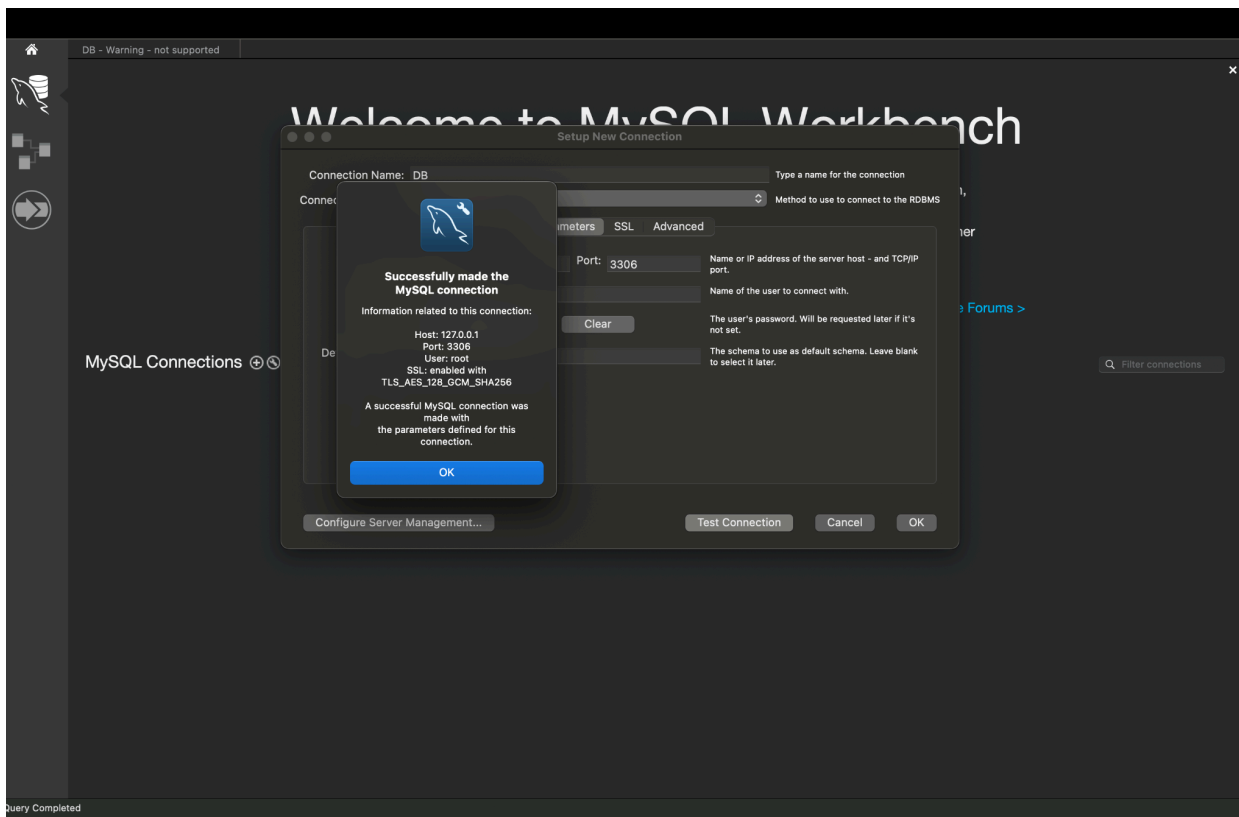


Assignment 2

a. Create a Container with PostgresDB or mySQL database installed (5 Marks)

```
ashishpandey@Ashishs-MacBook-Air Developer % docker run --name dock-mysql -p 3306:3306 -e MYSQL_ROOT_PASSWORD=my-secret-pw -d mysql
Unable to find image 'mysql:latest' locally
latest: Pulling from library/mysql
fa07288abb8b: Pull complete
ec8f39a1086c: Pull complete
c6f7d8b9ec0f: Pull complete
04a0ce28ec2e: Pull complete
638509fc8b3b: Pull complete
12e5c634f2aa: Pull complete
247c3cfdb546: Pull complete
077c1fe576aa: Pull complete
86ee65fddcb9: Pull complete
289ebc772938: Pull complete
Digest: sha256:7839322bd6c3174a699586c3ea36314c59b61b4ce01b4146951818b94aef5fd7
Status: Downloaded newer image for mysql:latest
e109b54791840684e07bff2b3d2010ca0dc675c3561f372f4982338e9f422ea3
ashishpandey@Ashishs-MacBook-Air Developer %
```

```
ashishpandey@Ashishs-MacBook-Air Developer % docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
e109b5479184   mysql    "docker-entrypoint.s..." 34 seconds ago Up 33 seconds 0.0.0.0:3306->3306/tcp, 33060/tcp  dock-mysql
ashishpandey@Ashishs-MacBook-Air Developer %
```



Ask Gordon **BETA**

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Containers / dock-mysql

dock-mysql

<  e109b5479184  mysql:latest
3306:3306 

STATUS

Running (34 minutes ago)



