

# Build a docker container from custom dockerfile

## step 1 : create a app.py and requirments and Dockerfile

```
1RV24MC093_SANDARSH_J_N@ubuntu: ~/Downloads/devops/lab1/prg1$ ls
app.py  Dockerfile  requirements.txt
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ cat app.py
from flask import Flask

app = Flask(__name__)

@app.route("/")
def hello():
    return "Hello, Docker!"

if __name__ == "__main__":
    app.run(host="0.0.0.0", port=5000)
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ cat requirements.txt
Flask
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ cat Dockerfile
# Use a lightweight Python base image
FROM python:3.9-slim

# Set working directory
WORKDIR /app

# Copy and install dependencies
COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt

# Copy the application code
COPY . .

# Set environment variables
ENV FLASK_APP=app.py
ENV FLASK_RUN_HOST=0.0.0.0
ENV FLASK_RUN_PORT=5000

# expose port
EXPOSE 5000

# Command to run
CMD ["flask", "run"]
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$
```

## Step 2 : Build a docker image

```
1RV24MC093_SANDARSH_J_N@ubuntu: ~/Downloads/devops/lab1/prg1$ ls
app.py  Dockerfile  requirements.txt
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker build -t prg1 .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  4.096kB
Step 1/10 : FROM python:3.9-slim
3.9-slim: Pulling from library/python
38513bd72563: Pulling fs layer
b3ec39b36ae8: Pulling fs layer
fc7443084902: Pulling fs layer
ea56f685404a: Pulling fs layer
ea56f685404a: Waiting
b3ec39b36ae8: Verifying Checksum
b3ec39b36ae8: Download complete
ea56f685404a: Verifying Checksum
ea56f685404a: Download complete
fc7443084902: Verifying Checksum
fc7443084902: Download complete
38513bd72563: Verifying Checksum
38513bd72563: Download complete
38513bd72563: Pull complete
b3ec39b36ae8: Pull complete
fc7443084902: Pull complete
ea56f685404a: Pull complete
Digest: sha256:2d97f6910b1ebd338d3060f261f53f144965f755599aabb1acda1e13cf1731b1b
Status: Downloaded newer image for python:3.9-slim
--> 085da638e1b8
Step 2/10 : WORKDIR /app
--> Running in a3f869a1ec62
--> Removed intermediate container a3f869a1ec62
--> 144bf2189073
Step 3/10 : COPY requirements.txt .
--> 30b6fc1585fb
Step 4/10 : RUN pip install --no-cache-dir -r requirements.txt
--> Running in 28ef184a8cbb
Collecting flask
  Downloading flask-3.1.2-py3-none-any.whl (103 kB)
    103.3/103.3 kB 871.9 kB/s eta 0:00:00
Collecting itsdangerous==2.2.0
  Downloading itsdangerous-2.2.0-py3-none-any.whl (16 kB)
Collecting markupsafe==2.1.1
  Downloading markupsafe-2.1.1-cp39-cp39-manylinux2014_x86_64_manylinux_2_17_x86_64_manylinux_2_28_x86_64.whl (20 kB)
Collecting click==8.1.3
  Downloading click-8.1.3-py3-none-any.whl (98 kB)
    98.2/98.2 kB 9.4 MB/s eta 0:00:00
Collecting Jinja2==3.1.2
  Downloading Jinja2-3.1.2-py3-none-any.whl (134 kB)
    134.9/134.9 kB 3.1 MB/s eta 0:00:00
Collecting importlib-metadata==3.6.0
  Downloading importlib-metadata-3.6.0-py3-none-any.whl (27 kB)
Collecting blinker==1.9.0
  Downloading blinker-1.9.0-py3-none-any.whl (8.5 kB)
Collecting Werkzeug==3.1.0
  Downloading Werkzeug-3.1.0-py3-none-any.whl (724 kB)
    724.0/724.0 kB 1.1 MB/s eta 0:00:00
Installing collected packages: Werkzeug, blinker, click, flask, Jinja2, importlib-metadata, itsdangerous, markupsafe
Successfully installed Werkzeug-3.1.0 blinker-1.9.0 click-8.1.3 flask-3.1.2 Jinja2-3.1.2 importlib-metadata-3.6.0 itsdangerous-2.2.0 markupsafe-2.1.1
Step 5/10 : EXPOSE 5000
--> Running in 20e6a357dcc2
--> Removed intermediate container 20e6a357dcc2
--> c7c945920506
Step 6/10 : CMD ["flask", "run"]
--> Running in d8b59f98e175
--> Removed intermediate container d8b59f98e175
--> 0fa7e4d269c4
Successfully built 0fa7e4d269c4
Successfully tagged prg1:latest
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
prg1                 latest          0fa7e4d269c4   23 seconds ago 133MB
python              3.9-slim       085da638e1b8   31 hours ago   122MB
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker run -it -p 5000:5000 --name cont1
docker: 'docker run' requires at least 1 argument
Usage: docker run [OPTIONS] IMAGE [COMMAND] [ARG...]
```

## Step 3 : run the docker container from created docker image

```
1RV24MC093_SANDARSH_J_N@ubuntu: ~/Downloads/devops/lab1/prg1$ docker run -it -p 5000:5000 --name cont1 prg1
--> Removed intermediate container 2982f2863f9b
--> e10800b3f5ac
Step 7/10 : EXPOSE 5000
--> Running in 20e6a357dcc2
--> Removed intermediate container 20e6a357dcc2
--> c7c945920506
Step 8/10 : CMD ["flask", "run"]
--> Running in d8b59f98e175
--> Removed intermediate container d8b59f98e175
--> 0fa7e4d269c4
Successfully built 0fa7e4d269c4
Successfully tagged prg1:latest
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
prg1                 latest          0fa7e4d269c4   23 seconds ago 133MB
python              3.9-slim       085da638e1b8   31 hours ago   122MB
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker run -it -p 5000:5000 --name cont1 prg1
docker: 'docker run' requires at least 1 argument
Usage: docker run [OPTIONS] IMAGE [COMMAND] [ARG...]
```

```
See 'docker run --help' for more information
1RV24MC093_SANDARSH_J_N@ubuntu:~/Downloads/devops/lab1/prg1$ docker run -it -p 5000:5000 --name cont1 prg1
* Serving Flask app 'app.py'
* 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://172.17.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
172.17.0.1 - - [02/Nov/2025 06:18:39] "GET / HTTP/1.1" 200 -
172.17.0.1 - - [02/Nov/2025 06:18:39] "GET /favicon.ico HTTP/1.1" 404 -
```

output :

