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Assignment: 9

Master Class On Docker

TASK 2.1

- a. Container name must be php_web.
- b. Use image php with any apache tag. Check here for more details https://hub.docker.com/_/php?tab=tags.
- c. Map php_web container's port 80 with host port 6000
- d. Map php_web container's /var/www/html volume with host volume /var/www/html.

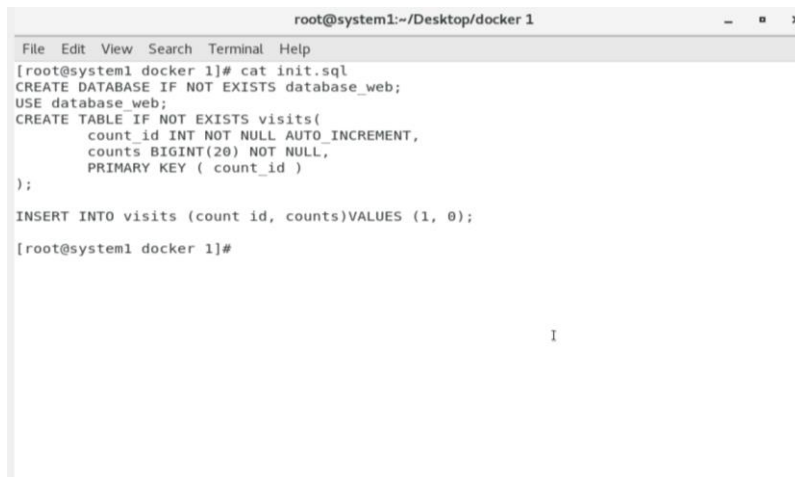
For DB service:

- a. Container name must be mysql_web.
- b. Use image mariadb with any tag (preferably latest). Check here for more details https://hub.docker.com/_/mariadb?tab=tags.
- c. Map mysql_web container's port 3306 with host port 3306
- d. Map mysql_web container's /var/lib/mysql volume with host volume /var/lib/mysql.
- e. Set MYSQL_DATABASE=database_web and use any custom user (except root) with some complex password for DB connections. After running docker-compose up you can access the app with curl command curl :6000/

Number of steps:

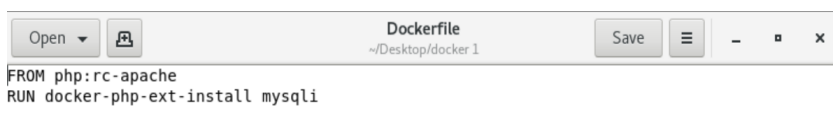
Step 1 :

1. Create an init.sql file in init folder



```
root@system1:~/Desktop/docker 1
File Edit View Search Terminal Help
[root@system1 docker 1]# cat init.sql
CREATE DATABASE IF NOT EXISTS database_web;
USE database_web;
CREATE TABLE IF NOT EXISTS visits(
    count_id INT NOT NULL AUTO_INCREMENT,
    counts BIGINT(20) NOT NULL,
    PRIMARY KEY ( count_id )
);
INSERT INTO visits (count id, counts)VALUES (1, 0);
[root@system1 docker 1]#
```

2. Create a Dockerfile for the php web app



```
Dockerfile
~/Desktop/docker 1
Open Save
FROM php:rc-apache
RUN docker-php-ext-install mysqli
```

3. Create index.php



```
index.php
~/Desktop/docker 1
Open Save
index.php compose.yml
<h4>Connecting MYSQL from php...</h4>
<?php
    $host = 'mysql_web';
    $user = 'webuser';
    $password = 'webuserpwd';
    $db_name = 'database_web';

    $conn = new MySQLi($host, $user, $password, $db_name);

    if($conn->connect_error){
        die("Connection Failed !!". $conn->connect_error);
    }

    $sql = "UPDATE visits SET counts = counts + 1 where count_id = 1";
    $conn->query($sql);
    $sel = "SELECT counts from visits where count_id = 1";
    $res = $conn->query($sel);

    if ($res->num_rows > 0) {
        while($row = $res->fetch_assoc()) {
            $count = $row["counts"];
        }
    }else{
        echo "No results";
    }
}
```

