

CPS 847

LAB 04
SUBMITTED BY - GROUP 20

All the tasks are performed on macOS Terminal

MEMBERS:

DIVYA KAPOOR
HEET PATEL
ANEESH KATYARA

1-To create a GitHub account: Already created ✓

The screenshot shows a GitHub profile page for the user 'DivyaKapoor18'. The profile picture is a large yellow circle containing a white cross-like shape. The user's name is 'Divya Kapoor' and their GitHub handle is 'DivyaKapoor18'. Below the name, it says 'CS at Toronto Metropolitan University'. There is a button to 'Edit profile'. The page shows '0 followers' and '1 following'. The location is listed as 'Toronto, Ontario, Canada'. The 'Popular repositories' section lists six repositories:

- html-portfolio** (Public) - HTML
- portfolio_node** (Public) - JavaScript
- Database-Management-System-with-GUI-Integration** (Public) - Python
Description: Python-based DBMS app using cx_Oracle & Tkinter with CRUD operations on Oracle 11g. Features include table creation, dummy data population, 10+ predefined & custom SQL queries, joins, range-based q...
- Machine-Learning-Regression** (Public)
- machine-learning-neural-networks** (Public) - Python
- machine-learning-cirrhosis-prediction-analysis** (Public) - Python

The 'Contributions' section shows '45 contributions in the last year' from October 2024 to September 2025. A blue button for 'Contribution settings' is visible.

2-To create a GitHub Repository:

github.com/new

New repository

Create a new repository

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#).
Required fields are marked with an asterisk (*).

1 General

Owner * Repository name *

DivyaKapoor18 /

Great repository names are short and memorable. How about [probable-tribble](#)?

Description

0 / 350 characters

2 Configuration

Choose visibility * Choose who can see and commit to this repository

Public

Add README READMEs can be used as longer descriptions. [About READMEs](#)

Off

Add .gitignore .gitignore tells git which files not to track. [About ignoring files](#)

No .gitignore

github.com/new

New repository

Create a new repository

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#).
Required fields are marked with an asterisk (*).

1 General

Owner * Repository name *

DivyaKapoor18 / CPS847_LABO4_Rep1
CPS847_LABO4_Rep1 is available.

Great repository names are short and memorable. How about [probable-tribble](#)?

Description

Not my first repository on GitHub
33 / 350 characters

2 Configuration

Choose visibility * Choose who can see and commit to this repository

Public

Add README READMEs can be used as longer descriptions. [About READMEs](#)

On

Add .gitignore .gitignore tells git which files not to track. [About ignoring files](#)

No .gitignore

Add license Licenses explain how others can use your code. [About licenses](#)

No license

Create repository

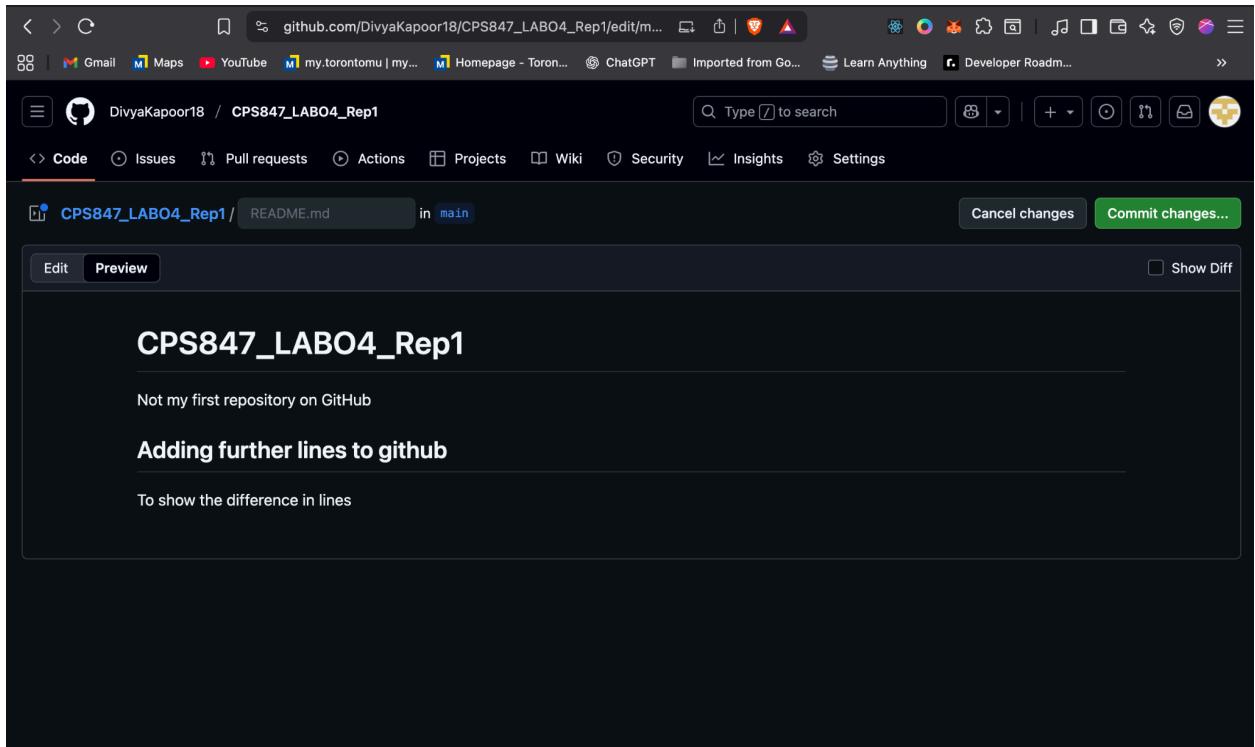
The screenshot shows a GitHub repository page for 'CPS847_LABO4_Rep1'. The repository is public and has 1 branch and 0 tags. The README file contains the text '# CPS847_LABO4_Rep1' and 'Not my first repository on GitHub'. The repository has 1 commit from 'DivyaKapoor18' with the message 'Initial commit'.

