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|  | | **Hope Foundation’s**  **Finolex Academy of Management and Technology, Ratnagiri** | | | | | | | | | |
| **Information Technology Department** | | | | | | | | | |
| Subject name: DevOps Lab | | | | | | | | Subject Code: ITL803 | | | |
| Class | | BE IT | | Semester – VIII (CBCGS) | | | | Academic year: 2019-20 | | | |
| Name of Student | | Jyoti Subhash Nachankar | | | | | **QUIZ Score :** | | | | |
| Roll No | | 33 | | | Assignment/Experiment No. | | | | | 04 | |
| **Title: Install and Configure Docker for creating containers of different operating systems image** | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **1.Course objectives applicable**  **LOB3**. To understand Docker to build, ship and run containerized images | | | | | | | | | | | |
| **2. Course outcomes applicable:**  **LO5** -Students understood the installion of Docker and managed the software applications running on Container | | | | | | | | | | | |
| **3. Learning Objectives:**   1. Understand the docker technology 2. To know the building the images | | | | | | | | | | | |
| **4. Practical applications of the assignment/experiment: To automate the several tasks such as automatic building the code ,deploying the code and notifying the developer about build status via sms/email etc** | | | | | | | | | | | |
| **5. Prerequisites**:   1. Familiar with Linux os 2. Internet Access 3. Docker Hub account | | | | | | | | | | | |
| **6. Hardware Requirements**:   1. Internet Access with Browser 2. Access to root privileges on fedora 30   **7. Software Requirements:**  Docker installed on fedora 30 | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **8. Quiz Questions (if any): (Online Exam will be taken separately batchwise, attach the certificate/ Marks obtained)**   1. What is docker? 2. What is the containerization? 3. What are the benefits of docker? | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **9. Experiment/Assignment Evaluation:** | | | | | | | | | | | |
| **Sr. No.** | **Parameters** | | | | | | | | **Marks obtained** | | **Out of** |
| **1** | Technical Understanding (Assessment may be done based on Q & A **or** any other relevant method.) Teacher should mention the other method used - | | | | | | | |  | | 6 |
| **2** | Neatness/presentation | | | | | | | |  | | 2 |
| **3** | Punctuality | | | | | | | |  | | 2 |
| **Date of performance (DOP)** | | |  | | | **Total marks obtained** | | |  | | **10** |
| **Date of checking (DOC)** | | |  | | | **Signature of teacher** | | | | | |

**10.Theory-.**

Docker is a tool designed to make it easier to create, deploy, and run applications by using containers. Containers allow a developer to package up an application with all of the parts it needs, such as libraries and other dependencies, and deploy it as one package. By doing so, thanks to the container, the developer can rest assured that the application will run on any other Linux machine regardless of any customized settings that machine might have that could differ from the machine used for writing and testing the code.

**11. Installation Steps / Performance Steps –**

install docker

#dnf install docker

#systemctl start docker

#docker images

#mkdir devops

#mkdir mongo

#cd devops/mongo

Since to install mongodb,external repository has to be added,hence create a mongodb.repo in /root/devops/mongo direc.

open it as #vi

and add

[Mongodb]

name=MongoDB Repository

baseurl=https://repo.mongodb.org/yum/amazon/2013.03/mongodb-org/4.0/x86\_64/

gpgcheck=1

enabled=1

gpgkey=https://www.mongodb.org/static/pgp/server-4.0.asc

save and exit

Now create a Docker file

#vi Dockerfile

FROM fedora

MAINTAINER FAMTians

RUN dnf -y update && dnf clean all

# List of packages that may be needed while troubleshooting, including the MongoDB client. Only uncomment this line if you need the MongoDB client while inside the container.

# RUN dnf -y install mongodb mongodb-server && dnf clean all

# Final package install once everything is working. Once everything is working, the intent is to use the MongoDB client from outside the container. You need either this line, or the previous package install line, but not both.

#RUN dnf -y install mongodb-server && dnf clean all

ADD mongodb.repo /etc/yum.repos.d/mongodb.repo

RUN dnf -y install mongodb-org && dnf clean all

RUN mkdir -p /data/db

EXPOSE 27017

ENTRYPOINT ["/usr/bin/mongod"]

save and exit

Now

To build:

Copy the sources down -

# docker build --rm -t amar/mongo .

Now

To run:

# docker run -d -p 27017 amar/mongo

Get the port that the container is listening on:

# docker ps

To test:

# mongo --host localhost --port 49158

You should get mongo shell whree you can rum mongo comands

like show dbs etc..

**12. Learning Outcomes Achieved.**

1.Student understood the installations of Docker on fedora 30

2.Students understood the creating containers from downloaded base images.

3.Students understood the pushing the customized base images to docker hub.

4.Students understood the running of Dockerfile

**13. Conclusion:**

1. **Applications of the studied technique in industry**
   1. Dockers are used in industry for removing the complexity of software installations
   2. To write installations instructions only once and thereafter running of Dockerfile
2. **Engineering Relevance** 
   1. Quickly start using of any application/services
   2. To modify the base images and pushing it on DockerHUb
3. **Skills Developed**
   1. Installations of Docker and launching a containers
   2. Making changes to the downloaded base images by adding applications using Dockerfile

**14.References:**

1.https://opensource.com/resources/what-docker

**2.https://www.ibm.com/cloud/learn/devops-a-complete-guide#toc-what-is-de-pMY50L7C**