



Jawahar education society’s

A.C.Patil college of Engineering,Kharghar,Navi Mumbai

**Artificial Intelligence and Data Science Department**



Class: TE AI-DS Sem: VI Academic Year: 2023-24

Subject: Software Engineering and Project Management Lab

Roll no: 18 Batch: T1

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Experiment No: 09

Aim: To learn Docker file instructions, build an image for a sample web application using Docker file.

Date of Performance :

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| --- | --- | --- |
| **Rubrics** | **Marks obtained** | **Signature of faculty with date** |
| Lab Performance (3 Marks) |  |  |
| Punctuality (3 Marks) |  |
| Topic Knowledge (3 Marks) |  |
| **Attainment Level (9 Marks)** |  |



**SEPM EXPERIMENT 9**

**Aim:** To learn Docker file instructions, build an image for a sample web application using Docker file.

**Theory:**

* Docker enables efficiency and reduces operational overheads so that any developer, in any development environment, can build stable and reliable applications. Docker provides the ability to package and run an application in a loosely isolated environment called a container.
* Isolation and security allow you to run many containers simultaneously on a given host. You can easily share containers while you work, and be sure that everyone you share with gets the same container that works in the same way.
* Docker Container Lifecycle Management
  + An image is a read-only template with instructions for creating a Docker container. Often, an image is based on another image, with some additional customization. For example, you may build an image that is based on the ubuntu image but installs the Apache web server and your application, as well as the configuration details needed to make your application run.
  + You might create your own images or you might only use those created by others and published in a registry. To build your own image, you create a Dockerfile with a simple syntax for defining the steps needed to create the image and run it. Each instruction in a Dockerfile creates a layer in the image. When you change the Dockerfile and rebuild the image, only those layers which have changed are rebuilt. This is part of what makes images so lightweight, small, and fast when compared to other virtualization technologies.
  + Docker can build images automatically by reading the instructions from a Docker file. A Dockerfile is a text document that contains all the commands a user could call on the command line to assemble an image. This page describes the commands you can use in a Dockerfile.
* The instruction is not case-sensitive. However, the convention is for them to be UPPERCASE to distinguish them from arguments more easily.
  + Docker runs instructions in a Dockerfile in order. A Dockerfile must begin with a FROM instruction. This may be after parser directives, comments, and globally scoped ARGs. The FROM instruction specifies the Parent Image from which you are building. FROM may only be preceded by one or more ARG instructions, which declare arguments that are used in FROM lines in the Dockerfile.
  + Docker treats lines that begin with # as a comment unless the line is a valid parser directive. A # marker anywhere else in a line is treated as an argument.

App.py

from flask import Flask, jsonify

app = Flask(\_\_name\_\_)

@app.route('/')

def hello\_world():

return jsonify({

"message": "Dis yo girlie"

})

if \_\_name\_\_ == '\_\_main\_\_':

app.run()

Creating Image File for the Flask Application:

A screen shot of a computer

Description automatically generated

Checking If the Image File is created or not:

A screen shot of a computer

Description automatically generatedA white background with black and white clouds

Description automatically generated

Running the container:



**Final Output:**

{

“Message”: “Dis yo girlie!”

}

**Conclusion:**

Docker enables developers to build stable and reliable applications by providing the ability to package and run applications in isolated environments called containers. These containers can be easily shared and ensure consistency across different environments. Docker uses images as read-only templates with instructions for creating containers. Images are lightweight and fast due to their layered structure, where each instruction in a Dockerfile creates a layer in the image. Dockerfiles are used to define the steps needed to create and run an image. By following the conventions and syntax of Dockerfiles, developers can automate the image-building process and improve the efficiency of their development workflows.