4. Create docker-compose.yml

```

Open  compose.yml  Save
~/Desktop/docker 1

version: "3.7"
services:
  database:
    image: mariadb:latest
    container_name: mysql_web
    volumes:
      - "/var/lib/mysql:/var/lib/mysql"
      - ".init:/docker-entrypoint-initdb.d"
    environment:
      MYSQL_DATABASE: database_web
      MYSQL_ROOT_PASSWORD : root
      MYSQL_USER : webuser
      MYSQL_PASSWORD : hello12
    ports:
      - "3306:3306"
  webapp:
    build: .
    container_name: php_web
    environment:
      MYSQL_HOST : mysql_web
      MYSQL_USER : webuser
      MYSQL_PASSWORD : hello12
      MYSQL_DB : database_web
    volumes:
      - "/var/www/html:/var/www/html"

```

5. Execute the command docker-compose up to execute the docker compose yaml file

```

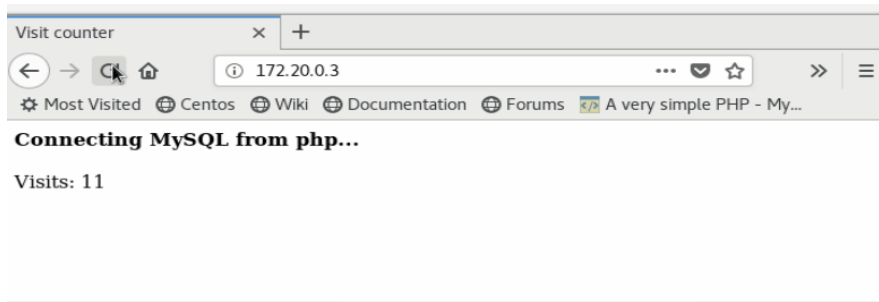
root@system1:~/Desktop/docker 1

File Edit View Search Terminal Help

[root@system1 docker 1]# docker-compose up
Creating network "docker1_default" with the default driver
Pulling database (mariadb:latest)...
Trying to pull repository docker.io/library/mariadb ...
latest: Pulling from docker.io/library/mariadb
a31c7b29f4ad: Pulling fs layer
4f7579f0f5a5: Downloading [=====>] 658
4f7579f0f5a5: Downloading [=====>] 1.744 k
4f7579f0f5a5: Download complete
a31c7b29f4ad: Downloading [>] 294.1 k
B/28.57 MBcc: Downloading [==>] 228.6 k
B/5.489 MB09: Waiting
b053ac8beecc: Downloading [==>] 359.7 k
a31c7b29f4ad: Downloading [=>] 589 k
B/28.57 MBcc: Downloading [=====>] 621.8 k
a31c7b29f4ad: Pull complete
4f7579f0f5a5: Pull complete
b053ac8beecc: Pull complete
76ca9dedd400: Pull complete
daa935b0083f: Pull complete
54214fc6446b: Pull complete
82046f626e09: Pull complete
2f67396c6908: Pull complete
5d09818ae9aa: Pull complete
75a8d2dc6608: Pull complete
Digest: sha256:6e177005751b9055a5af897a57f8433a54b1c219c08a8433efa53cd4c7206ddd

```

6. checking the work of visit counter

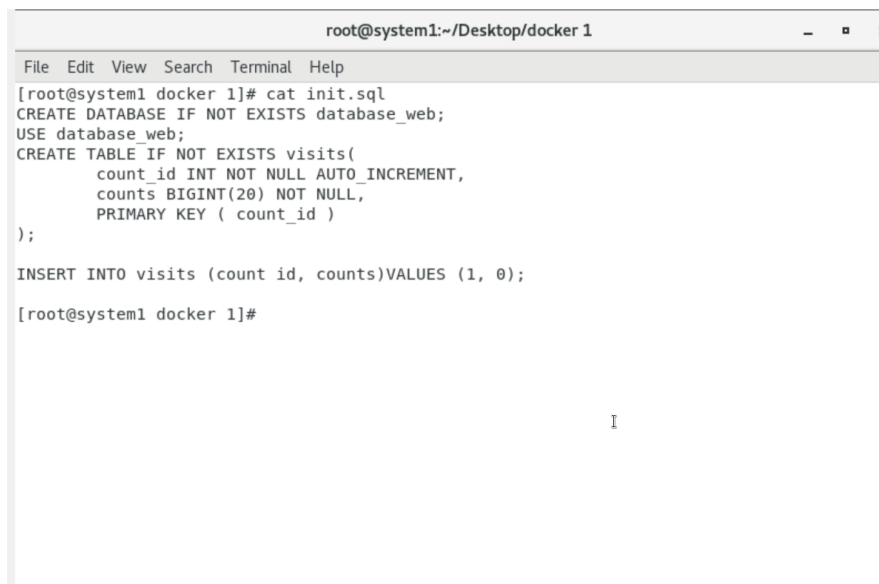


TASK 2.2

Create a web server on Centos base image and display the content This is coming from docker

