



National Textile University

Department of Computer Science

Subject:

Operating System

Submitted to:

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Submitted by:

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Reg. number:

23-NTU-CS-FL-1132

Semester:

5th - A

LAB_12

Task_01:

```
root@cdb0ae9e819c:/home/ubuntu/my-new-volume
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purposes. If you want to re-enable it, run 'Import-Module PSReadLine'

PS C:\Users\abc> docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
node          lts-alpine3.23  c921b97d4b74   33 hours ago   226MB
nginx         trixie      fb01117203ff   9 days ago     225MB
postgres      15.15-trixie  697ff7029514   10 days ago    627MB
ubuntu        resolute-20251130  901617b8bedb   2 weeks ago    133MB
ubuntu        latest       c35e29c94501   2 months ago   117MB
PS C:\Users\abc> docker run -it --name test-container -v my-volume:/home/ubuntu/my-new-volume ubuntu:resolute-20251130 bash
root@cdb0ae9e819c:/# cd home/ubuntu/
root@cdb0ae9e819c:/home/ubuntu# ls
my-new-volume
root@cdb0ae9e819c:/home/ubuntu# cd my-new-volume/
root@cdb0ae9e819c:/home/ubuntu/my-new-volume# echo "Hello World" > File.txt
root@cdb0ae9e819c:/home/ubuntu/my-new-volume# cat File.txt
Hello World
root@cdb0ae9e819c:/home/ubuntu/my-new-volume#
```

Task_02:

```
root@e8f4862dda56:/
Windows PowerShell
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PS C:\Users\abc> docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
node          lts-alpine3.23  c921b97d4b74   33 hours ago   226MB
nginx         trixie      fb01117203ff   9 days ago     225MB
postgres      15.15-trixie  697ff7029514   10 days ago    627MB
ubuntu        resolute-20251130  901617b8bedb   2 weeks ago    133MB
ubuntu        latest       c35e29c94501   2 months ago   117MB
PS C:\Users\abc> docker run -it --name test-container -v D:\NTU_LIFE\5th_Semester\Operating_System\LABS\LAB_12_1132:/home/ ubuntu:resolute-20251130 bash
root@e8f4862dda56:/#
```

Task_03:

File Edit Selection View Go ... Docker

EXPLORER

- DOCKER
 - node_modules
 - Dockerfile
 - index.js
 - package-lock.json
 - package.json

TERMINAL

```
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility p
re-enable it, run 'Import-Module PSReadLine'.

PS D:\NTU_LIFE\5th_Smester\Docker> Import-Module PSReadLine
PS D:\NTU_LIFE\5th_Smester\Docker> npm init -y
Wrote to D:\NTU_LIFE\5th_Smester\Docker\package.json:

{
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "license": "ISC",
  "type": "commonjs"
}

PS D:\NTU_LIFE\5th_Smester\Docker>
PS D:\NTU_LIFE\5th_Smester\Docker> npm i express

added 65 packages, and audited 66 packages in 15s

22 packages are looking for funding
run `npm fund` for details

found 0 vulnerabilities
```

Ln 6, Col 1 Spaces: 4 UTF-8 CRLF {} Dockerfile 3:49 PM 12/19/2025

File Edit Selection View Go ... Docker

EXPLORER

- DOCKER
 - node_modules
 - Dockerfile
 - index.js
 - package-lock.json
 - package.json

