

Advanced Docker and complete practice Part-2:

Practical: “Mutable Container to Versioned Image – Apache & PHP Deployment on Ubuntu”

The terminal window shows the following steps:

```
PS C:\Users\sreev> docker login
Authenticating with existing credentials... [Username: svish07]
Info → To login with a different account, run 'docker logout' followed by 'docker login'

Login Succeeded
PS C:\Users\sreev> docker images
```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
RAM	1.99 GB	CPU 0.08%	Disk: 6.06 GB used (limit 1006.85 GB)	

```
PS C:\Users\sreev> docker run -d -it --name Ubuntuprac ubuntu
0dc666dbe542cad02c01a60cc98cc97835ba2f021f1004631148ad16f8dc285
PS C:\Users\sreev> docker exec -it Ubuntuprac bash
root@0dc666dbe542:/# apt update
Get:1 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1207 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [3196 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
advpractice:latest	1c74231c7281	214MB	52.3MB	U
busybox:latest	b3255e7dfbcd	6.77MB	2.22MB	U
fullapp:1.0	c5d981fffefbb	128MB	32.4MB	U
ghcr.io/sreevishnu07/finaldemo:1.0.0	a0b9cef354155	92.6MB	26MB	U
ghcr.io/sreevishnu07/finaldemo:latest	a0b9cef354155	92.6MB	26MB	U
ghcr.io/sreevishnu07/ghcrdemo:1.0	6fcf06326f0b	92.5MB	26MB	U

```
PS C:\Users\sreev> docker commit Ubuntuprac svish07/ubuntuprac:v1
sha256:4310506df5c17e4eb8f66b29001ed3f1b261019068aa33c56bab74f9bfcd4f6
PS C:\Users\sreev> docker images
```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
svish07/ubuntuprac:v1	c0feb7ad34cc	403MB	113MB	
svish07/ubuntuprac:v1	4310506df5c1	404MB	113MB	
svish07/webdemo-v1:latest	05dedff24f56	92.5MB	26MB	U
ubuntu:22.04	c7eb029043d8	119MB	31.5MB	U
ubuntu:latest	die2e92c075e	119MB	31.7MB	U

```
PS C:\Users\sreev> docker push svish07/ubuntuprac:v1
The push refers to repository [docker.io/svish07/ubuntuprac]
8cb22205dc68: Pushed
01d7766a2e4a: Mounted from svish07/ubuntu-apache-php
v1: digest: sha256:4310506df5c17e4eb8f66b29001ed3f1b261019068aa33c56bab74f9bfcd4f6 size: 751
PS C:\Users\sreev>
```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
svish07/ubuntu-apache-php:v1	c0feb7ad34cc	403MB	113MB	
svish07/ubuntuprac:v1	4310506df5c1	404MB	113MB	
svish07/webdemo-v1:latest	05dedff24f56	92.5MB	26MB	U
ubuntu:22.04	c7eb029043d8	119MB	31.5MB	U
ubuntu:latest	die2e92c075e	119MB	31.7MB	U

Practical: Building a custom Ubuntu image using Dockerfile

Terminal

```
PS C:\Users\sreev> mkdir ubuntudockerfile

Directory: C:\Users\sreev

Mode LastWriteTime Length Name
---- -- - - -
d----- 20-02-2026 21:47 ubuntudockerfile

PS C:\Users\sreev> cd ubuntudockerfile
PS C:\Users\sreev\ubuntudockerfile> notepad dockerfile
PS C:\Users\sreev\ubuntudockerfile> ren dockerfile.txt dockerfile
PS C:\Users\sreev\ubuntudockerfile> ls

RAM 1.59 GB CPU 0.00% Disk: 6.52 GB used (limit 1006.85 GB)
```

Terminal

```
PS C:\Users\sreev\ubuntudockerfile> type dockerfile
FROM ubuntu:latest
LABEL maintainer="demo"
RUN apt update && apt install -y php
CMD ["echo", "hello all"]
PS C:\Users\sreev\ubuntudockerfile> docker build -t practiceub .
[+] Building 70.4s (6/6) FINISHED
=> [internal] load build definition from dockerfile
=> => transferring dockerfile: 144B
=> [internal] load metadata for docker.io/library/ubuntu:latest
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/2] FROM docker.io/library/ubuntu:latest@sha256:d1e2e92c075e5ca139d51a140fff46f84315c0fdce203eab2807c7e495eff4f9
=> => resolve docker.io/library/ubuntu:latest@sha256:d1e2e92c075e5ca139d51a140fff46f84315c0fdce203eab2807c7e495eff4f9
=> [2/2] RUN apt update && apt install -y php
=> => exporting to image
dockerd:desktop-linux
  0.1s
  0.0s
  0.1s
  0.1s
  0.0s
  0.1s
  0.1s
  0.1s
  60.4s
  9.4s
```

Terminal