Logs Inspect Bind mounts Exec Files Stats

```
'/var/run/mysqld/mysqld.sock' port: 0 MySQL Community Server - GPL.
2025-04-20 07:26:08+00:00 [Note] [Entrypoint]: Temporary server started.
'/var/lib/mysql/mysql.sock' -> '/var/run/mysqld/mysqld.sock'
Warning: Unable to load '/usr/share/zoneinfo/iso3166.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leap-seconds.list' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/leapseconds' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/tzdata.zi' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone.tab' as time zone. Skipping it.
Warning: Unable to load '/usr/share/zoneinfo/zone1970.tab' as time zone. Skipping it.

2025-04-20 07:26:09+00:00 [Note] [Entrypoint]: Stopping temporary server
2025-04-20T07:26:09.784829Z 11 [System] [MY-013172] [Server] Received SHUTDOWN from user root. Shutting down mysqld (Version: 9.3.0).
2025-04-20T07:26:11.291995Z 0 [System] [MY-010910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 9.3.0) MySQL Community Server - GPL.
2025-04-20T07:26:11.292025Z 0 [System] [MY-015016] [Server] MySQL Server - end.
2025-04-20 07:26:11+00:00 [Note] [Entrypoint]: Temporary server stopped

2025-04-20 07:26:11+00:00 [Note] [Entrypoint]: MySQL init process done. Ready for start up.

2025-04-20T07:26:11.825481Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2025-04-20T07:26:11.997621Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 9.3.0) starting as process 1
2025-04-20T07:26:12.004208Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2025-04-20T07:26:12.104043Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2025-04-20T07:26:12.231838Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2025-04-20T07:26:12.231857Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2025-04-20T07:26:12.232971Z 0 [Warning] [MY-011810] [Server] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Consider choosing a different directory.
2025-04-20T07:26:12.242391Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: /var/run/mysqld/mysqlx.sock
2025-04-20T07:26:12.242432Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '9.3.0' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server - GPL.
```

Engine running

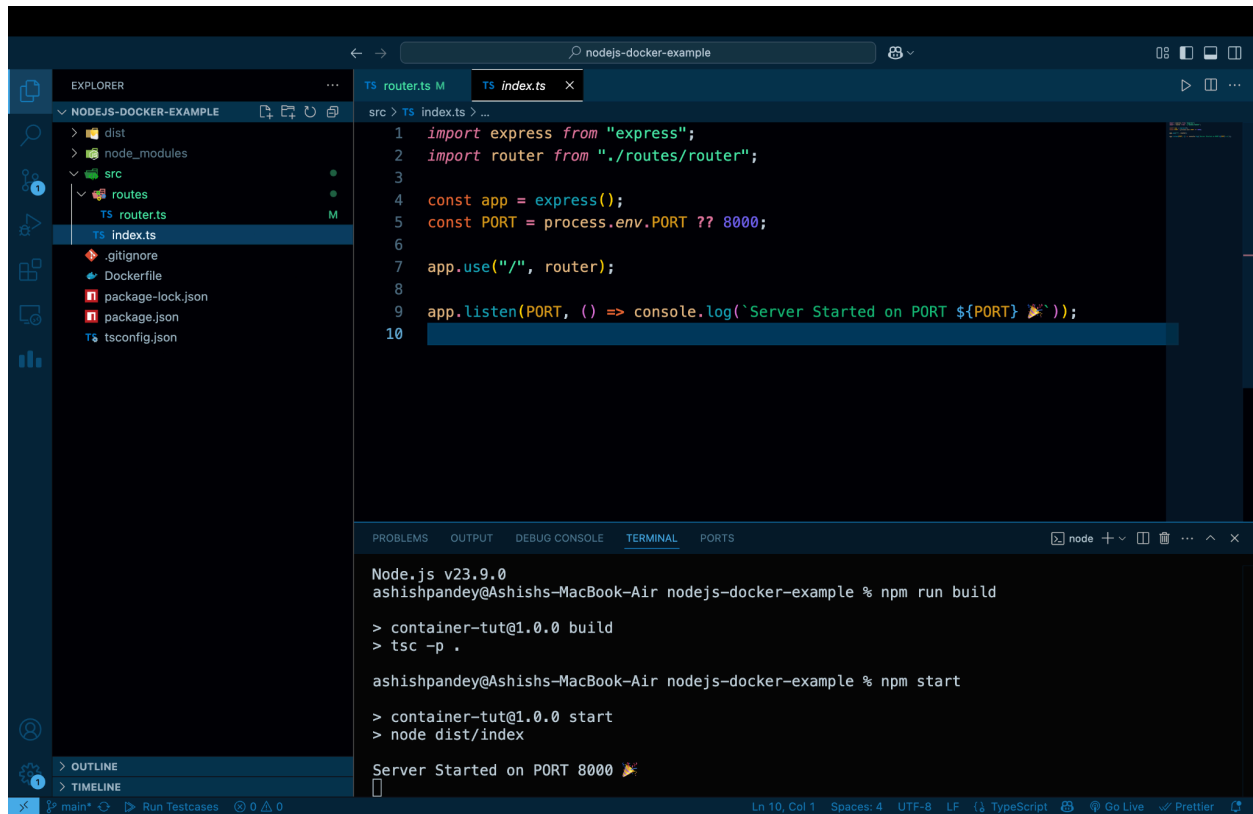
RAM 2.01 GB CPU 0.00% Disk: 2.08 GB used (limit 1006.85 GB)

Terminal

v4.40.0

b. Deploy VReqST – A requirement specification tool in a container (20 marks).

