1) Install Docker on Ubuntu

Update APT & install prerequisites

sudo apt update

```
apt update (expected output)
deepak@ubuntu:~$ sudo apt update   # 2025-11-05 12:19
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 229 kB in 1s (187 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
```

Few Dependencies are needed for installation

sudo apt install curl apt-transport-https ca-certificates software-properties-common

Install Docker from Ubuntu repo

sudo apt install docker.io -y

You can verify with docker --version.

```
Install Docker (expected output)
deepak@ubuntu:~$ sudo apt install docker.io -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  containerd.io docker.io runc
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 92.1 MB of archives.
After this operation, 381 MB of additional disk space will be used.
Selecting previously unselected package runc.
Selecting previously unselected package containerd.io.
Selecting previously unselected package docker.io.
Setting up runc (1.1.x-0ubuntu1) ...
Setting up containerd.io (1.6.x-0ubuntu1) ...
Setting up docker.io (20.10.x-0ubuntu1) ...
Processing triggers for man-db (2.10.x) ...

deepak@ubuntu:~$ docker --version
Docker version 20.10.xx, build fdb77a4
```

Step 4: Docker GPG key using the curl command

curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg

Step 5: add the Docker APT repository to your system

echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

Step 6: update the local package

sudo apt update

Step 7: install Docker Community Edition

sudo apt install docker-ce -y

Step 8: Docker service starts automatically upon installation

sudo systemctl start docker
sudo systemctl enable docker

2) Create project files

mkdir mydockerapp

cd mydockerapp

Create index.html

Hello from Docker!

Create Dockerfile:

nano Dockerfile

FROM nginx:latest

COPY index.html /usr/share/nginx/html/index.html

EXPOSE 80

After typing, you:

- Press **Ctrl + O** → to **save** the file

- Press **Enter** → to confirm the file name

- Press **Ctrl + X** → to **exit** Nano editor

3) Build & run

Build the image

docker build -t mydockerapp .

```
docker build (expected output)
deepak@ubuntu:~/mydockerapp$ docker build -t mydockerapp .
Sending build context to Docker daemon  4.096kB
Step 1/3 : FROM nginx:latest
 ---> 605c77e624dd
Step 2/3 : COPY index.html /usr/share/nginx/html/index.html
 ---> Using cache
 ---> 6a1b2a7f9d33
Step 3/3 : EXPOSE 80
 ---> Running in 0a8bb4d6b3a1
Removing intermediate container 0a8bb4d6b3a1
 ---> 9c6d0c5c1a9e
Successfully built 9c6d0c5c1a9e
Successfully tagged mydockerapp:latest
```

Run the container (named, and mapped to 8080)

docker run -d --name mydockerapp -p 8080:80 mydockerapp

```
docker run (expected output)
deepak@ubuntu:~/mydockerapp$ docker run -d --name mydockerapp -p 8080:80 mydockerapp
1c54e9b5d3f47c1d2e8a1a6b9c0d2e7a1f2b3c4d5e6f7a8b9c0d1e2f3a4b5c6
```

Visit http://localhost:8080 — you should see "Hello from Docker!".

```
http://localhost:8080

   Hello from Docker!
```

4) Verify & observe

docker ps

```
docker ps (expected output)
deepak@ubuntu:~/mydockerapp$ docker ps
CONTAINER ID    IMAGE          COMMAND                CREATED         STATUS          PORTS
1c54e9b5d3f4    mydockerapp    "/docker-entrypoint.…"  10 seconds ago  Up 9 seconds    0.0.0.0:808
```

Check logs

docker logs mydockerapp

```
docker logs (expected output)
deepak@ubuntu:~/mydockerapp$ docker logs mydockerapp
nginx: [notice] start worker processes
nginx: [notice] start worker process 1
nginx: [notice] start worker process 2
127.0.0.1 - - [05/Nov/2025:17:00:01 +0530] "GET / HTTP/1.1" 200 20 "-" "curl/7.81.0" "-"
```

Stop when its done

docker stop mydockerapp