```
>> [1/2] FROM docker.io/library/ubuntu:latest@sha256:d1e2e92c075e5ca139d51a140fff46f84315c0fdce203eab2807c7e495eff4f9
=> => resolve docker.io/library/ubuntu:latest@sha256:d1e2e92c075e5ca139d51a140fff46f84315c0fdce203eab2807c7e495eff4f9
=> [2/2] RUN apt update && apt install -y php
=> => exporting to image
=> => exporting layers
=> => exporting manifest sha256:2ae98d30c7ae62e798eb387353681708e2f44ec6373699194544a9331c05e06
=> => exporting config sha256:56906400424596e9f56c015a1dbea41f0e7afdf95bdcc92108e5bbad2d69c
=> => exporting attestation manifest sha256:5775ffeccb64479942ba367967f641896b84a14fe215a39d5c19d179c7cc718b
=> => exporting manifest list sha256:09c39047a90b531715eb7b7cd7faf5faf32be4ff1a78c96523cf43bda580643c
=> => naming to docker.io/library/practiceub:latest
=> => unpacking to docker.io/library/practiceub:latest
PS C:\Users\sreev\ubuntudockerfile> docker run -d -it --name ub1 practiceub
50728a4ac15ec14597dd2161821fac718638b94dd65f5f298d8e1bca0550c
PS C:\Users\sreev\ubuntudockerfile> docker run -it --name ub1 practiceub
hello all
PS C:\Users\sreev\ubuntudockerfile>
```

Practice: Containerizing a Java application using Docker

Terminal

```
PS C:\Users\sreev> cd javadocker
PS C:\Users\sreev\javadocker> notepad hello.java
PS C:\Users\sreev\javadocker> ls

Directory: C:\Users\sreev\javadocker

Mode LastWriteTime Length Name
---- -- - - -
-a--- 20-02-2026 22:04 122 hello.java

PS C:\Users\sreev\javadocker> notepad dockerfile
PS C:\Users\sreev\javadocker> ls

RAM 1.40 GB CPU 0.00% Disk: 6.73 GB used (limit 1006.85 GB)
```

Terminal

```
PS C:\Users\sreev\javadocker> docker build -t svish07/javadoc:v1 .
[+] Building 3.8s (9/9) FINISHED
=> [internal] load build definition from dockerfile
=> => transferring dockerfile: 128B
=> [internal] load metadata for docker.io/library/eclipse-temurin:latest
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 188B
=> CACHED [1/4] FROM docker.io/library/eclipse-temurin:latest@sha256:acab08ae09273ee938c1da6111ed60ff51ab0ab18325e4b1b81178039059f86e
=> => resolve docker.io/library/eclipse-temurin:latest@sha256:acab08ae09273ee938c1da6111ed60ff51ab0ab18325e4b1b81178039059f86e
=> [2/4] COPY . /app
=> [3/4] WORKDIR /app
=> [4/4] RUN javac Hello.java
=> exporting to image
=> => exporting layers
RAM 0.90 GB CPU 0.08% Disk: 6.73 GB used (limit 1006.85 GB)
```

> Terminal ⚡ Update available

Terminal

```
==> CACHED [1/4] FROM docker.io/library/eclipse-temurin:latest@sha256:acab08ae09273ee938c1da6111ed60ff51ab0ab18325e4b1b81178039059f86e
=> => resolve docker.io/library/eclipse-temurin:latest@sha256:acab08ae09273ee938c1da6111ed60ff51ab0ab18325e4b1b81178039059f86e
=> [2/4] COPY . /app
=> [3/4] WORKDIR /app
=> [4/4] RUN javac Hello.java
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:4324cd562b4a96851c59d748239edeaefae27271a4f77cd26fb88b3f99401723e
=> => exporting config sha256:bbd1a164c1165b0b828f02a46a52e49191de9fe32164bb9d423d07c70bcf4518
=> => exporting attestation manifest sha256:4c663801cafa608d6e87031b049fd0737cc464932341fa78ec9a1c952a353275
=> => exporting manifest list sha256:6b09b1c6c8002c5c2dff1c5f10465687c42030f793300a3764b35faf515b052e
=> => naming to docker.io/svish07/javadoc:v1
=> => unpacking to docker.io/svish07/javadoc:v1
S C:\Users\sreev\javadocker> docker run svish07/javadoc:v1
this is Java app using dockerfile
S C:\Users\sreev\javadocker>
```

> Terminal ⚡ Update available

Terminal