3-To Commit the first change:

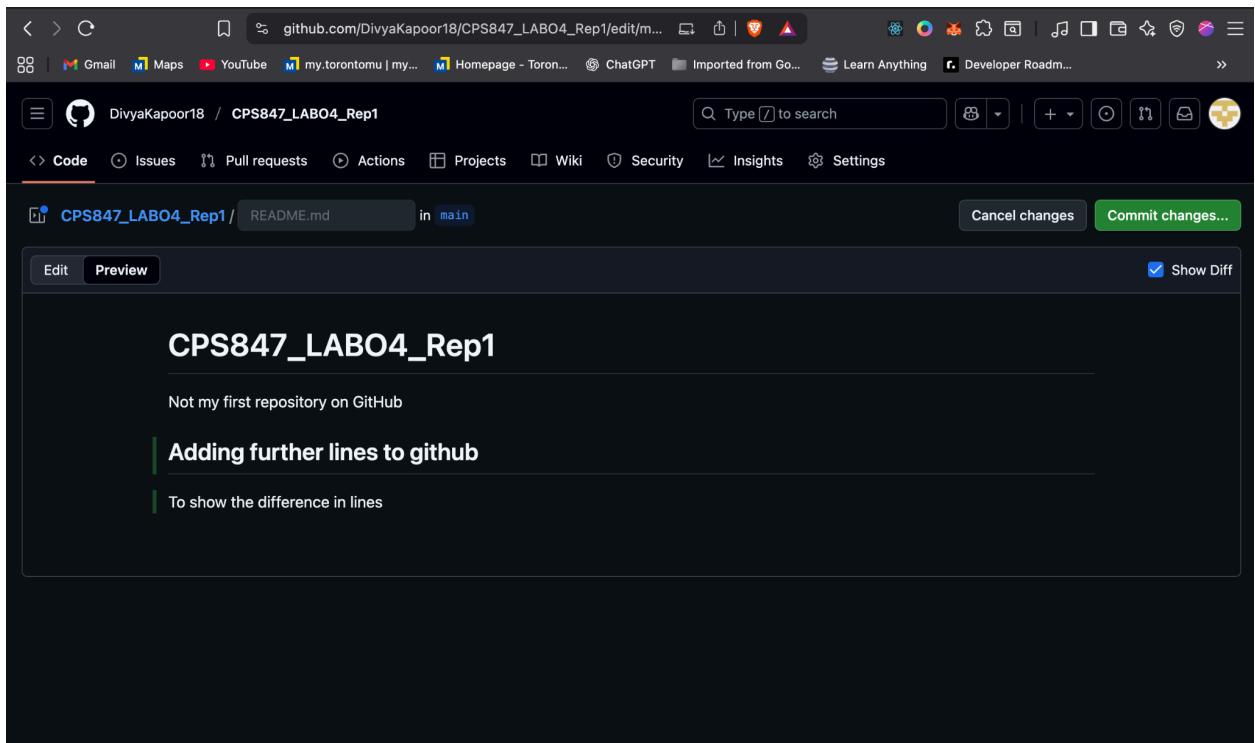
Edited:

The screenshot shows the GitHub editor interface for the 'README.md' file in the 'main' branch of the repository. The editor shows the updated content of the README file, which includes additional lines: '# CPS847_LABO4_Rep1', 'Not my first repository on GitHub', '## Adding further lines to github', and 'To show the difference in lines'.

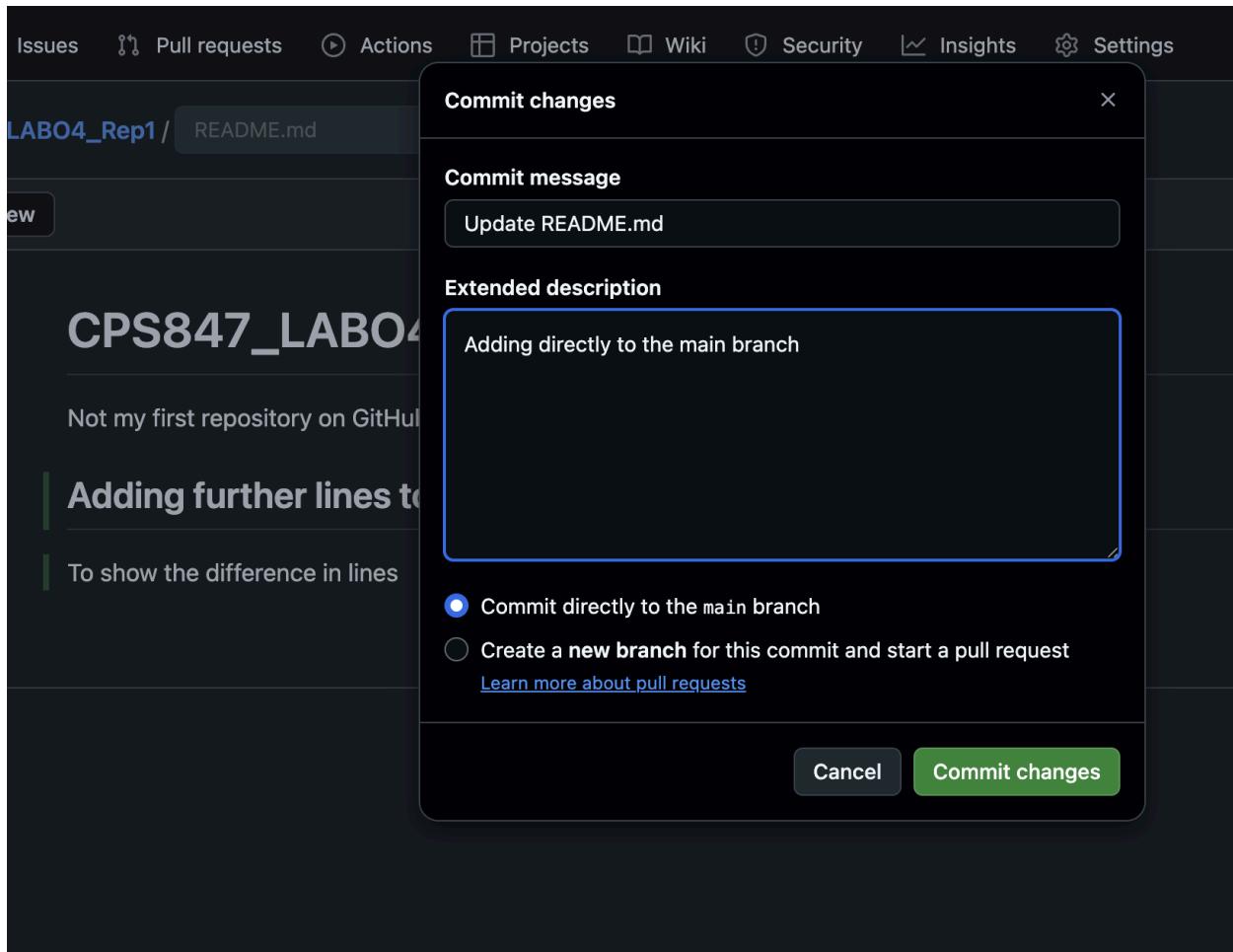
Preview:



