EXPERIMENT-07

AIM: Develop a simple containerized application using Docker.

Objective: To understand how to create, containerize, and run a simple application using Docker.

Software Requirements

- **Docker installed and configured** (Docker Desktop for Windows/macOS or Docker Engine for Linux) – https://www.docker.com/get-started
- **Operating System**: Linux (Ubuntu 20.04 or later) / Windows 10 or later with WSL2 / macOS (latest)
- **Command-line terminal** (Bash / PowerShell) for executing Docker commands
- **Git** for source control
- **Internet connectivity** to pull images from Docker Hub or other registries
- **Optional text editor** (VS Code) to create and edit files inside containers

Lab Procedure

1. Clone the getting-started-app repository using following command:

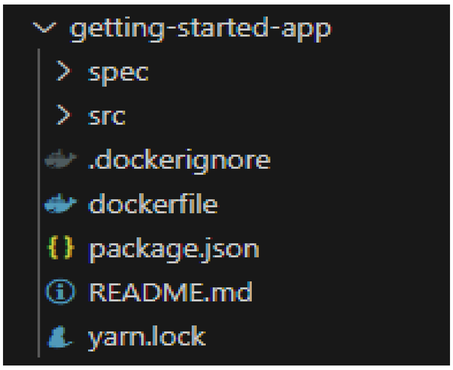
   git clone https://github.com/docker/getting-started-app.git

2. View the contents of the cloned repository. You should see the following files and sub-directories.

```
├── getting-started-app/
│   ├── .dockerignore
│   ├── package.json
│   ├── README.md
│   ├── spec/
│   ├── src/
│   │   └── yarn.lock
```

3. Create a Docker file in the same directory and add the following code

```
FROM node:18-alpine
WORKDIR /app
COPY . .
RUN yarn install --production
CMD ["node", "src/index.js"]
EXPOSE 3000
```



```
getting-started-app
  spec
  src
  .dockerignore
  dockerfile
  package.json
  README.md
  yarn.lock
```

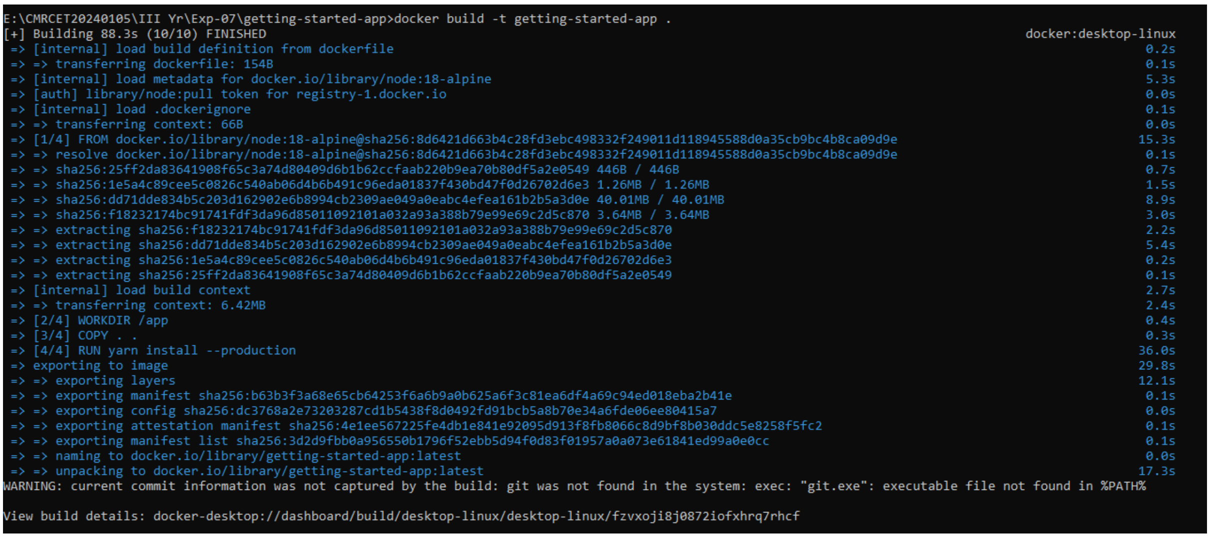
In the terminal, make sure you're in the getting-started-app directory. Replace /path/to/getting-started-app with the path to your getting-started-app directory.

cd /path/to/getting-started-app

4. **Build the image**

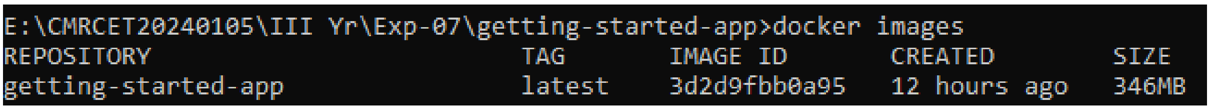
Run the following command in the terminal

docker build –t getting-started-app .