```
=> => exporting layers
=> => exporting manifest sha256:4324cd562b4a96851c59d748239edeaefae27271a4f77cd26fb88b3f99401723e
=> => exporting config sha256:bbd1a164c1165b0b828f02a46a52e49191de9fe32164bb9d423d07c70bcf4518
=> => exporting attestation manifest sha256:4c663801cafa608d6e87031b049fd0737cc464932341fa78ec9a1c952a353275
=> => exporting manifest list sha256:6b09b1c6c8002c5c2dff1c5f10465687c42030f793300a3764b35faf515b052e
=> => naming to docker.io/svish07/javadoc:v1
=> => unpacking to docker.io/svish07/javadoc:v1
PS C:\Users\sreev\javadocker> docker run svish07/javadoc:v1
This is Java app using dockerfile
PS C:\Users\sreev\javadocker> type dockerfile
FROM eclipse-temurin
COPY . /app
WORKDIR /app
RUN javac Hello.java
CMD ["java", "Hello"]
PS C:\Users\sreev\javadocker>
```

> Terminal ⚡ Update available

Practice: Building and Deploying a Python Flask Application Inside a Docker Container

Terminal

```
PS C:\Users\sreev\javadocker> mkdir pythonpractice-1
Directory: C:\Users\sreev\javadocker

Mode LastWriteTime Length Name
---- ----- ---- -
d----- 20-02-2026 22:39 pythonpractice-1

PS C:\Users\sreev\javadocker> cd pythonpractice-1
PS C:\Users\sreev\javadocker\pythonpractice-1> notepad app.py
PS C:\Users\sreev\javadocker\pythonpractice-1> type app.py
FROM flask import Flask
app=Flask(__name__)

RAM 1.08 GB CPU 0.42% Disk: 6.73 GB used (limit 1006.85 GB)
```

> Terminal ⚡ Update available

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1> type dockerfile
FROM python:3.11-slim
WORKDIR /app
COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt
COPY . .
EXPOSE 5000
CMD ["python", "app.py"]
PS C:\Users\sreev\javadocker\pythonpractice-1> notepad requirements.txt
PS C:\Users\sreev\javadocker\pythonpractice-1> ls

Directory: C:\Users\sreev\javadocker\pythonpractice-1

Mode                LastWriteTime         Length Name
----                --              --          --      Name
RAM 1.11 GB CPU 0.25% Disk: 6.73 GB used (limit 1006.85 GB)
```

↓

Mode LastWriteTime Length Name

RAM 1.11 GB CPU 0.25% Disk: 6.73 GB used (limit 1006.85 GB) >_ Terminal ⓘ Update available

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1> docker build -t svish07/pythonp-v1 .
[+] Building 3.9s (11/11) FINISHED
=> [internal] load build definition from dockerfile
=> transferring dockerfile: 199B
=> [internal] load metadata for docker.io/library/python:3.11-slim
=> [auth] library/python:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> transferring context: 2B
=> [1/5] FROM docker.io/library/python:3.11-slim@sha256:0b23cfb7425d065008b778022a17b1551c82f8b4866ee5a7a200084b7e2eaafb
=> => resolve docker.io/library/python:3.11-slim@sha256:0b23cfb7425d065008b778022a17b1551c82f8b4866ee5a7a200084b7e2eaafb
=> => transferring context: 452B
=> => CACHED [2/5] WORKDIR /app
=> => CACHED [3/5] COPY requirements.txt .
=> => CACHED [4/5] RUN pip install --no-cache-dir -r requirements.txt
=> => CACHED [5/5] COPY . .