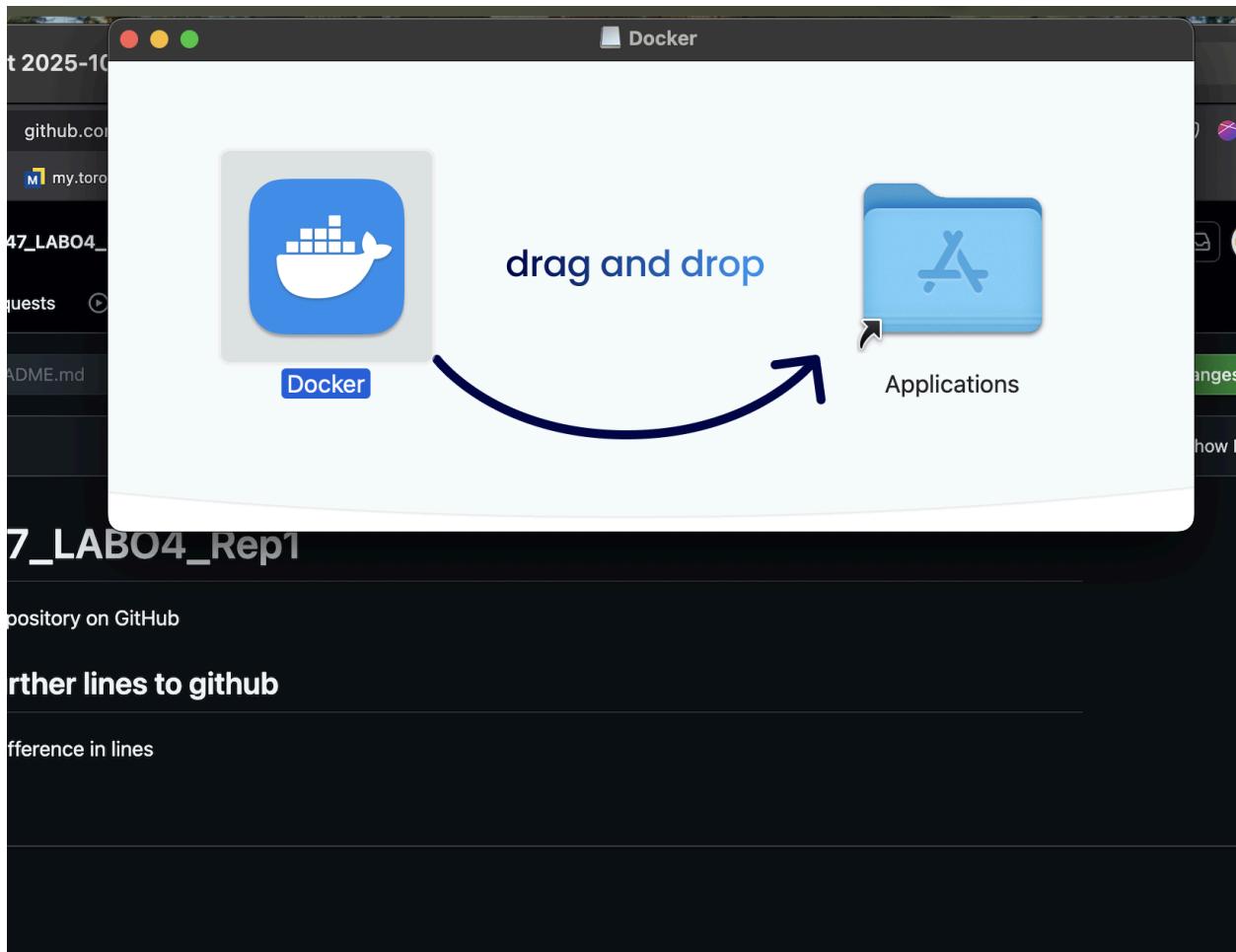
Show Diff:



Commit Changes:

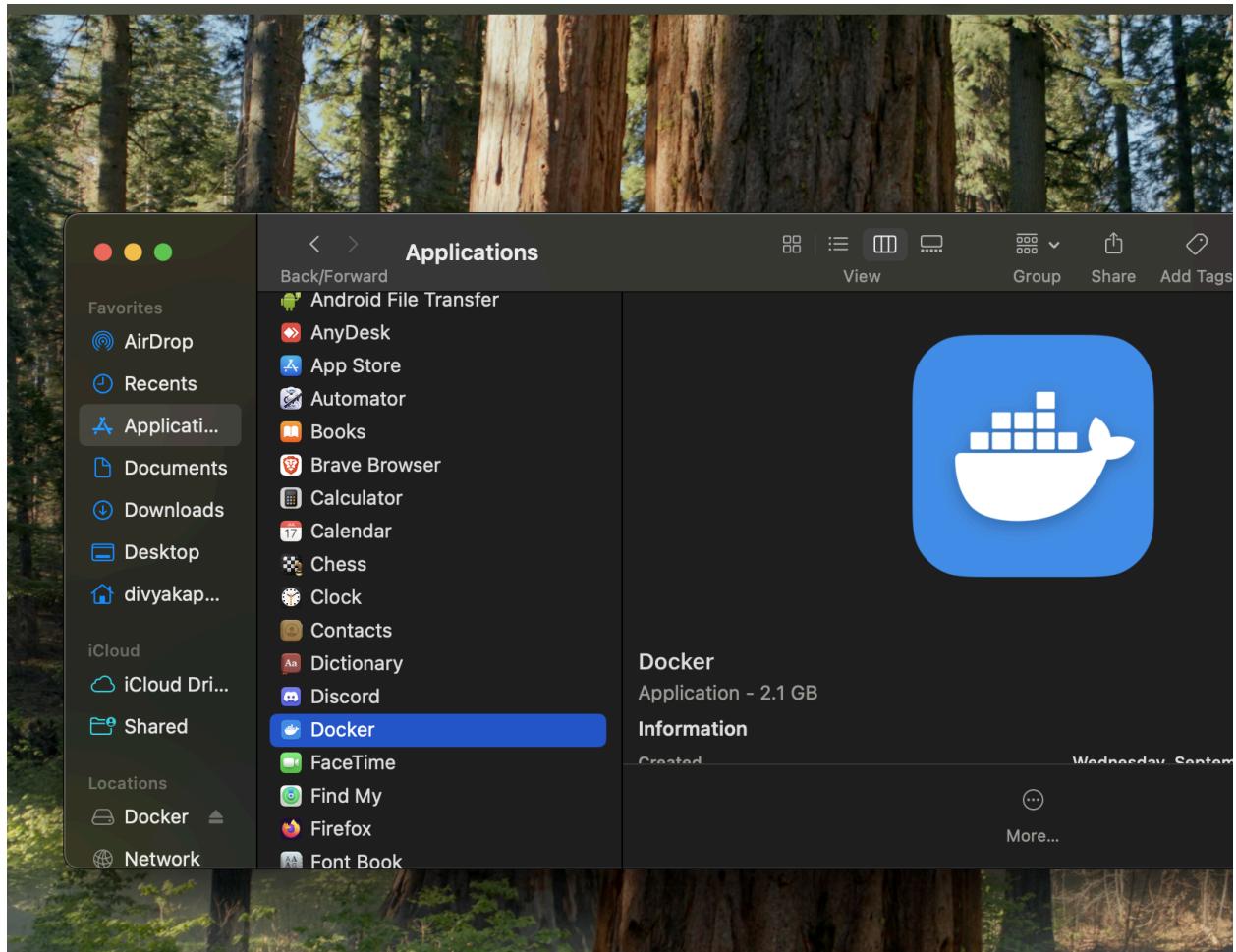


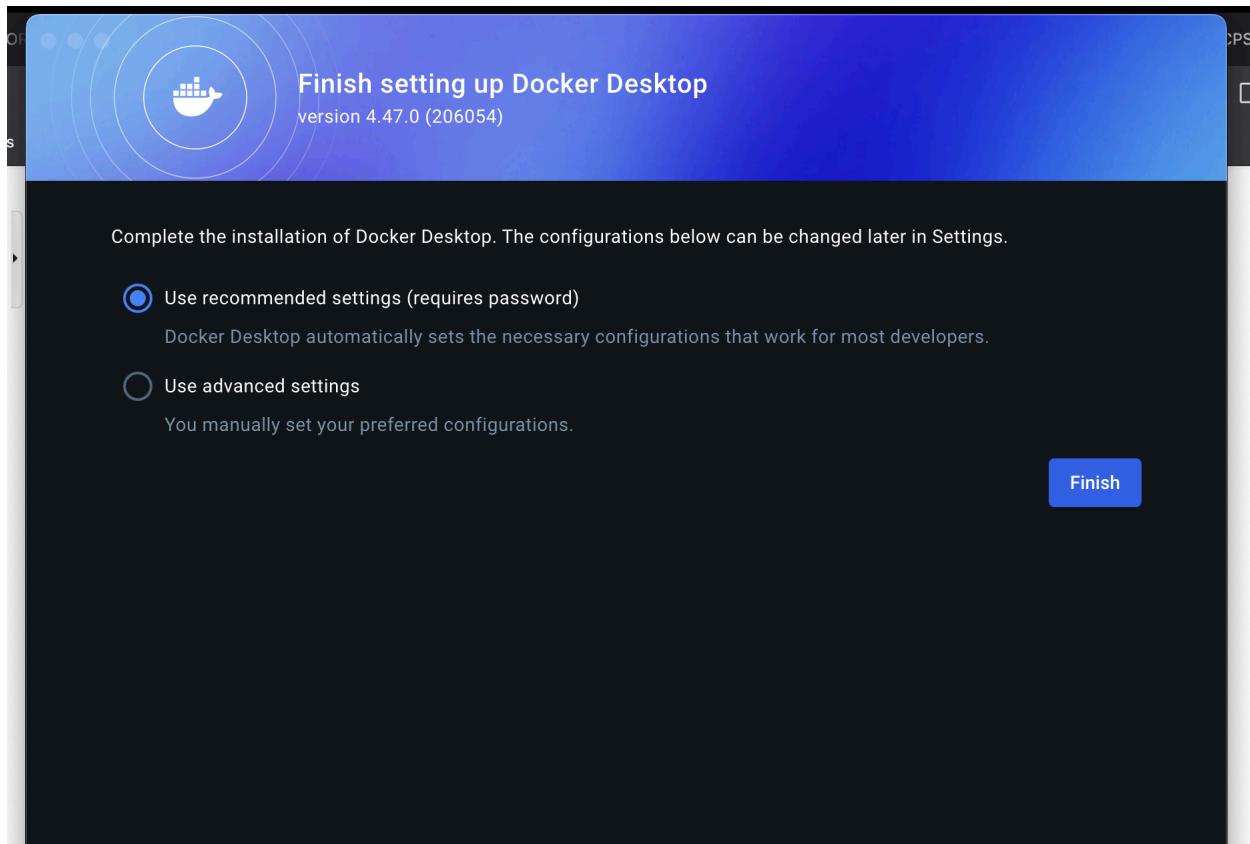
4-To install Docker Desktop: [12 Marks]



