Program 3: Containerize a Dedicated Python Flask / Node.js Application

Project Structure

program-3/

|

├── requirements.txt

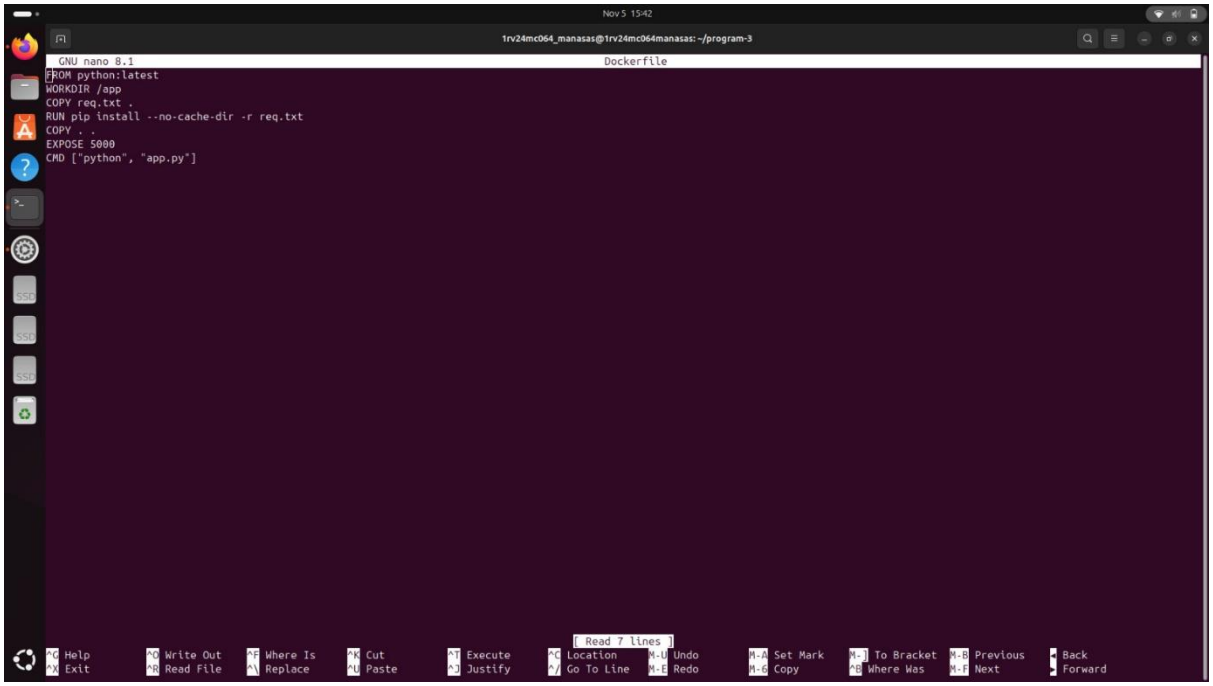
├── Dockerfile

└── app.py

Step 1: Create the Dockerfile

Filename: Dockerfile

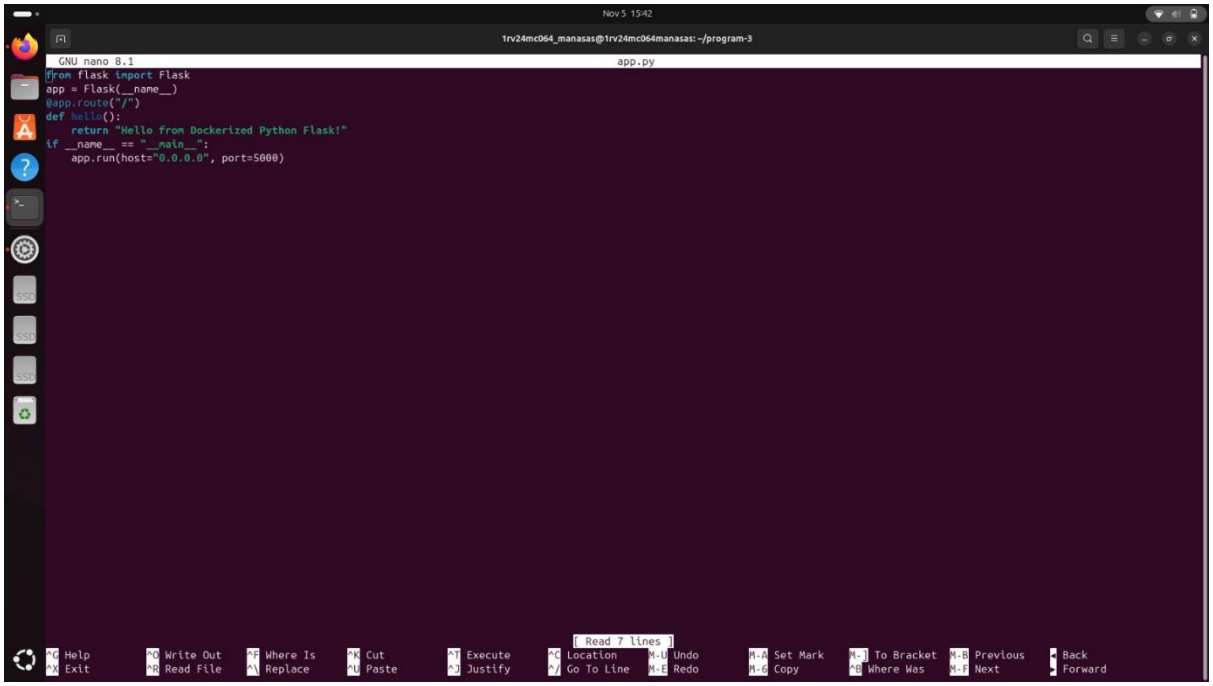
```
# Use official Python image
FROM python:3
# Set the working directory
WORKDIR /app
# Copy requirements file and install dependencies
COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt
# Copy application code
COPY . .
# Expose the port Flask will run on
EXPOSE 5000
# Run the Flask application
CMD ["python", "app.py"]
```