RAM 1.10 GB CPU 0.00% Disk: 6.73 GB used (limit 1006.85 GB)
```

↓

RAM 1.10 GB CPU 0.00% Disk: 6.73 GB used (limit 1006.85 GB) >_ Terminal ⓘ Update available

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1> docker run -it --name flaskdemo -p 5000:5000 svish07/pythonp-v1
  File "/app/app.py", line 1
    FROM flask import Flask
      ^^^^^^
SyntaxError: invalid syntax
PS C:\Users\sreev\javadocker\pythonpractice-1> notepad app.py
PS C:\Users\sreev\javadocker\pythonpractice-1> docker build -t svish07/pythonp-v1 .
[+] Building 2.5s (10/10) FINISHED
=> [internal] load build definition from dockerfile
=> transferring dockerfile: 199B
=> [internal] load metadata for docker.io/library/python:3.11-slim
=> [internal] load .dockerignore
=> transferring context: 2B
=> [1/5] FROM docker.io/library/python:3.11-slim@sha256:0b23cfb7425d065008b778022a17b1551c82f8b4866ee5a7a200084b7e2eaafb
=> => resolve docker.io/library/python:3.11-slim@sha256:0b23cfb7425d065008b778022a17b1551c82f8b4866ee5a7a200084b7e2eaafb

RAM 1.11 GB CPU 0.08% Disk: 6.73 GB used (limit 1006.85 GB)
```

↓

RAM 1.11 GB CPU 0.08% Disk: 6.73 GB used (limit 1006.85 GB) >_ Terminal ⓘ Update available

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1> docker run -it --name flaskdemo -p 5000:5000 svish07/pythonp-v1
docker: Error response from daemon: Conflict. The container name "/flaskdemo" is already in use by container "6a8bf3d952e6b30c8bedec02f190a5bf0
8e3de7df38cd77a774dac5ea1b7c5". You have to remove (or rename) that container to be able to reuse that name.

Run 'docker run --help' for more information
PS C:\Users\sreev\javadocker\pythonpractice-1> docker run -it --name flaskdemo -p 5000:5000 svish07/pythonp-v1
 * Serving Flask app 'app'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [20/Feb/2026 17:21:16] "GET / HTTP/1.1" 200 -
172.17.0.1 - - [20/Feb/2026 17:21:16] "GET /favicon.ico HTTP/1.1" 404 -
```

↓

RAM 1.11 GB CPU 0.00% Disk: 6.73 GB used (limit 1006.85 GB) >_ Terminal ⓘ Update available



Practical by Dr. Harpreet mam: Custom MySQL Docker Image with Preconfigured Database and Initialization Script

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1> mkdir mysqldocker
Directory: C:\Users\sreev\javadocker\pythonpractice-1

Mode           LastWriteTime         Length Name
----           -----          ----  --
d----       20-02-2026     23:03        mysqldocker

PS C:\Users\sreev\javadocker\pythonpractice-1> cd mysqldocker
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> notepad init.sql
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> ls
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> notepad init.sql
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> ls
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker>

RAM 2.50 GB CPU 7.57% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```

Terminal

```
Directory: C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker

Mode           LastWriteTime         Length Name
----           -----          ----  --
-a---       20-02-2026     23:08        224 init.sql

PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> notepad dockerfile
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> ren dockerfile.txt dockerfile
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> ls

Directory: C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker>

RAM 2.51 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```

Terminal

```
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker build -t svish07/mysqlcol:v1 .
[+] Building 54.2s (8/8) FINISHED
=> [internal] load build definition from dockerfile
=> transferring dockerfile: 160B
=> [internal] load metadata for docker.io/library/mysql:8.0
=> [auth] library/mysql:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> transferring context: 2B
=> [internal] load build context
=> transferring context: 261B
=> [1/2] FROM docker.io/library/mysql:8.0@sha256:a3dff78d876222746a0baccc36dd7e4bf9e673c85fb7ee0d12ed25bd32c43c19b
=>   => resolve docker.io/library/mysql:8.0@sha256:a3dff78d876222746a0baccc36dd7e4bf9e673c85fb7ee0d12ed25bd32c43c19b
=>   => sha256:d6b535e61c2b536f703db410389514e949c4b68a4d74c7b1c1804c1bbe6502 49.92MB / 49.92MB
=>   => sha256:1b381ad27e95d68690db72792dfce61f1952ad2dc7e2cc86607ad9de63a97c2 122B / 122B
=>   => sha256:8814198b348b66d583fd7eb3c127ed9fd2edf3fe5844c12a56c94230e59510fd 885B / 885B
=>   => sha256:7aee539id907fe1d21a43ed53f8dace/ee52f5fbfc2a0e9725fc21bc2d361b 2.61kB / 2.61kB
RAM 2.50 GB CPU 0.42% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```