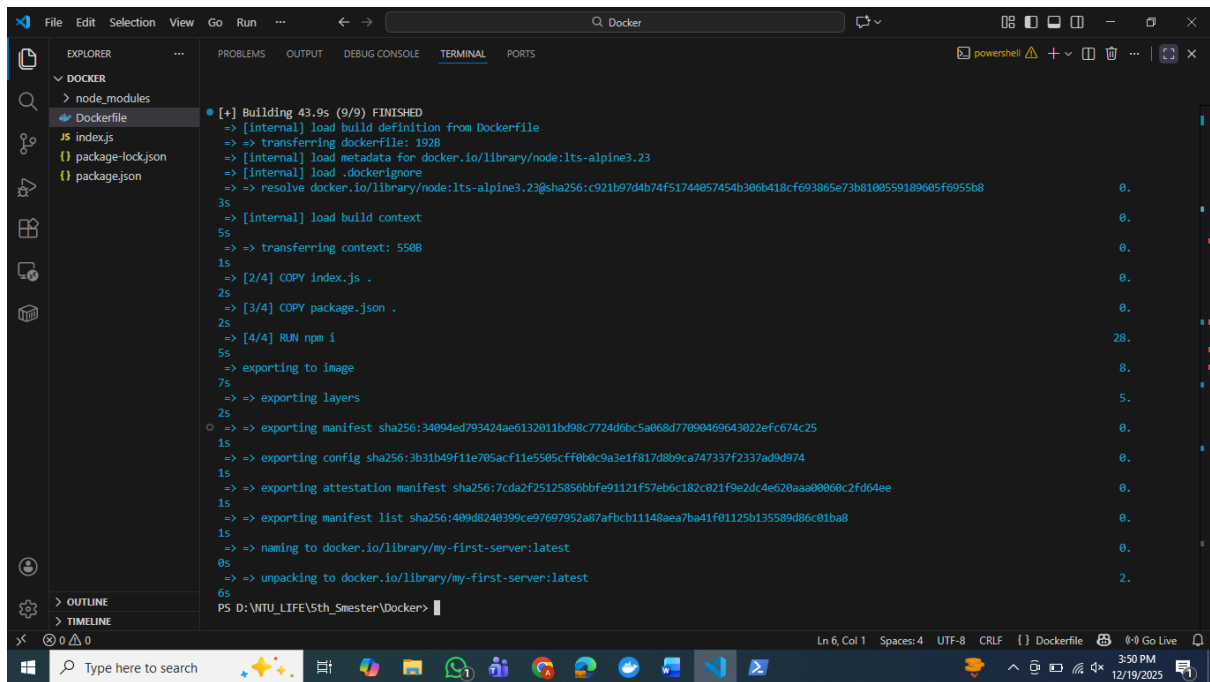
TERMINAL

```
PS D:\NTU_LIFE\5th_Smester\Docker> docker images
node      lts-alpine3.23      c921b97d4b74      34 hours ago      226MB
nginx     trixie               fb01117203ff      9 days ago        225MB
postgres  15.15-trixie        697ff7029514      10 days ago       627MB
ubuntu    resolute-20251130   901617b8bedb      2 weeks ago       133MB
ubuntu    latest               c35e29c94501      2 months ago      117MB
PS D:\NTU_LIFE\5th_Smester\Docker> docker build -t my-first-server .
[+] Building 1.2s (1/1) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 31B
ERROR: failed to build: failed to solve: the Dockerfile cannot be empty
PS D:\NTU_LIFE\5th_Smester\Docker> docker build -t my-first-server .
[+] Building 0.4s (1/1) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 31B
PS D:\NTU_LIFE\5th_Smester\Docker> ls

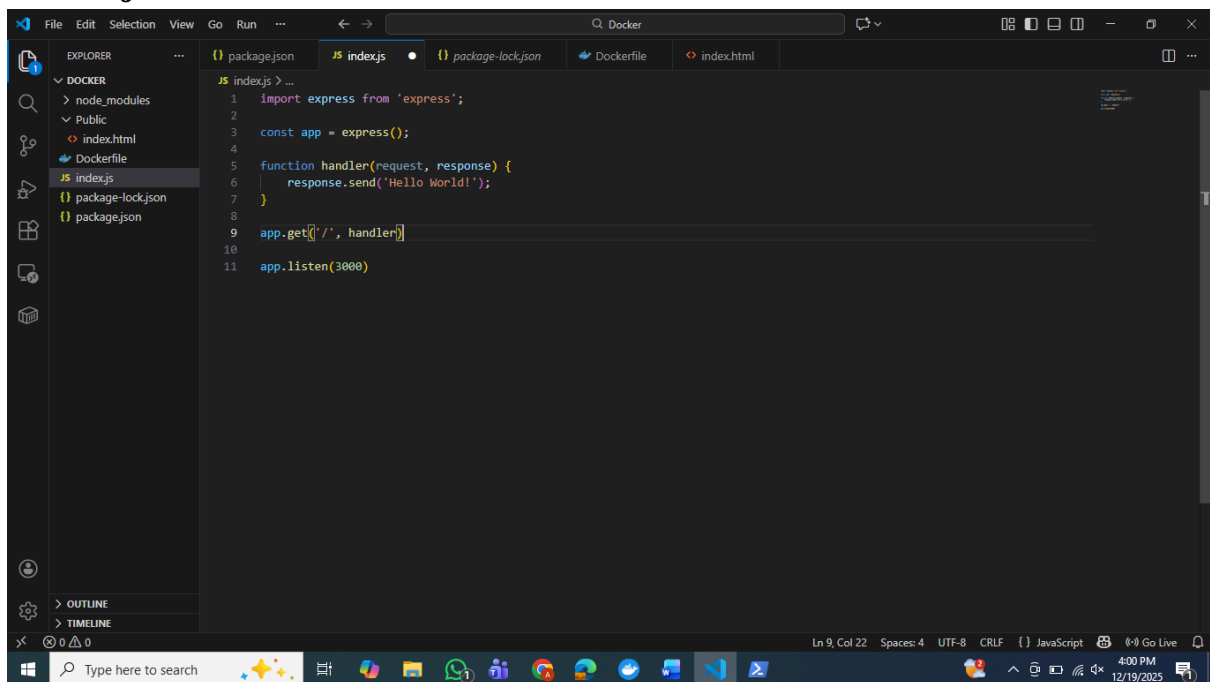
Directory: D:\NTU_LIFE\5th_Smester\Docker

Mode                LastWriteTime         Length Name
----                -
d-----          12/19/2025   3:25 PM              node_modules
-a----          12/19/2025   3:36 PM              0 Dockerfile
-a----          12/19/2025   3:33 PM             181 index.js
-a----          12/19/2025   3:25 PM          28923 package-lock.json
-a----          12/19/2025   3:25 PM             289 package.json
```