Opening Docker from the applications:

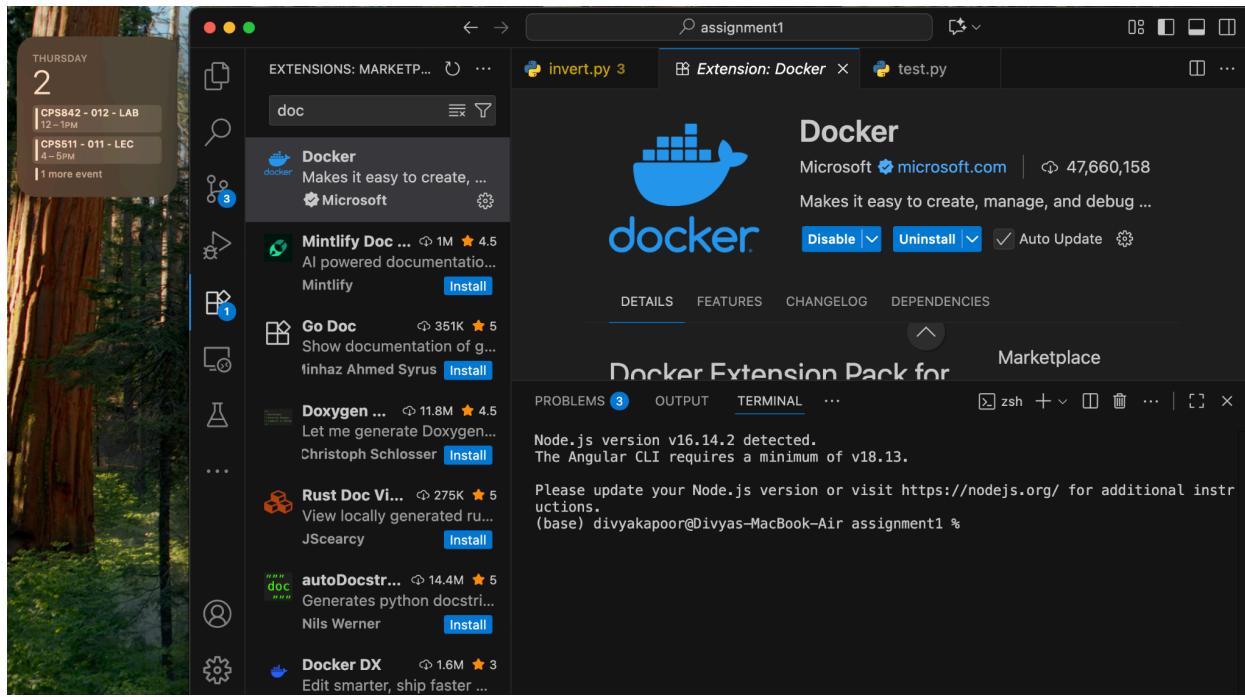
-> after installation, open the Docker to see the GUI, set the parameters as default and accept it, continue without
Signing up:





The screenshot shows the Docker Desktop application window. The top navigation bar includes icons for Ask Gordon (BETA), Personal, Search, Notifications, and Settings, along with a Sign in button. The main dashboard is titled "Containers" and features a sub-header "Your running containers show up here". It includes a note: "A container is an isolated environment for your code". On the left is a sidebar with links: Ask Gordon (BETA), Containers (selected), Images, Volumes, Kubernetes, Builds, Models, MCP Toolkit (BETA), Docker Hub, Docker Scout, and Extensions. At the bottom of the sidebar is a "View more in the Learning center" link. In the center, there are three cards: "What is a container?" (with a question mark icon, 5 mins), "How do I run a container?" (with a terminal icon, 6 mins), and a "View more in the Learning center" link.

Open Visual Studio GUI, to see the “Extension: Docker” and its relevant information, it is recommended to add it if not existed:



at the CLI type the following command to see the current running containers, their ids, image names and relevant information:

A screenshot of a terminal window titled 'divyakapoor -- zsh -- 80x24'. The window displays the following text:

```
Last login: Wed Oct 1 18:56:23 on console
Node.js version v16.14.2 detected.
The Angular CLI requires a minimum of v18.13.

Please update your Node.js version or visit https://nodejs.org/ for additional instructions.
(base) divyakapoor@Divyas-MacBook-Air ~ % docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS          NAMES
(base) divyakapoor@Divyas-MacBook-Air ~ %
```

The terminal window has a dark background and light-colored text.