Step 2: Create the Flask Application

Filename: app.py

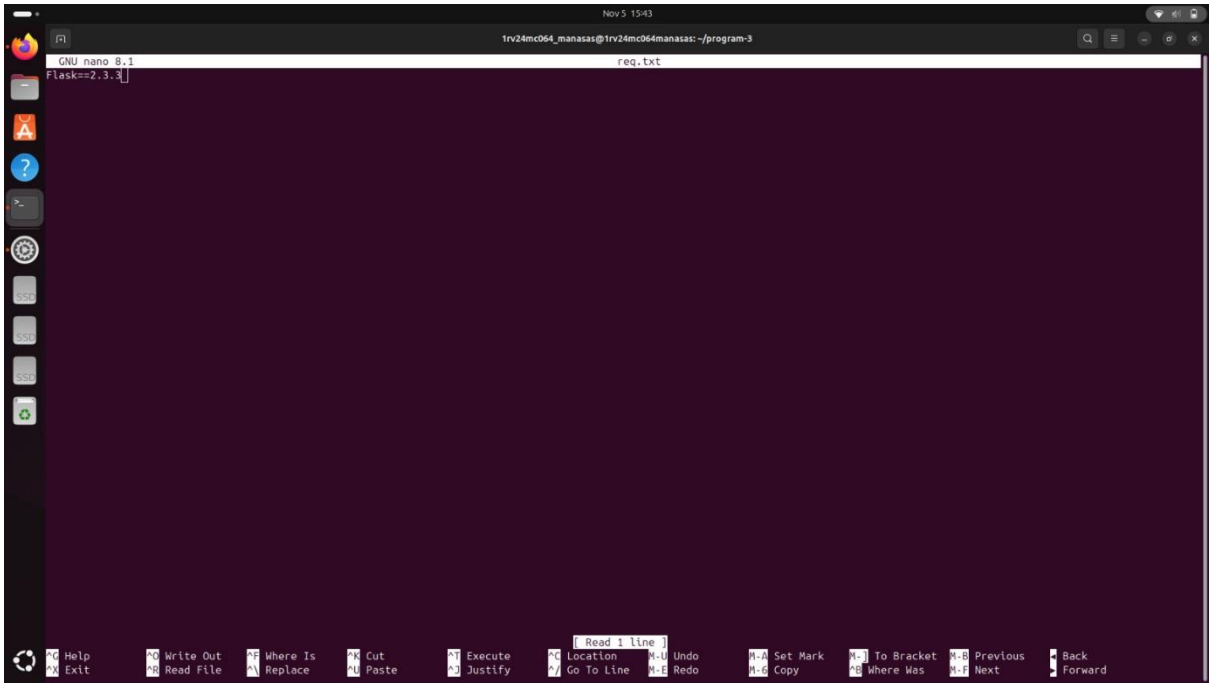
```
from flask import Flask

app = Flask(__name__)

@app.route('/')

def hello():

    return "Hello from Simple Flask Docker!"

if __name__ == "__main__":

    app.run(host="0.0.0.0", port=5000)
```