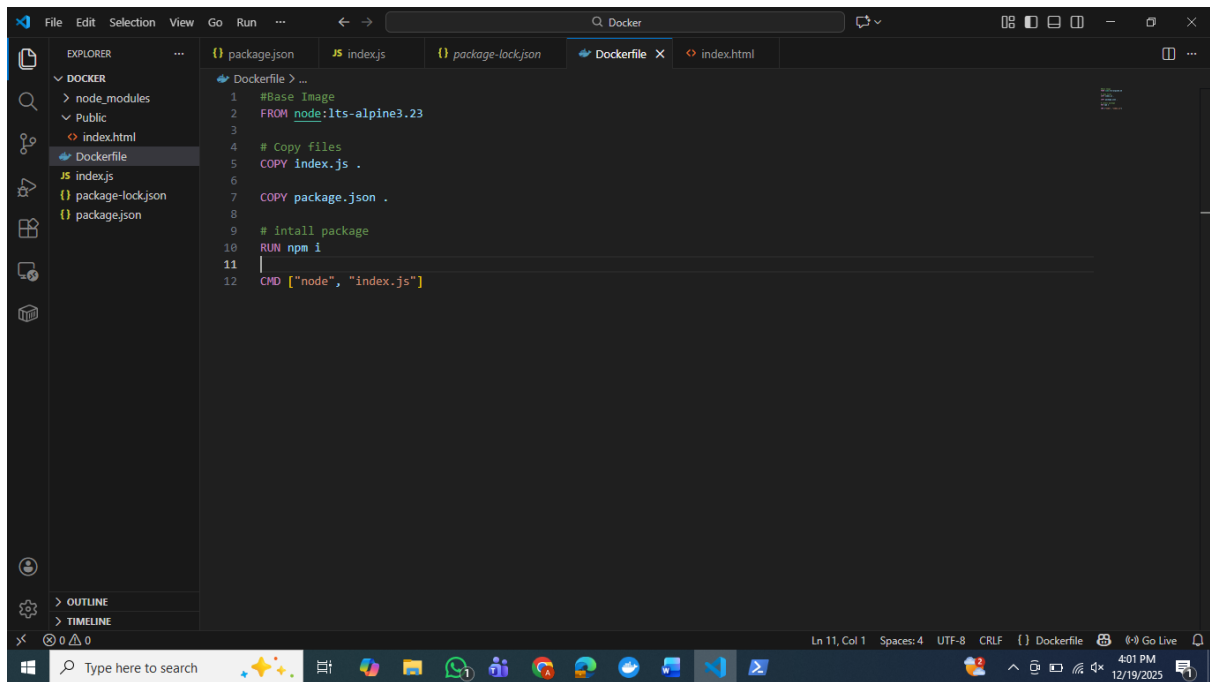
Ln 6, Col 1 Spaces: 4 UTF-8 CRLF {} Dockerfile 3:50 PM 12/19/2025



