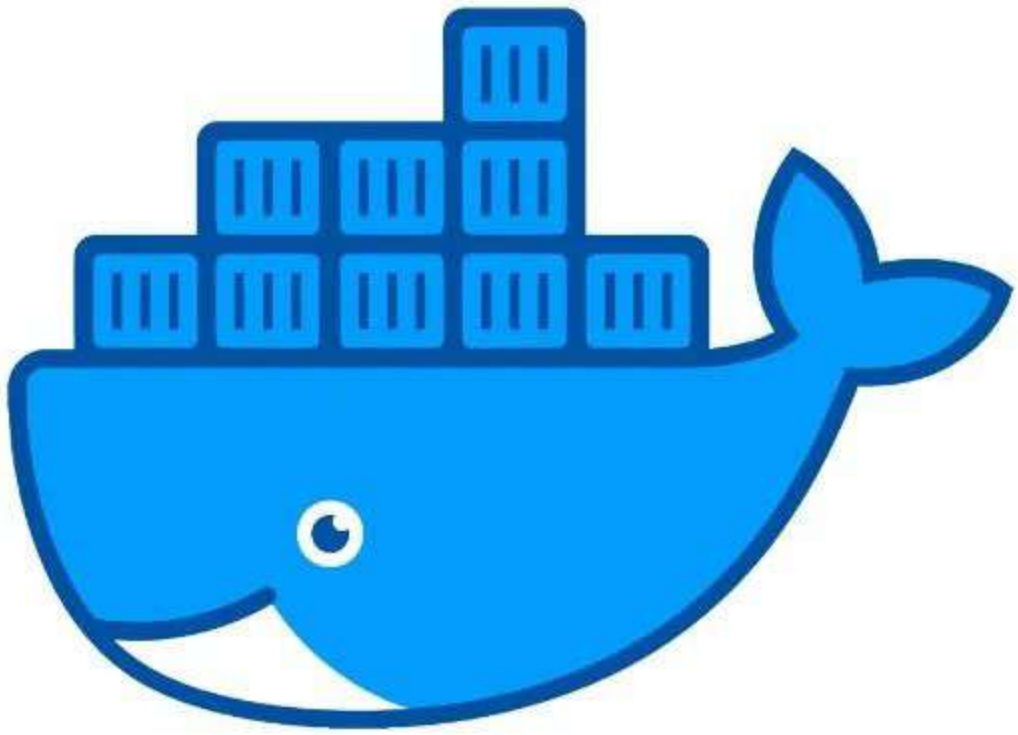
UnderStand

DOCKER

through a Project



Swipe →

Step 1: Set Up Project Structure

Create a folder for your project with the following structure:

```
docker-project/
├── app/
│   ├── app.py          # Code for the Flask application
│   └── requirements.txt    # Dependencies for the Flask
├── Dockerfile              # Image definition for the Flask
└── docker-compose.yml      # Docker Compose file
```

Step 2: Create the Python Web App 📝

Inside the app/ folder, create app.py with the following code:

```
from flask import Flask
import redis
import os

app = Flask(__name__)

# Connect to Redis
cache = redis.Redis(host=os.getenv('REDIS_HOST',
'redis'), port=6379)

@app.route('/')
def hello():
    count = cache.incr('visits')
    return f'Hello, World! You have visited {count}
times.'

if __name__ == "__main__":
    app.run(host='0.0.0.0')
```

This small Flask app connects to Redis and counts visits to the page.

Step 3: Add Dependencies

In app/, create requirements.txt to specify the dependencies:

```
Flask
Redis
```

Step 4: Create the Dockerfile 📦

At the root of your project, create a Dockerfile to build the Flask app's image:

```
# Use the official Python image
FROM python:3.9-slim

# Set the working directory
WORKDIR /app

# Copy the app to the container
COPY ./app /app

# Install dependencies
RUN pip install --no-cache-dir -r requirements.txt

# Expose port 5000
EXPOSE 5000

# Run the app
CMD ["python", "app.py"]
```

Step 5: Create the Docker Compose File 🛠️

Create docker-compose.yml to define the multi-container setup:

```
version: '3'
services:
  web:
    build: .
    ports:
      - "5000:5000"
    depends_on:
      - redis
    environment:
      - REDIS_HOST=redis
  redis:
    image: "redis:alpine"
    ports:
      - "6379:6379"
```

Step 6: Build and Run the App 🚀

In the root directory, run the following command to build the images and start the containers:

docker-compose up --build

Step 7: Access the Web App 🌐

Open your browser and visit
http://localhost:5000 to see the app in action.
The page will display:

Hello, World!
You have visited 1 times.