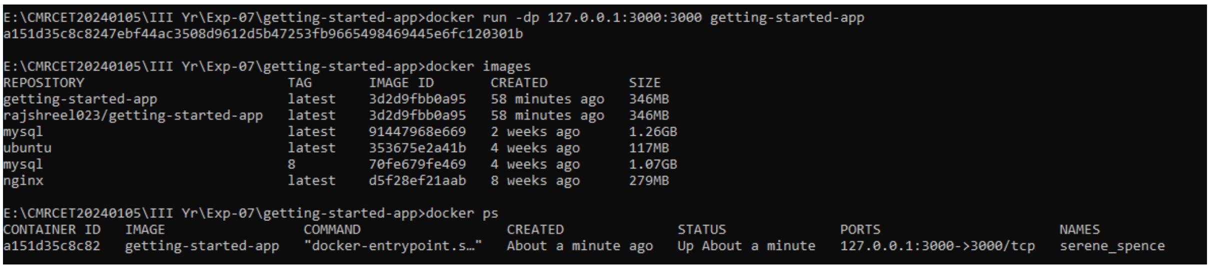
```
E:\CMRCET20240105\III Yr\Exp-07\getting-started-app>docker build -t getting-started-app .
[+] Building 88.3s (10/10) FINISHED                                                                                                  docker:desktop-linux
 => [internal] load build definition from dockerfile                                                                                                 0.2s
 => => transferring dockerfile: 154B                                                                                                                 0.1s
 => [internal] load metadata for docker.io/library/node:18-alpine                                                                                    5.3s
 => [auth] library/node:pull token for registry-1.docker.io                                                                                          0.0s
 => [internal] load .dockerignore                                                                                                                    0.1s
 => => transferring context: 66B                                                                                                                     0.0s
 => [1/4] FROM docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca09d9e                             15.3s
 => => resolve docker.io/library/node:18-alpine@sha256:8d6421d663b4c28fd3ebc498332f249011d118945588d0a35cb9bc4b8ca09d9e                              0.1s
 => => sha256:25ff2da83641908f65c3a74d80409d6b1b62ccfaab220b9ea70b80df5a2e0549 446B / 446B                                                           0.7s
 => => sha256:1e5a4c89cee5c0826c540ab06d4b6b491c96eda01837f430bd47f0d26702d6e3 1.26MB / 1.26MB                                                       1.5s
 => => sha256:dd71dde834b5c203d162902e6b8994cb2309ae049a0eabc4efea161b2b5a3d0e 40.01MB / 40.01MB                                                     8.9s
 => => sha256:f18232174bc91741fdf3da96d85011092101a032a93a388b79e99e69c2d5c870 3.64MB / 3.64MB                                                       3.0s
 => => extracting sha256:f18232174bc91741fdf3da96d85011092101a032a93a388b79e99e69c2d5c870                                                            2.2s
 => => extracting sha256:dd71dde834b5c203d162902e6b8994cb2309ae049a0eabc4efea161b2b5a3d0e                                                            5.4s
 => => extracting sha256:1e5a4c89cee5c0826c540ab06d4b6b491c96eda01837f430bd47f0d26702d6e3                                                            0.2s
 => => extracting sha256:25ff2da83641908f65c3a74d80409d6b1b62ccfaab220b9ea70b80df5a2e0549                                                            0.1s
 => [internal] load build context                                                                                                                    2.7s
 => => transferring context: 6.42MB                                                                                                                  2.4s
 => [2/4] WORKDIR /app                                                                                                                               0.4s
 => [3/4] COPY . .                                                                                                                                   0.3s
 => [4/4] RUN yarn install --production                                                                                                             36.0s
 => exporting to image                                                                                                                              29.8s
 => => exporting layers                                                                                                                             12.1s
 => => exporting manifest sha256:b63b3f3a68e65cb64253f6a6b9a0b625a6f3c81ea6df4a69c94ed018eba2b41e                                                    0.1s
 => => exporting config sha256:dc3768a2e73203287cd1b5438f8d0492fd91bcb5a8b70e34a6fde06ee80415a7                                                      0.0s
 => => exporting attestation manifest sha256:4e1ee567225fe4db1e841e92095d913f8fb8066c8d9bf8b030ddc5e8258f5fc2                                        0.1s
 => => exporting manifest list sha256:3d2d9fbb0a956550b1796f52ebb5d94f0d83f01957a0a073e61841ed99a0e0cc                                               0.1s
 => => naming to docker.io/library/getting-started-app:latest                                                                                        0.0s
 => => unpacking to docker.io/library/getting-started-app:latest                                                                                    17.3s
WARNING: current commit information was not captured by the build: git was not found in the system: exec: "git.exe": executable file not found in %PATH%

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/fzvxoji8j0872iofxhrq7rhcf
```

