  Public  snap  Templates  Videos
kdawoud@k:~$ cd node-app/
kdawoud@k:~/node-app$ vim Dockerfile
Command 'vim' not found, but can be installed with:
sudo apt install vim          # version 2:8.2.3995-1ubuntu2.7, or
sudo apt install vim-tiny     # version 2:8.2.3995-1ubuntu2.7
sudo apt install vim-athena   # version 2:8.2.3995-1ubuntu2.7
sudo apt install vim-gtk3     # version 2:8.2.3995-1ubuntu2.7
sudo apt install vim-nox      # version 2:8.2.3995-1ubuntu2.7
sudo apt install neovim       # version 0.6.1-3
kdawoud@k:~/node-app$ sudo apt install vim
[sudo] password for kdawoud:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  vim-runtime
Suggested packages:
  ctags vim-doc vim-scripts
The following NEW packages will be installed:
  vim vim-runtime
0 upgraded, 2 newly installed, 0 to remove and 111 not upgraded.
Need to get 8,553 kB of archives.
After this operation, 37.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://sa.archive.ubuntu.com/ubuntu jammy-updates/main amd64 vim-runtime all 2:8.2.3995-1ubuntu2.7 [6,825 kB]
Get:2 http://sa.archive.ubuntu.com/ubuntu jammy-updates/main amd64 vim amd64 2:8.2.3995-1ubuntu2.7 [1,728 kB]
Fetched 8,553 kB in 2s (5,279 kB/s)
Selecting previously unselected package vim-runtime.
(Reading database ... 203597 files and directories currently installed.)
Preparing to unpack .../vim-runtime_2%3a8.2.3995-1ubuntu2.7_all.deb ...
Adding 'diversion of /usr/share/vim/vim82/doc/help.txt to /usr/share/vim/vim82/doc/help.txt.vim-tiny by vim-runtime'
Adding 'diversion of /usr/share/vim/vim82/doc/tags to /usr/share/vim/vim82/doc/tags.vim-tiny by vim-runtime'
Unpacking vim-runtime (2:8.2.3995-1ubuntu2.7) ...
Selecting previously unselected package vim.
Preparing to unpack .../vim_2%3a8.2.3995-1ubuntu2.7_amd64.deb ...
Unpacking vim (2:8.2.3995-1ubuntu2.7) ...
Setting up vim-runtime (2:8.2.3995-1ubuntu2.7) ...
Setting up vim (2:8.2.3995-1ubuntu2.7) ...
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/vim (vim) in auto mode
update-alternatives: using /usr/bin/vim.basic to provide /usr/bin/vindiff (vindiff) in auto mode
```

```
kdawoud@k:~/node-app$ vim Dockerfile
kdawoud@k:~/node-app$ cat Dockerfile
#here we will use the recent nodejs image version 16
FROM node:16

#here is the working directory
WORKDIR ./node-app

#here we want to install app dependencies as per the instructions in the README file
COPY package*.json ./
RUN npm install
#RUN node server.js



#bundle app source
COPY . .

#here we will binds to port 8080
EXPOSE 8080

#here is to run the following during execution time
CMD [ "package.json", "server.js"  ]


kdawoud@k:~/node-app$ []
```

```
kdawoud@k:~/node-app$ docker build . -t node_task
[+] Building 1.7s (10/10) FINISHED
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 468B
 => [internal] load metadata for docker.io/library/node:16
 => [1/5] FROM docker.io/library/node:16@sha256:2ed6bba040f90005db9785927689c0d9a9442ca2cf9a59dc52297d684285c094
 => [internal] load build context
 => => transferring context: 32.63kB
 => CACHED [2/5] WORKDIR ./node-app
 => CACHED [3/5] COPY package*.json ./
 => CACHED [4/5] RUN npm install
 => [5/5] COPY . .
 => exporting to image
 => => exporting layers
 => => writing image sha256:644a5a9ebe39f4ee7148150e4774c17af8e662edf82179201359c13267f2876c
 => => naming to docker.io/library/node_task
kdawoud@k:~/node-app$ docker images
REPOSITORY                 TAG        IMAGE ID        CREATED          SIZE
node_task                  latest     644a5a9ebe39    9 seconds ago    915MB
nginx                      alpine     fe7edaf8a8dc    4 days ago       41.4MB
mysql                      latest     05db07cd74c0    4 days ago       565MB
ubuntu                     latest     3b418d7b466a    4 weeks ago      77.8MB
kodekloud/simple-webapp    latest     c6e3cd9aae36    4 years ago      84.8MB
kdawoud@k:~/node-app$ docker run -d -p 38283:8080 node_task
fd6f14378da5ffe50aa918e1e0b878ee9bc18aabf66d45302069329fd7feb803
kdawoud@k: /node-app$ docker ps
```

```
kdawoud@k:~/node-app$ docker volume create mysql_data^C
kdawoud@k:~/node-app$ docker run -d --name mysql-db -e MYSQL_ROOT_PASSWOED=db_pass123 -v mysql_data:/var/lib/mysql mysql:latest
docker: Error response from daemon: Conflict. The container name "/mysql-db" is already in use by container "9631408929f7c3ef391931455a150f502ecd0c5b714030733d4d00
825297cf11". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
kdawoud@k:~/node-app$ docker run -d --name mysql-db1 -e MYSQL_ROOT_PASSWOED=db_pass123 -v mysql_data:/var/lib/mysql mysql:latest
b70eef40bb6e8c61edea0d1b7c41dec0a248f6e1aaebc0f380a492ad41dfc75e
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k:~/node-app$
kdawoud@k: /node-app$
```