Steps to follow:

- 1. Create a Docker File - \$vi Dockerfile**



- 2. Create the html file - \$vi index.html**

```
root@system1:~/Desktop/docker 1
File Edit View Search Terminal Help
[root@system1 docker 1]# vi Dockerfile
[root@system1 docker 1]# cat Dockerfile
FROM php:rc-apache
RUN docker-php-ext-install mysqli

[root@system1 docker 1]#
```

3. First start Docker - systemctl start docker

```
root@system1:~/Desktop/docker 1
File Edit View Search Terminal Help
[root@system1 docker 1]# systemctl start docker
[root@system1 docker 1]# docker-compose up
bash: docker-compose: command not found...
[root@system1 docker 1]# sudo apt install docker-compose
sudo: apt: command not found
[root@system1 docker 1]# sudo curl -L "https://github.com/docker/compose/releases/download/1.29.2/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left   Speed
100  633  100  633    0     0    844      0 --:--:-- --:--:-- --:--:--   844
100 12.1M  100 12.1M    0     0 1359k      0 0:00:09 0:00:09 --:--:-- 1391k
[root@system1 docker 1]#
```

4. Build the docker file - \$ docker build .

```
root@osboxes:~/Docker_1
File Edit View Search Terminal Help
=====
Package Arch Version Repository Size
=====
Installing:
httpd x86_64 2.4.6-97.el7.centos updates 2.7 M
Installing for dependencies:
apr x86_64 1.4.8-7.el7 base 104 k
apr-util x86_64 1.5.2-6.el7 base 92 k
centos-logos noarch 70.0.6-3.el7.centos base 21 M
httpd-tools x86_64 2.4.6-97.el7.centos updates 93 k
mailcap noarch 2.1.41-2.el7 base 31 k
=====
Transaction Summary
=====
Install 1 Package (+5 Dependent packages)

Total download size: 24 M
Installed size: 32 M
Downloading packages:
warning: /var/cache/yum/x86_64/7/base/packages/apr-1.4.8-7.el7.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
Public key for apr-1.4.8-7.el7.x86_64.rpm is not installed
Public key for httpd-tools-2.4.6-97.el7.centos.x86_64.rpm is not installed
-----
Total 359 kB/s | 24 MB 01:09
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Importing GPG key 0xF4A80EB5:
  Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
  Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
  Package : centos-release-7-6.1810.2.el7.centos.x86_64 (@CentOS)
  From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : apr-1.4.8-7.el7.x86_64 1/6
  Installing : apr-util-1.5.2-6.el7.x86_64 2/6
  Installing : httpd-tools-2.4.6-97.el7.centos.x86_64 3/6
  Installing : centos-logos-70.0.6-3.el7.centos.noarch 4/6
  Installing : mailcap-2.1.41-2.el7.noarch 5/6
  Installing : httpd-2.4.6-97.el7.centos.x86_64 6/6
```

5. \$ docker run -dit p 8000:80 and Check the ip: \$ ifconfig

```
root@system1:~/Desktop/Docker
File Edit View Search Terminal Help
See '/usr/bin/docker-current run --help'.
[root@system1 Docker]# ifconfig
docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 0.0.0.0
    ether 02:42:72:f9:e7:f8 txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    ether 08:00:27:6f:a7:16 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 183 bytes 31290 (30.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

6. Run - \$ curl 172.17.0.1:80

```
root@osboxes:~/Docker_1
File Edit View Search Terminal Help
    ether 08:00:27:fd:09:01 txqueuelen 1000 (Ethernet)
    RX packets 254609 bytes 367645552 (350.6 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 88937 bytes 6004919 (5.7 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:10:2c:d6 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@osboxes Docker_1]# curl 172.17.0.1:80
<!DOCTYPE html>
<html>
<head>
This is coming from docker.
</head>
</html>
[root@osboxes Docker_1]#
```