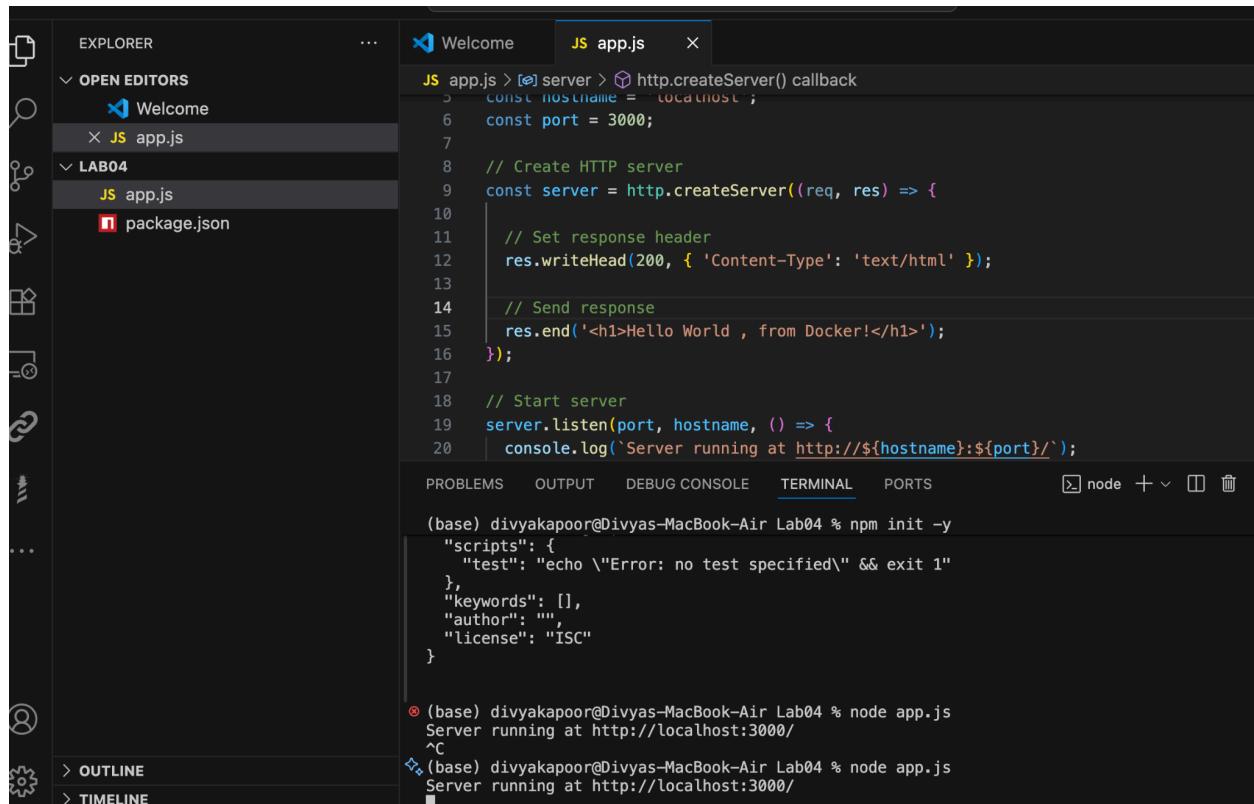
Questions:

Go through all steps above (steps 1-3) to install/set/work with the tools as defined, in order to answer the TA

questions. You also need to take screen-shots of all steps above to prepare the result document to submit it through D2L:

a) Create a simple web-application that writes a message on the browser

like: "Hello World, from Docker!":



The screenshot shows the Visual Studio Code interface with the following details:

- EXPLORER:** Shows files: Welcome (document icon), JS app.js (file icon), LAB04 (folder icon), JS app.js (file icon), and package.json (package icon).
- EDITOR:** The JS app.js file is open, displaying the following code:

```
const hostname = 'localhost';
const port = 3000;

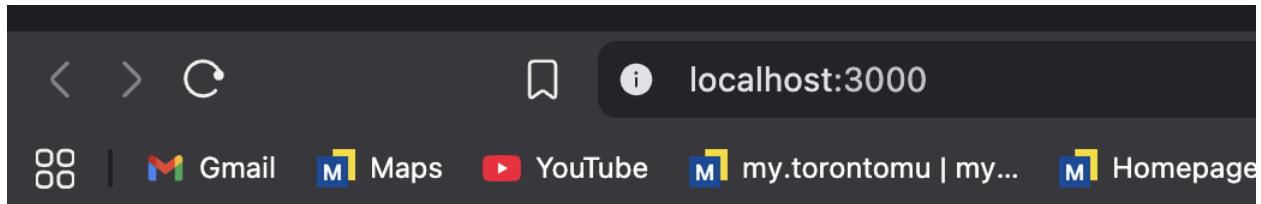
// Create HTTP server
const server = http.createServer((req, res) => {
  // Set response header
  res.writeHead(200, { 'Content-Type': 'text/html' });

  // Send response
  res.end('<h1>Hello World , from Docker!</h1>');
});

// Start server
server.listen(port, hostname, () => {
  console.log(`Server running at http://${hostname}:${port}/`);
});
```
- TERMINAL:** Shows command-line output:

```
(base) divyakapoor@Divyas-MacBook-Air Lab04 % npm init -y
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

(base) divyakapoor@Divyas-MacBook-Air Lab04 % node app.js
Server running at http://localhost:3000/
^C
(base) divyakapoor@Divyas-MacBook-Air Lab04 % node app.js
Server running at http://localhost:3000/
```