```
Terminal
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker run -d --name mysqlprac -p 3306:3306 svish07/mysqlcol:v1
d7da9e32c44a72932f3bd6ba23706725b764409356af5cffadedaa392a76eba8
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker exec -it mysqlprac mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.45 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

RAM 2.51 GB CPU 0.08% Disk: 7.92 GB used (limit 1006.85 GB) >_ Terminal ○ Update available
```

```
Terminal
mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| college_db |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.02 sec)

mysql> USE college_db
ERROR 1049 (42000): Unknown database 'college_db'
mysql> USE college_db
RAM 2.50 GB CPU 8.54% Disk: 7.92 GB used (limit 1006.85 GB) >_ Terminal ○ Update available
```

```
Terminal
mysql> USE college_db
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW tables;
+-----+
| Tables_in_college_db |
+-----+
| student |
+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM STUDENTS
-> ;
ERROR 1146 (42S02): Table 'college_db.STUDENTS' doesn't exist
RAM 2.51 GB CPU 0.17% Disk: 7.92 GB used (limit 1006.85 GB) >_ Terminal ○ Update available
```

```
Terminal
mysql> SELECT * FROM student
-> ;
+----+----+----+
| id | name | dept | age |
+----+----+----+
| 1 | Alice | CSE | 23 |
| 2 | Vishnu | CSE | 21 |
| 3 | Vaibhav | CSE | 21 |
+----+----+----+
3 rows in set (0.01 sec)

mysql> exit
Bye
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker tag svish07/mysqlcol:v1 ghcr.io/sreevishnu07/mysqlcol:v1
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker login ghcr.io
Authenticating with existing credentials... [Username: Sreevishnu07]
RAM 2.50 GB CPU 8.67% Disk: 7.92 GB used (limit 1006.85 GB) >_ Terminal ○ Update available
```

Terminal

```
Username (Sreevishnu07): svish07
Password:

Login Succeeded
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker push ghcr.io/sreevishnu07/mysqlcol:v1
The push refers to repository [ghcr.io/sreevishnu07/mysqlcol]
4845c1c923f9: Pushed
6609cc2a5c7f: Pushed
7acec59d1d90: Pushed
0644bf8fd158: Pushed
3cab1b148b2f: Pushed
bfb2a1b21556: Pushed
d6b535e661c2: Pushed
74a8544bd9fe: Pushed
8814198b348b: Pushed
25e72585209f: Pushed

RAM 2.50 GB CPU 0.08% Disk: 7.92 GB used (limit 1006.85 GB)
```

Terminal

```
1b381ad27e95: Pushed
v1: digest: sha256:c580661b85a2c0a630e2d1210f33373c0a692b82a612deb362ec5f2c785da3 size: 856
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> docker stop mysqlprac
mysqlprac
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> type init.sql
CREATE TABLE student(
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100),
    dept VARCHAR(100),
    age INT
);
INSERT INTO student(name,dept,age) VALUES
('Alice','CSE',23),
('Vishnu','CSE',21),
('Vatibhav','CSE',21);
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker>

RAM 2.15 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)
```

Terminal

```
CREATE TABLE student(
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100),
    dept VARCHAR(100),
    age INT
);
INSERT INTO student(name,dept,age) VALUES
('Alice','CSE',23),
('Vishnu','CSE',21),
('Vatibhav','CSE',21);
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker> type dockerfile
FROM mysql:8.0
ENV MYSQL_ROOT_PASSWORD=root123
ENV MYSQL_DATABASE=collegedb
COPY init.sql /docker-entrypoint-initdb.d/
PS C:\Users\sreev\javadocker\pythonpractice-1\mysqldocker>

RAM 2.15 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)
```

Practical: Persistent Data Management Using Docker Volumes in Ubuntu Container

Terminal