5. Verify the image is created or not by using **docker images** command



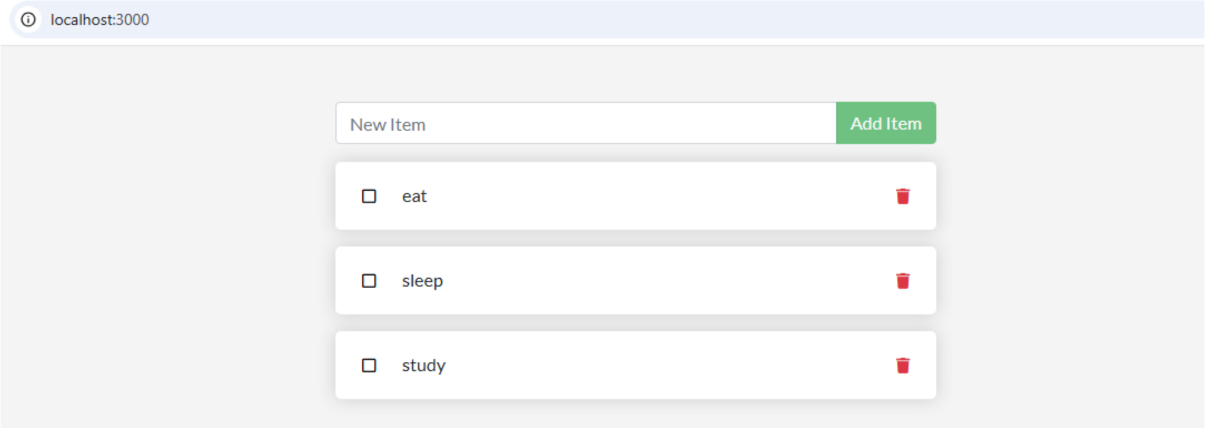
```
E:\CMRCET20240105\III Yr\Exp-07\getting-started-app>docker images
REPOSITORY                              TAG         IMAGE ID       CREATED          SIZE
getting-started-app                     latest      3d2d9fbb0a95   12 hours ago     346MB
```

6. Run the image using following command
   docker run -dp 127.0.0.1:3000:3000 getting-started-app



```
E:\CMRCET20240105\III Yr\Exp-07\getting-started-app>docker run -dp 127.0.0.1:3000:3000 getting-started-app
a151d35c8c8247ebf44ac3508d9612d5b47253fb9665498469445e6fc120301b

E:\CMRCET20240105\III Yr\Exp-07\getting-started-app>docker images
REPOSITORY                         TAG       IMAGE ID       CREATED          SIZE
getting-started-app                latest    3d2d9fbb0a95   58 minutes ago   346MB
rajshreel023/getting-started-app   latest    3d2d9fbb0a95   58 minutes ago   346MB
mysql                              latest    91447968e669   2 weeks ago      1.26GB
ubuntu                             latest    353675e2a41b   4 weeks ago      117MB
mysql                              8         70fe679fe469   4 weeks ago      1.07GB
nginx                              latest    d5f28ef21aab   8 weeks ago      279MB

E:\CMRCET20240105\III Yr\Exp-07\getting-started-app>docker ps
CONTAINER ID   IMAGE                 COMMAND                  CREATED              STATUS              PORTS                        NAMES
a151d35c8c82   getting-started-app   "docker-entrypoint.s…"   About a minute ago   Up About a minute   127.0.0.1:3000->3000/tcp     serene_spence
```

7. Open browser and type https://localhost:3000 to check the output the image is running on port 3000



localhost:3000
New Item
Add Item
□ eat
□ sleep
□ study