b) Version it with Git

-> open a bash terminal:

```
$ git init
```

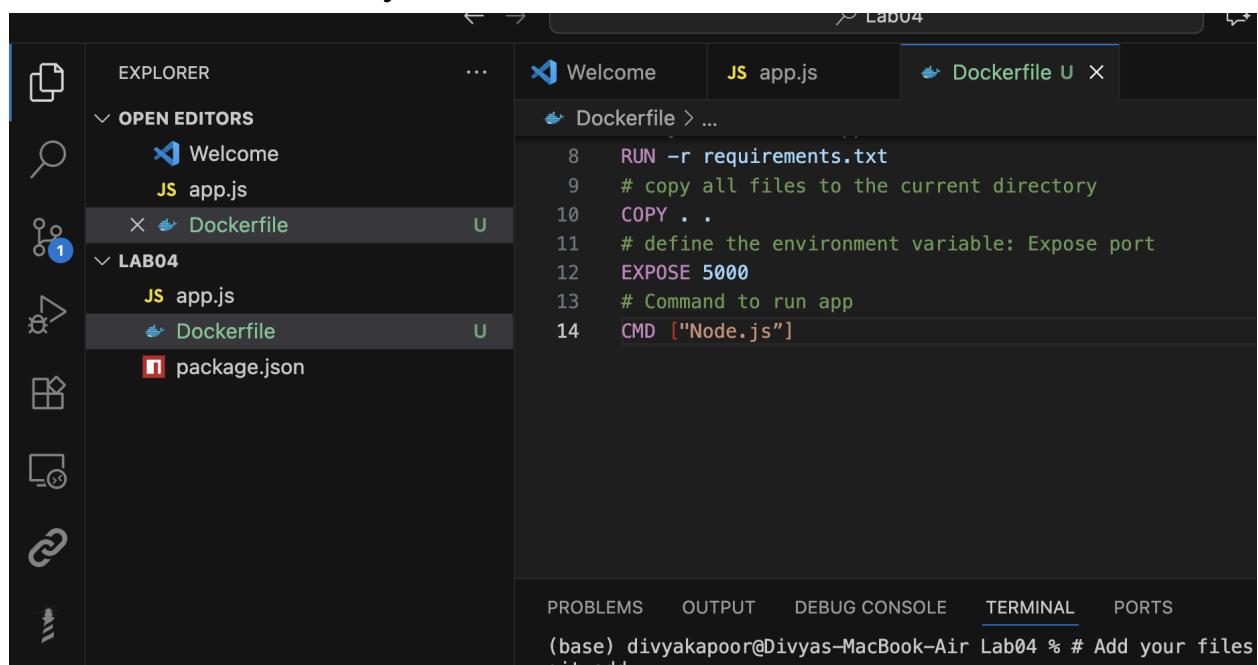
```
:
```

```
base) divyakapoor@Divyas-MacBook-Air Lab04 % node app.js
base) divyakapoor@Divyas-MacBook-Air Lab04 % git init
int: Using 'master' as the name for the initial branch. This default branch name
int: is subject to change. To configure the initial branch name to use in all
int: of your new repositories, which will suppress this warning, call:
int:
int:   git config --global init.defaultBranch <name>
int:
int: Names commonly chosen instead of 'master' are 'main', 'trunk' and
int: 'development'. The just-created branch can be renamed via this command:
int:
int:   git branch -m <name>
int:
int: Disable this message with "git config set advice.defaultBranchName false"
initialized empty Git repository in /Users/divyakapoor/Desktop/TMU/Sem7/CPS847/Labs/Lab04/.git/
base) divyakapoor@Divyas-MacBook-Air Lab04 %
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS zsh + ⌂ ⌂ ... |  
● (base) divyakapoor@Divyas-MacBook-Air Lab04 % # Add your files  
git add .  
  
# Make your first commit  
git commit -m "Initial commit"  
  
# Create and switch to main branch  
git branch -M main  
  
# Now push  
git push -u origin main  
zsh: command not found: #  
zsh: command not found: #  
[main (root-commit) 148a58c] Initial commit  
 2 files changed, 33 insertions(+)  
  create mode 100644 app.js  
  create mode 100644 package.json  
zsh: command not found: #  
zsh: command not found: #  
Enumerating objects: 4, done.  
Counting objects: 100% (4/4), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (4/4), done.  
Writing objects: 100% (4/4), 730 bytes | 730.00 KiB/s, done.  
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To https://github.com/DivyaKapoor18/docker-rep1.git  
 * [new branch]      main -> main  
branch 'main' set up to track 'origin/main'.  
分歧 (base) divyakapoor@Divyas-MacBook-Air Lab04 %
```

d) Run it inside a Docker container

In the same directory, create a file called Dockerfile:



The screenshot shows the VS Code interface with the following details:

- EXPLORER**: Shows files in the project: Welcome (file icon), app.js (JS icon), Dockerfile (Dockerfile icon), LAB04 (folder icon), app.js (JS icon), Dockerfile (Dockerfile icon), and package.json (package icon). There is a blue circular badge with '1' next to the Dockerfile entry in the LAB04 folder.
- OPEN EDITORS**: Shows the Dockerfile being edited. The code is as follows:

```
8 RUN -r requirements.txt
9 # copy all files to the current directory
10 COPY .
11 # define the environment variable: Expose port
12 EXPOSE 5000
13 # Command to run app
14 CMD ["Node.js"]
```

- TERMINAL**: Shows the terminal output at the bottom of the screen, identical to the one in the previous screenshot.