```
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\sreev> docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
Digest: sha256:d1e2e92c075e5ca139d51a140fff46f84315c0fdce203eab2807c7e495cff4f9
Status: Image is up to date for ubuntu:latest
docker.io/library/ubuntu:latest
PS C:\Users\sreev> docker volume create ubv1
ubv1

RAM 1.04 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)
```

```
PS C:\Users\sreev> docker volume ls
DRIVER VOLUME NAME
local 88bf5d65b5c531b423babc79cf97f905735514e26d11fb1c4db7ffdd2c63b8
local 553d10dbc8dbb109c4110db5ca892330f8953c7188b9db36f026209a63e734
local 7289a087504578219afe185acacf14c7453f996c79f1b15b0cc7677eb9253643
local data
local ebaac8de88ce88cceaf7e9d8c15d33e8da040453ace481bf9d54cdf2447605a
local ff45ac419d96a1abf5176ba416ae1a80ccc877c88c281d10699d354a79076ac
local my_volume
local mysqldata
local nginxlogs
```

RAM 1.05 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)

```
PS C:\Users\sreev> docker run -it --name volpract -v ubv1:/data ubuntu bash
root@9974cc10694a:/# cd /data
```

```
root@9974cc10694a:/data# echo "hey from doc">>>testfile.txt
root@9974cc10694a:/data# s
bash: s: command not found
root@9974cc10694a:/data# ls
testfile.txt
root@9974cc10694a:/data# exit
exit
PS C:\Users\sreev> docker inspect volpract
[{"Id": "9974cc10694ac83cd23258e7a3d3d35a4e6cc587aa16a7ca2bd920f7ac9606f2",}
```

RAM 1.05 GB CPU 0.08% Disk: 7.92 GB used (limit 1006.85 GB)

```
"Mounts": [
    {
        "Type": "volume",
        "Name": "ubv1",
        "Source": "/var/lib/docker/volumes/ubv1/_data",
        "Destination": "/data",
        "Driver": "local",
        "Mode": "z",
        "RW": true,
        "Propagation": ""
    }
]
```

RAM 1.06 GB CPU 9.48% Disk: 7.92 GB used (limit 1006.85 GB)

```
PS C:\Users\sreev> docker rm volpract
volpract
PS C:\Users\sreev> docker run -it --name volpractTest -v ubv1:/data ubuntu bash
root@309f30a26c97:/# ls
bin boot data dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@309f30a26c97:/# cd data
root@309f30a26c97:/data# ls
testfile.txt
root@309f30a26c97:/data# cat testfile.txt
hey from doc
root@309f30a26c97:/data#
```

RAM 1.05 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)

Practical: Persistent Data Sharing Using Docker Bind Mount with Ubuntu Container

