

## 1. Build a Docker container from a custom Dockerfile

Step-1: Create a Dockerfile using **nano** in the pwd

→ **Dockerfile**

```
FROM python:3.9-slim
WORKDIR /app
COPY req.txt .
RUN pip install --no-cache-dir -r req.txt
COPY ..
ENV FLASK_APP=app.py
ENV FLASK_RUN_HOST=0.0.0.0
ENV FLASK_RUN_PORT=5000
EXPOSE 5000
CMD ["flask","run"]
```

Step-2: Create a python file **app.py**

→ **app.py**

```
from flask import Flask

app = Flask(__name__)

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

if __name__ == "__main__":
    app.run(host="0.0.0.0", port=5000)
```

Step-3: Create a requirements file **req.txt**

flask

```
1RV24MC029_CHINMAYAKAGOLI@CHINMAY:~/DevOps/Program1
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/
invalid argument "Program1" for "-t, --tag" flag: invalid reference format: repository name (library/Program1) must be lowercase
Usage: docker build [OPTIONS] PATH | URL | -
Run 'docker build --help' for more information
1RV24MC029_CHINMAYAKAGOLI@CHINMAY:~/DevOps/Program1$ sudo docker build -t program1 .
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
--> 725dd64d2f62
Step 2/10 : WORKDIR /app
--> Using cache
--> 9e6fc5aad940
Step 3/10 : COPY requirements.txt .
--> Using cache
--> 821a0f78cec2
Step 4/10 : RUN pip install --no-cache-dir -r requirements.txt
--> Using cache
--> bdecfc33593
Step 5/10 : COPY .
--> Using cache
--> 911caccd10a
Step 6/10 : ENV FLASK_APP=app.py
--> Using cache
--> eef6cd65966a
Step 7/10 : ENV FLASK_RUN_HOST=0.0.0.0
--> Using cache
--> 03926a0eb72c
Step 8/10 : ENV FLASK_RUN_PORT=5000
--> Using cache
--> fff8a51df5a7a
Step 9/10 : EXPOSE 5000
--> Using cache
--> d76ac7f6dcab
Step 10/10 : CMD ["flask", "run"]
--> Using cache
--> 666d9dd21a0f
Successfully built 666d9dd21a0f
Successfully tagged program1:latest
```