e) Run with Docker

After making sure Docker is installed properly

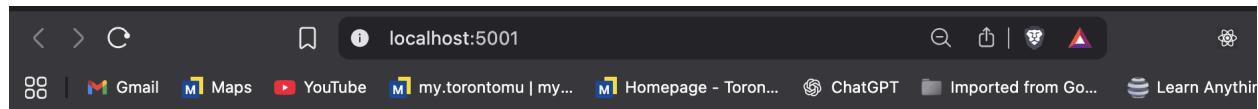
```
● (base) divyakapoor@Divyas-MacBook-Air Lab04 % docker build -t docker-rep1 .
[+] Building 19.7s (10/10) FINISHED                                            docker:desktop-linux
  => [internal] load build definition from Dockerfile                         0.0s
  => => transferring dockerfile: 344B                                         0.0s
  => [internal] load metadata for docker.io/library/node:latest               3.8s
  => [internal] load .dockerignore                                           0.0s
  => => transferring context: 2B                                           0.0s
  => [1/5] FROM docker.io/library/node:latest@sha256:4e87fa2c1aa4a31edfa4092cc50428e86bf129e5b 14.9s
  => => resolve docker.io/library/node:latest@sha256:4e87fa2c1aa4a31edfa4092cc50428e86bf129e5bb 0.0s
  => => sha256:dcaa3be86420504dbf77658c26043183e8fa405cfb4aa858bcd0fb0bb9b538f 446B / 446B 0.1s
  => => sha256:feb9377897463c218f63144ff04676e92bc203587fa4d7a84925278e7b39079 1.25MB / 1.25MB 0.1s
  => => sha256:f0f8ae0ffc1e3457ed25ec7b01144971bb1efe4bcf39f1da3b9e82330051b9 60.52MB / 60.52MB 4.4s
  => => sha256:20ff30f4b7a3f03817001fe77e6de91c5895ed229c0d9b0478d558a188fb4f6e 3.32kB / 3.32kB 0.2s
  => => sha256:dce9cd803e18b47bb66244c4b16529b3895360524f73e1026f92cd8842 202.96MB / 202.96MB 11.2s
  => => sha256:a0a2f93f2f0e198bff671333b38213c36ed741b7f552b83c033cf63f52b58c 64.37MB / 64.37MB 7.6s
  => => sha256:7b261306f7eb1436ff95e3b9d948f5373b0dcfc6ca1223aaa4c2fb303b03e74 23.59MB / 23.59MB 2.9s
  => => sha256:f7b43f0d0a8b99591b27457b368e70a582002600d32503fd07798c1bee7cd1 48.36MB / 48.36MB 4.2s
  => => extracting sha256:f7b43f0d0a8b99591b27457b368e70a582002600d32503fd07798c1bee7cd134 0.6s
  => => extracting sha256:7b261306f7eb1436ff95e3b9d948f5373b0dcfc6ca1223aaa4c2fb303b03e744c 0.2s
  => => extracting sha256:a0a2f93f2f0e198bff671333b38213c36ed741b7f552b83c033cf63f52b58c0e 0.9s
  => => extracting sha256:dce9cd803e18b47bb66244c4b16529b3895360524f73e1026f92cd884258213 2.8s
  => => extracting sha256:20ff30f4b7a3f03817001fe77e6de91c5895ed229c0d9b0478d558a188fb4f6e 0.0s
  => => extracting sha256:f0f8ae0ffc1e3457ed25ec7b01144971bb1efe4bcf39f1da3b9e82330051b97e 0.8s
  => => extracting sha256:feb9377897463c218f63144ff04676e92bc203587fa4d7a84925278e7b39079 0.0s
  => => extracting sha256:dcaa3be86420504dbf77658c26043183e8fa405cfb4aa858bcd0fb0bb9b538f 0.0s
  => [internal] load build context                                              0.0s
  => => transferring context: 32.27kB                                         0.0s
  => [2/5] WORKDIR /app                                                       0.4s
  => [3/5] COPY package*.json ./                                              0.0s
  => [4/5] RUN npm install                                                    0.3s
  => [5/5] COPY . . .                                                       0.0s
  => exporting to image                                                       0.1s
  => => exporting layers                                                       0.1s
  => => exporting manifest sha256:4d73ec480bc5e7b19c1ae58a45641b4596a5ab0b17f79e942fcfcf1f0acbd 0.0s
  => => exporting config sha256:5782c390566fc2a9ce8fc8a822dca3c4fa404660f63c9c40c05e721411608d78 0.0s
  => => exporting attestation manifest sha256:f726707502d791de977c3bc500291873bf54210fb10e10485 0.0s
  => => exporting manifest list sha256:baba1d32c1149d1e543dac7d5b17ab5c9ac996b355a4ad09578d6ce 0.0s
  => => naming to docker.io/library/docker-rep1:latest                      0.0s
  => => unpacking to docker.io/library/docker-rep1:latest                   0.0s
○ (base) divyakapoor@Divyas-MacBook-Air Lab04 %

(base) divyakapoor@Divyas-MacBook-Air Lab04 % docker build -t docker-rep1 .
=> CACHED [5/5] COPY . . .                                                 0.0s
=> exporting to image                                                       0.0s
=> => exporting layers                                                       0.0s
=> => exporting manifest sha256:40c25864e3dbe90d93e343c213a4e0b32b84cb2c97ee42b39adde3a2122b3 0.0s
=> => exporting config sha256:7afdc121edbdf5dc4f48f3be578e196518071f7a568f88c0cdfee3db475cd 0.0s
=> => exporting attestation manifest sha256:8901956ddd287d2f9f80e3fe71b9a39e6fc3aa32962d77feb 0.0s
=> => exporting manifest list sha256:cb05f54ae2c1e8d7126ac3aaaf8851ce2ae0b118fde901ddd4179563 0.0s
=> => naming to docker.io/library/docker-rep1:latest                      0.0s
=> => unpacking to docker.io/library/docker-rep1:latest                   0.0s
○ (base) divyakapoor@Divyas-MacBook-Air Lab04 % docker run -p 5000:5000 docker-rep1
docker: Error response from daemon: ports are not available: exposing port TCP 0.0.0.0:5000 -> 127.0.0.1:0: listen tcp 0.0.0.0:5000: bind: address already in use

Run 'docker run -- <Follow link (cmd + click)> ion
(base) divyakapoor 04 % docker run -p 5001:5000 docker-rep1
Server running at http://0.0.0.0:5000/
x

yaKapoor18 (6 minutes ago)  Ln 6, Col 15  Spaces: 4  UTF-8  LF  { Babel JavaScript  ⚡  ⚡ Port : 5500  ✓ Prettier  ⚡
```

The port 5000 was busy so ran it on port 5001



Hello World , from Docker!