

3 TIER APP ON MICRO SERVICES

STEP-1: LAUNCH EC2 INSTANCE

AMI : AMAZON LINUX KERNEL 5.10

INSTANCE TYPE : T2.MICRO

EBS : 25 GB

SECURITY GROUPS : ALL TRAFFIC

STEP-2: CONNECT THE INSTANCE AND INSTALL DOCKER

command: yum install docker -y && systemctl start docker

STEP-3: INSTALL GIT AND GET THE CODE FROM GITHUB

commands:

1. yum install git -y
2. git clone [🌐 GitHub - devops0014/ltibbhackathon](https://github.com/devops0014/ltibbhackathon)

go to the folder and write Dockerfile for application

```
cd ltibbhackathon
```

Now update all php files as

server (or) hostname as **mysqldb**

username is **root**

update these values on every php file

vim Dockerfile

go to inser mode (i)

FROM php:7.4-apache

RUN docker-php-ext-install mysqli

COPY . /var/www/html/

save and quit (:wq)

Here our app docker file is ready lets build it

STEP-4: BUILD THE APP DOCKERFILE SO WE WILL GET IMAGE

command: docker build -t myapp .

after that, check the image with **docker images** command, we will get **myapp** image.

STEP-5: LETS START WORK ON DATABASE

create a folder : mkdir backend

go to folder : cd backend

and create init.sql file and copy paste the queries

vim init.sql

go to inser mode (i) and paste these queries

Create database customers;

use customers;

create table donors(id int AUTO_INCREMENT primary key, fname varchar(255) NOT NULL ,

lname varchar(255) NOT NULL , mobileno BIGINT UNIQUE, city varchar(255) NOT NULL, bfrom date, bto date, dob date, bloodgroup varchar(255) NOT NULL);

INSERT INTO donors (fname, lname, mobileno, city, bfrom, bto, dob, bloodgroup) VALUES ('Srikanth', 'Koraveni', '9000736060', 'Pune', '2022-09-28', '2022-12-28', '1998-05-22', 'O_Positive'), ('Prashanth', 'Katkam', '7989919097', 'Mumbai', '2022-09-17', '2022-11-18', '1998-09-30', 'O_Positive'), ('Kranthi', 'Khaitha', '9876789871', 'Bangalore', '2022-09-16', '2022-11-08', '1996-07-02', 'B_Positive'), ('Srinivas', 'Thota', '9812789411', 'Mumbai', '2022-09-18', '2022-10-31', '1992-07-22', 'O_Positive'), ('Pandya', 'Loka', '9877787887', 'Mumbai', '2022-09-18', '2022-10-09', '1992-07-22', 'B_Positive'), ('Prajodh', 'Shreya', '9812444411', 'Mumbai', '2022-08-23', '2022-10-31', '1992-07-22', 'B_Positive'), ('Srinivas', 'Thota', '9812723411', 'Mumbai', '2022-04-19', '2022-10-07', '1992-07-22', 'B_Positive'), ('Zaheer', 'Khan', '7788678987', 'Chennai', '2022-09-11', '2022-12-19', '1998-11-11', 'A_Positive');

CREATE TABLE users (username varchar(80) NOT NULL, name varchar(80) NOT NULL, password varchar(80) NOT NULL) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO `users` (`username`, `name`, `password`) VALUES

('yssyogesh', 'Yogesh Singh', '12345'),

('bsonarika', 'Sonarika Bhadoria', '12345'),

('vishal', 'Vishal Sahu', '12345'),

('prashanth', 'Prashanth Katkam', '12345'),

('vijay', 'Vijay mourya', '12345');

INSERT INTO users (username, name, password) VALUES ('prashanth', 'Prashanth Katkam', '12345');

CREATE TABLE admin (username varchar(80) NOT NULL, name varchar(80) NOT NULL, password varchar(80) NOT NULL) ENGINE=InnoDB DEFAULT CHARSET=latin1;

INSERT INTO admin (username, name, password) VALUES ('admin', 'admin', '12345');

GRANT ALL PRIVILEGES ON customers.* TO 'root'@'%' IDENTIFIED BY 'admin123';

FLUSH PRIVILEGES;

after that save and continue (:wq)

NOW CREATE A DOCKER FILE FOR DATABASE

vim Dockerfile

go to inser mode (i)

FROM mysql/mysql-server:5.7

COPY init.sql /docker-entrypoint-initdb.d/

ENV MYSQL_ROOT_PASSWORD=admin123

save and continue (:wq)

NOW BUILD THE DATABASE DOCKER FILE : **docker build -t mydb .**

STEP-6: CREATE CONTAINERS USING THOSE 2 IMAGES

create a volume : docker volume create database

create database container : **docker run -itd --name mysqldb -v database:/mydb -p 3306:3306 mydb**

create app container : **docker run -itd --name myapp -p 1234:80 --link mysqldb:mysqlcon myapp**

now access the application using **public-ip:1234/index.html**

now create an account by clicking signup.php enter your username, name & password.

so lets check weather all the details are getting stored on database

command to check :

- **docker exec -it mysqlldb bash**
- **mysql -u root -p**
- **it will ask the password : admin123**
- **use customers;**
- **select * from users; -----> used to see users list**
- **select * from donors; -----> used to see donors list**

after that exit from the container

and delete all containers

- **docker kill \$(docker ps)**
- **docker container prune**

NOW TO MAKE AUTOMATION OF THIS PROJECT WE CAN USE DOCKER-COMPOSE FOR CREATING SERVICES INSTEAD OF CREATING THE CONTAINERS MANUALLY.

SO LETS WRITE THE DOCKER-COMPOSE FILE

`vim docker-compose.ym;`

go to insert mode (i)

version: "3"

services:

db:

container_name: mysqlldb

image: mydb

ports:

- "3306:3306"

app:

container_name: myapp-container

image: myapp

ports:

- "8888:80"

depends_on:

- db

INSTALL DOCKER-COMPOSE:

- `sudo curl -L "https://github.com/docker/compose/releases/download/1.29.1/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose`
- `ls /usr/local/bin/`
- `sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose`
- `sudo chmod +x /usr/local/bin/docker-compose`
- `docker-compose version`

EXECUTE DOCKER FILE:

docker-compose up -d