Step-4: Build the docker image using the below command

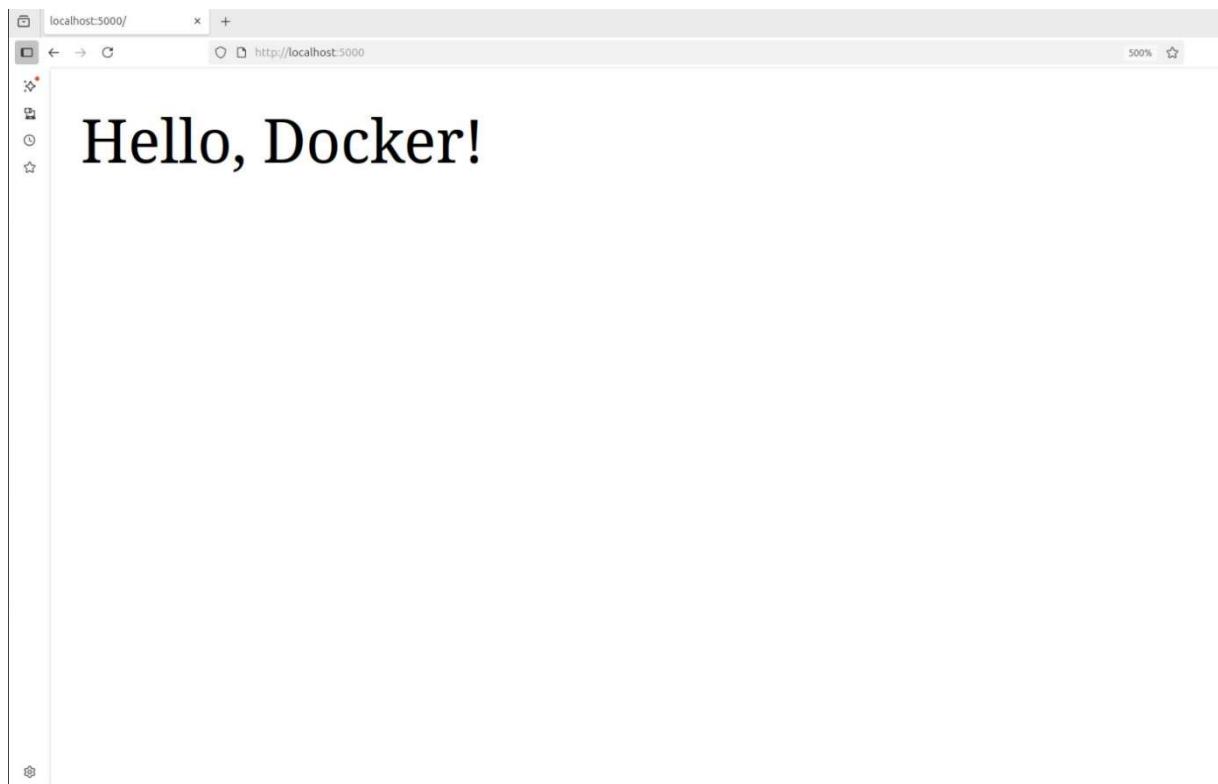
```
docker build -t p1 .
```

Step-5: Run the Docker Run command to create a container specifying the port number and name for the container

```
docker run -d -p 5000:5000 --name flask-app p1
```

```
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ docker run -d -p 5000:5000 --name flask-app p1
unknown shorthand flag: 'n' in --name
Usage: docker run [OPTIONS] IMAGE [COMMAND] [ARG...]
Run 'docker run --help' for more information
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker run -d -p 5000:5000 --name flask-container Program1
docker: invalid reference format: repository name (library/Program1) must be lowercase
Run 'docker run --help' for more information
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker run -d -p 5000:5000 --name flask-container program1
6c0d00037eff891fa16082ce09a5ec7663bdd24feb249e464483f8335f13f41
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
6c0d00037eff program1 "flask run" 30 seconds ago Up 29 seconds 0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp flask-container
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$
```

Step-6: Test the container by verifying whether its showing some results on <http://localhost:5000> stating “**hello Docker!**”



You can also check the status of the container by using below command

```
docker ps // displays current running containers  
Docker ps -a // displays all present containers
```

## Step-7: Stop the container, remove the container using container number

```
sudo docker container ls -a   or   docker ps -a  
sudo docker container stop <container-id>  
sudo docker container rm <container-id>  
sudo docker image rm <image-id>   or   docker rmi <image-id>
```

```
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$  
<none>      <none>      3f72bd0ca1dc  5 days ago  143MB  
<none>      <none>      4ea2f968622e  5 days ago  147MB  
node        20-alpine    2b56f2779663  2 weeks ago  134MB  
python      3.9-slim     725dd64d2f62  3 weeks ago  122MB  
alpine      latest       706db57fb206  3 weeks ago  8.32MB  
ubuntu      latest       97bed23a3497  4 weeks ago  78.1MB  
ubuntu      20.04       b7bab04fd9aa  6 months ago  72.8MB  
mysql/mysql-server 5.6    8c587c89edee  4 years ago  238MB  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ docker run -d -p 5000:5000 -name flask-app program1  
unknown shorthand flag: 'n' in -name  
  
Usage: docker run [OPTIONS] IMAGE [COMMAND] [ARG...]  
  
Run 'docker run --help' for more information  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker run -d -p 5000:5000 --name flask-container Program1  
docker: invalid reference format: repository name (library/Program1) must be lowercase  
  
Run 'docker run --help' for more information  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker run -d -p 5000:5000 --name flask-container program1  
6c0d00037eff891fa16082ce09a5ec7663bdd24f1eb249e464483f8335f13f41  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker ps  
CONTAINER ID  IMAGE          COMMAND           CRATEFD          STATUS          PORTS          NAMES  
6c0d00037eff  program1    "flask run"  30 seconds ago  Up 29 seconds  0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp  flask-container  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker bbb  
docker: unknown command: docker bbb  
  
Run 'docker --help' for more information  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker rmi program1  
Untagged: program1:latest  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$ sudo docker images  
REPOSITORY          TAG      IMAGE ID      CREATED       SIZE  
nodeapp            latest   84f61331a844  32 hours ago  134MB  
program-2          latest   84f61331a844  32 hours ago  134MB  
<none>              <none>  41675e47cdde  32 hours ago  134MB  
flask_app          latest   666d9dd21a0f  33 hours ago  132MB  
<none>              <none>  dd1ba8982e12  33 hours ago  132MB  
<none>              <none>  3f72bd0ca1dc  5 days ago   143MB  
<none>              <none>  4ea2f968622e  5 days ago   147MB  
node               20-alpine  2b56f2779663  2 weeks ago  134MB  
python             3.9-slim   725dd64d2f62  3 weeks ago  122MB  
alpine             latest    706db57fb206  3 weeks ago  8.32MB  
ubuntu             latest    97bed23a3497  4 weeks ago  78.1MB  
ubuntu             20.04    b7bab04fd9aa  6 months ago  72.8MB  
mysql/mysql-server 5.6    8c587c89edee  4 years ago  238MB  
1RV24MC029_CHINMAYAKAGOLLI@CHINMAY:~/DevOps/Program1$
```