```
PS C:\Users\sreev> mkdir C:\databind
Directory: C:\

Mode LastWriteTime Length Name
---- ----- ----- ----
d----- 21-02-2026 15:33 databind
```

RAM 1.04 GB CPU 13.29% Disk: 7.92 GB used (limit 1006.85 GB)

Terminal

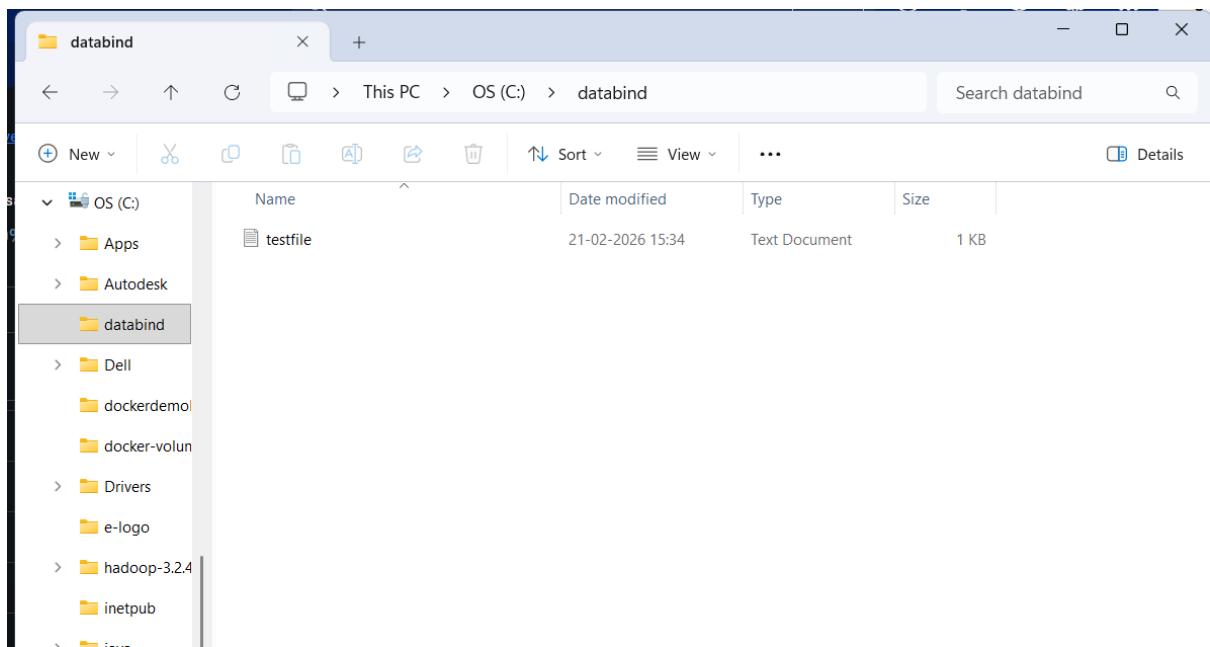
```
PS C:\Users\sreev> docker run -it --name bindmountpract -v C:\databind:/data ubuntu bash
root@51d688b6e73c:/# cd /data
root@51d688b6e73c:/data# echo "hey from bindmount practical"
hey from bindmount practical
root@51d688b6e73c:/data# echo "hey from bindmount practical">testfile.txt
root@51d688b6e73c:/data# ls
testfile.txt
root@51d688b6e73c:/data# exit
exit
PS C:\Users\sreev> docker inspect docker inspect bindmountpract
```

RAM 1.05 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB)

Terminal

```
        }
    },
    "Mounts": [
        {
            "Type": "bind",
            "Source": "C:\\databind",
            "Destination": "/data",
            "Mode": "",
            "Rw": true,
            "Propagation": "rprivate"
        }
    ]
}
```

RAM 1.05 GB CPU 16.71% Disk: 7.92 GB used (limit 1006.85 GB)



Terminal

```
PS C:\Users\sreev> docker rm bindmountpract
bindmountpract
PS C:\Users\sreev> docker run -it -v C:\databind:/data ubuntu bash
root@b4ed130f1214:/# ls
bin boot data dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@b4ed130f1214:/# cd data
root@b4ed130f1214:/data# ls
testfile.txt
root@b4ed130f1214:/data# cat testfile.txt
hey from bindmount practical
root@b4ed130f1214:/data#
```

RAM 1.06 GB CPU 10.40% Disk: 7.92 GB used (limit 1006.85 GB)

Practical: Dynamic Web Content Serving Using Docker Bind Mount and NGINX

```
Terminal

PS C:\Users\sreev> mkdir target1

Directory: C:\Users\sreev

Mode LastWriteTime Length Name
---- -- - - - -
d---- 21-02-2026 15:44 target1

RAM 0.90 GB CPU 0.25% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```

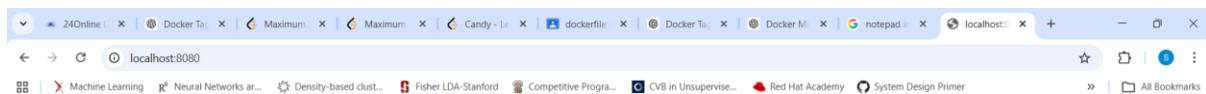
```
d---- 21-02-2026 15:44 target1

PS C:\Users\sreev> cd target1
PS C:\Users\sreev\target1> echo "<h1>Hello from host</h1>">index.html

RAM 0.91 GB CPU 0.00% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```

```
Terminal

PS C:\Users\sreev\target1> docker run -it --name finalvolpract --rm -v ${pwd}:/usr/share/nginx/html -p 8080:80 nginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2026/02/21 10:21:16 [notice] 1#1: using the "epoll" event method
RAM 0.92 GB CPU 0.17% Disk: 7.92 GB used (limit 1006.85 GB) > Terminal ⚡ Update available
```



Hello from host

```
Search

index.html X GP.ipynb ●

C: > Users > sreev > target1 > index.html > h1
1   <h1>updated</h1>
2
```