Step 3: Create the Requirements File

Filename: requirements.txt

Flask==2.3.3



Step 4: Build the Docker Image

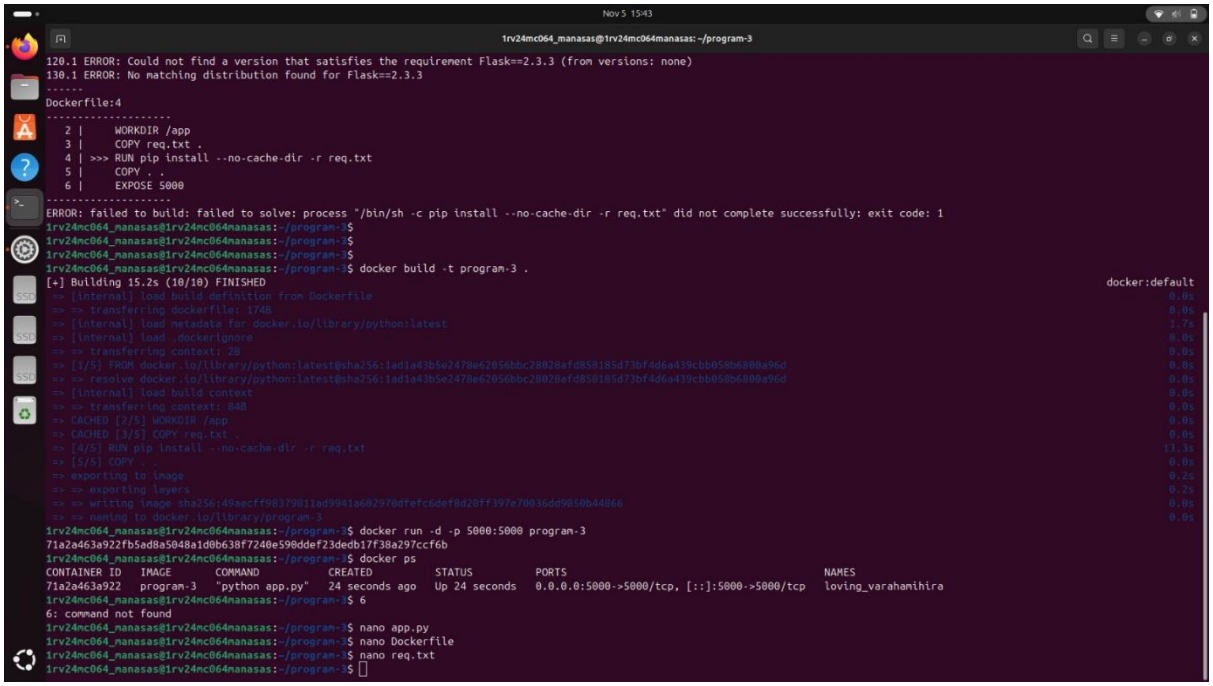
Run the following command in your terminal (inside the project directory):

docker build -t program-3 .

Step 5: Run the Docker Container

Map port **5000** inside the container to **5000** on the host:

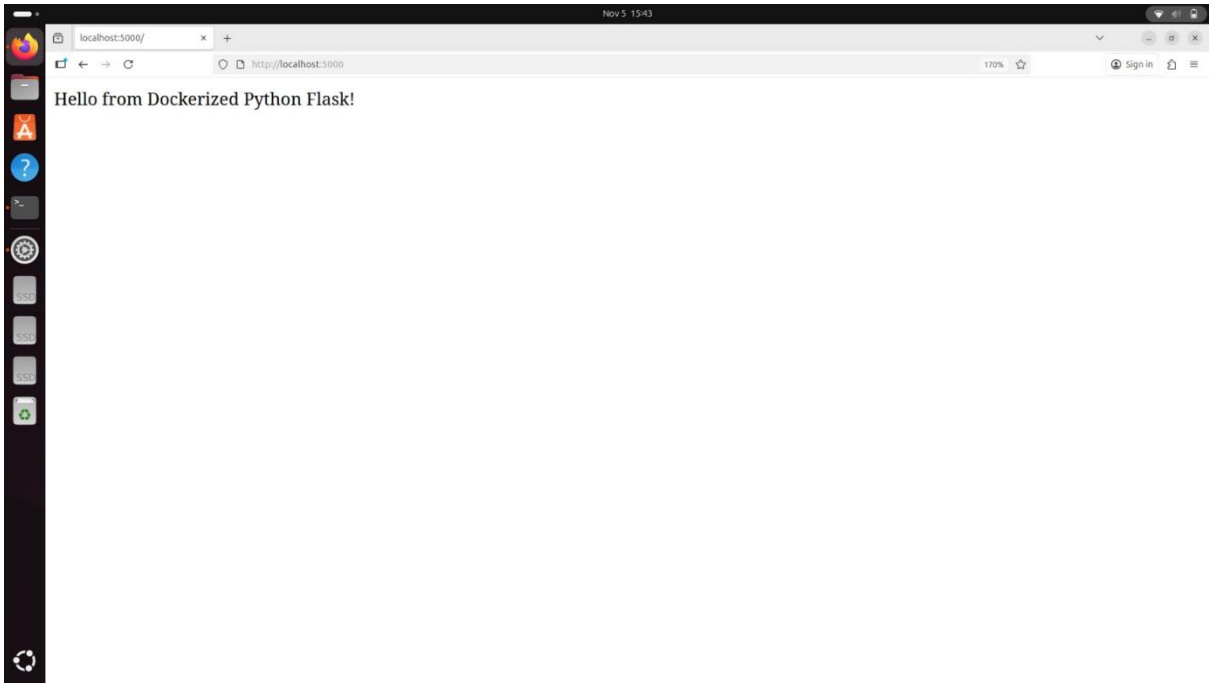
docker run -p 5000:5000 program-3



Step 6: Test the Application

Open your web browser and go to:

http://localhost:5000/ Hello from Simple Flask Docker!



Expected Output - Hello from Simple Flask Docker!