Task_04: Running a Simple Command on Web Request: Index.js

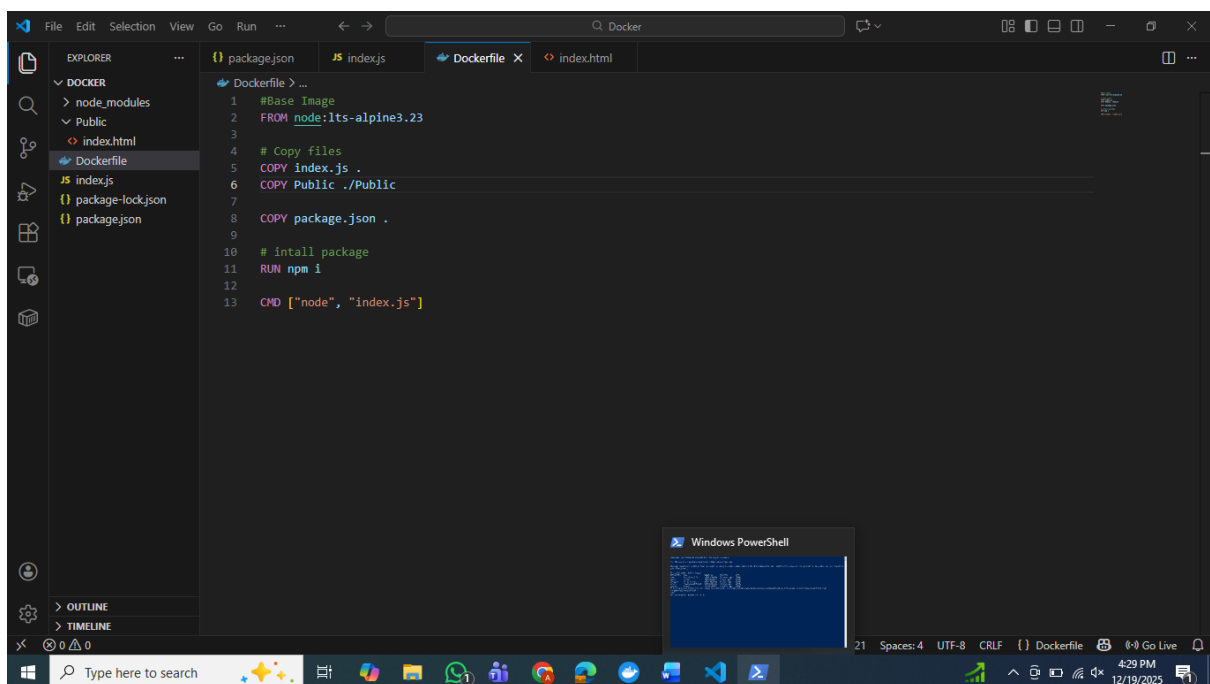


Dockerfile:

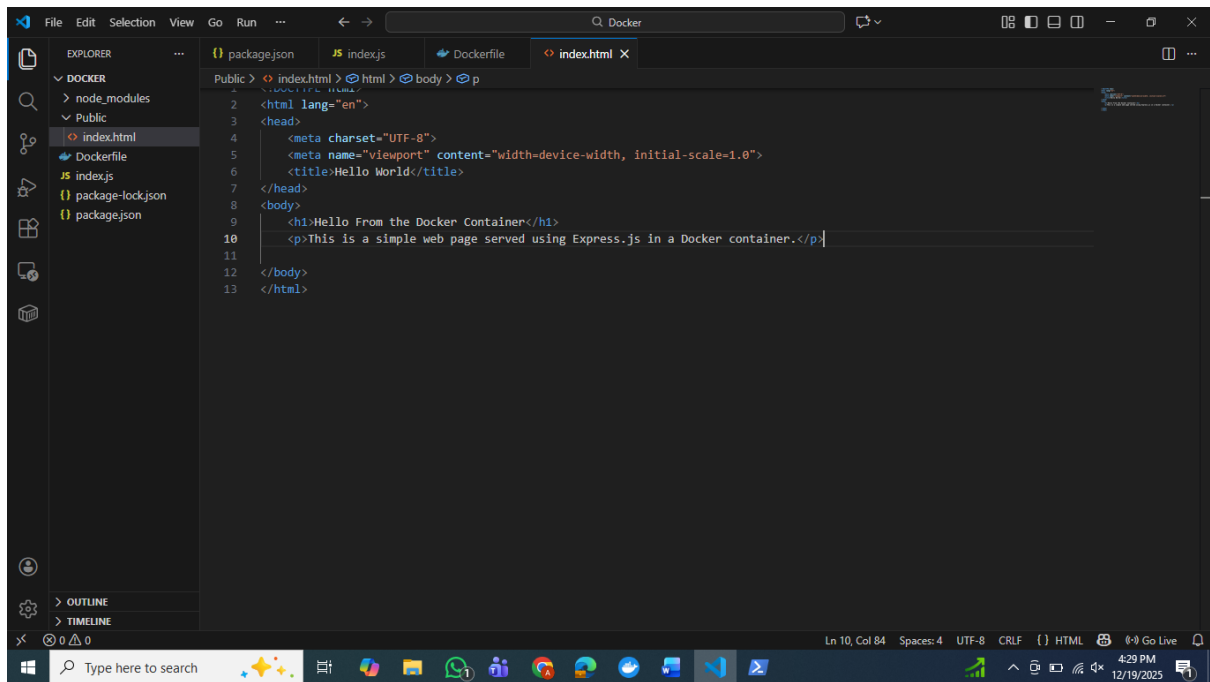


Task_05: Passing An HTML File:

DockerFile:

