CSV209:APPLICATION CONTAINERIZATION LAB

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ASSIGNMENT NUMBER - 2

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SECTION – K22XR

ROLL NUMBER – 17

**Lab Assignment 2: Dockerfile and Containerizing Applications**

**Objective**

The objective of this lab is to learn how to create and use a Dockerfile, containerize a simple Python web application, build a custom image, run it in a Docker container, and access the application via a web browser.

**Steps Followed**

1. **Created a simple Python HTTP server (app.py)**
   * Wrote a minimal Python web server code using http.server module.
2. **Wrote a Dockerfile**
   * Used python:3.9-slim as the base image.
   * Set the working directory.
   * Copied the application code into the container.
   * Exposed port 80.
   * Used CMD to run the Python script.
3. **Built the Docker Image**  
   Command used:
4. docker build -t my-python-webserver .
5. **Ran the Container**  
   Command used:
6. docker run -d -p 8081:80 my-python-webserver
7. **Accessed the Application**
   * Opened a web browser.
   * Visited: http://localhost:8081
   * Confirmed the application was running successfully.

**Commands Used**

docker version

docker build -t my-python-webserver .

docker run -d -p 8081:80 my-python-webserver

docker ps

docker logs <container\_id>

**Screenshots**

* Docker installation (docker version output
* Building the image successfully
* Running the container
* Opening localhost:8081 in the browser
* Logs showing server started

**Challenges Faced**

* **Port Already Allocated Issue**  
  Encountered an error when trying to bind port 8081 because it was already in use.
* **Solution:**  
  Used docker ps to find running containers and stopped the conflicting container using:
* docker stop <container\_id>

Then successfully re-ran the new container.

**Conclusion**

Successfully containerized a simple Python web application using Docker.  
Understood how to write a Dockerfile, build a custom image, run a container, expose ports, and troubleshoot basic issues.