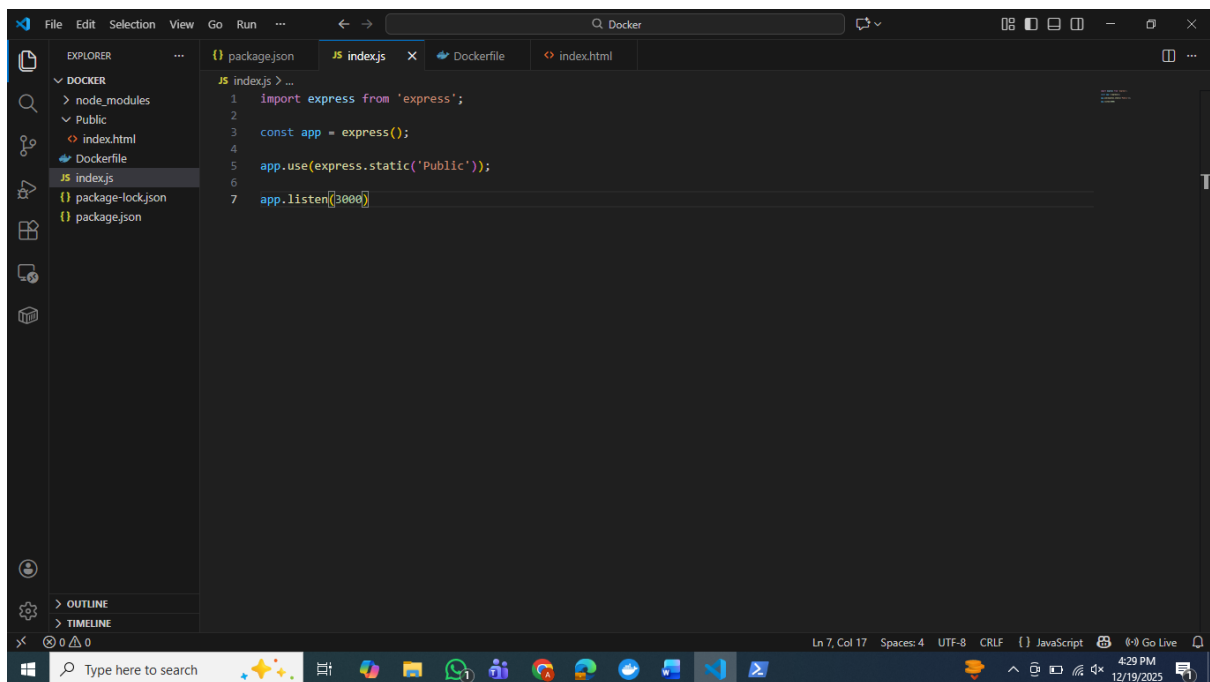


Index.html:

A screenshot of the Visual Studio Code editor interface. The Explorer sidebar on the left shows a file tree with folders 'DOCKER' and 'Public'. Under 'DOCKER', there are files 'index.html', 'Dockerfile', 'index.js', 'package-lock.json', and 'package.json'. The 'index.html' file is selected and its content is displayed in the main editor. The code is an HTML document with a title 'Hello World' and a body containing a heading 'Hello From the Docker Container' and a paragraph 'This is a simple web page served using Express.js in a Docker container.'.

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4   <meta charset="UTF-8">
5   <meta name="viewport" content="width=device-width, initial-scale=1.0">
6   <title>Hello World</title>
7 </head>
8 <body>
9   <h1>Hello From the Docker Container</h1>
10  <p>This is a simple web page served using Express.js in a Docker container.</p>
11 </body>
12 </html>
```

Index.JS:

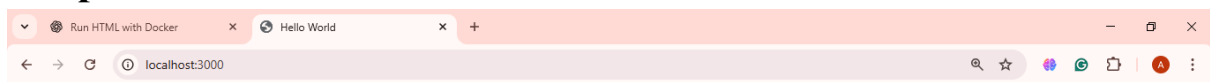
A screenshot of the Visual Studio Code editor interface. The Explorer sidebar on the left shows the same file tree as the previous image. The 'index.js' file is selected and its content is displayed in the main editor. The code is a JavaScript file that uses Express.js to create a web application. It imports Express, creates an app, uses the static middleware to serve the 'Public' directory, and listens on port 3000.

```
1 import express from 'express';
2
3 const app = express();
4
5 app.use(express.static('Public'));
6
7 app.listen(3000)
```

Container Exection:

```
[3/5] COPY Public ./Public
PS D:\WTU_LIFE\5th_Semester\Docker> docker build -t my-first-server .
[+] Building 29.6s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 214B
=> [internal] load metadata for docker.io/library/node:lts-alpine3.23
=> [internal] load .dockerignore
=> => transferring context: 2B
=> => resolve docker.io/library/node:lts-alpine3.23@sha256:c921b97d4b74f51744857454b386b418cf693865e73b8108559189685f6955b8
=> [internal] load build context
=> => transferring context: 124B
=> CACHED [2/5] COPY index.js .
=> CACHED [3/5] COPY Public ./Public
=> CACHED [4/5] COPY package.json .
=> CACHED [5/5] RUN npm i
=> => exporting to image
=> => exporting layers
=> => exporting manifest sha256:6aaf493d0d60784e64cb26a88fc2bc63d455d38b49be66049b9d5266528362f5
=> => exporting config sha256:59700675cec4aa7aefcc9b32f141209b193b256fb427ed66de6b040ac8648bd7
=> => exporting attestation manifest sha256:7de0518599e49f13030390ce43ea34757b47085612e49d1b07bedee7287cf680
=> => exporting manifest list sha256:aeee8784aa89a76fc0be3aeb2ac8c63b5f96c88790f82341d33918a340229a41
=> => naming to docker.io/library/my-first-server:latest
=> => unpacking to docker.io/library/my-first-server:latest
PS D:\WTU_LIFE\5th_Semester\Docker> docker run -d -p 3000:3000 my-first-server
4b6316c7695adf7e38cbccc9d750829586e36c8f96de567d3cac59134a3d4d63
PS D:\WTU_LIFE\5th_Semester\Docker>
```

Output:



Hello From the Docker Container

This is a simple web page served using Express.js in a Docker container.