1) Code running outside container:



The screenshot shows a VS Code editor window with the Explorer sidebar on the left displaying the file structure of a project named 'nodejs-docker-example'. The Explorer shows folders 'dist', 'node_modules', and 'src', with 'src' containing 'routes' (with 'router.ts') and 'index.ts'. The main editor area shows the content of 'src/index.ts', which is a TypeScript file for an Express.js server. The code imports 'express' and a local 'router', creates an app, sets a port (defaulting to 8000), and listens on that port, logging the start message. The bottom panel shows the 'TERMINAL' tab with the following commands and output:

```
Node.js v23.9.0
ashishpandey@Ashishs-MacBook-Air nodejs-docker-example % npm run build

> container-tut@1.0.0 build
> tsc -p .

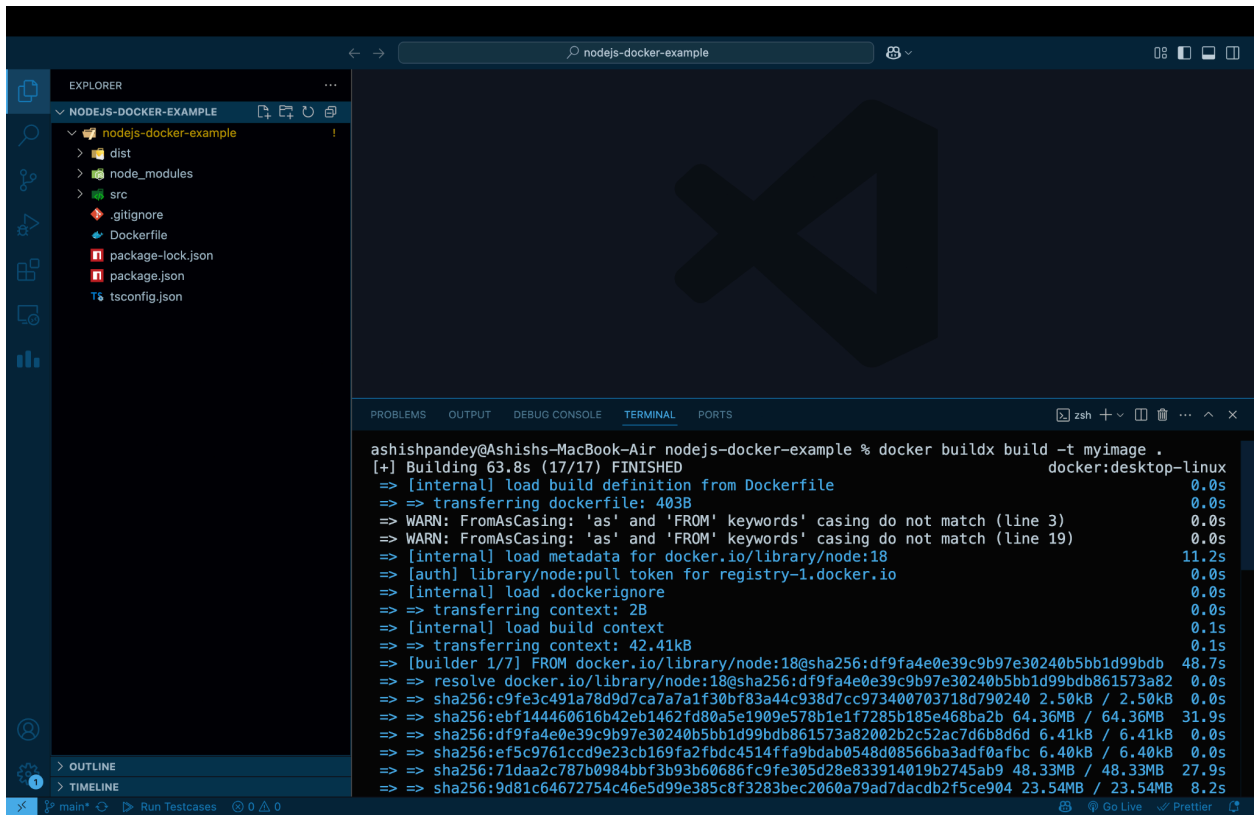
ashishpandey@Ashishs-MacBook-Air nodejs-docker-example % npm start

> container-tut@1.0.0 start
> node dist/index

Server Started on PORT 8000 🚀
```

The status bar at the bottom indicates the current cursor position is at Line 10, Column 1, in a TypeScript file using UTF-8 encoding and LF line endings.

2) Building new container:



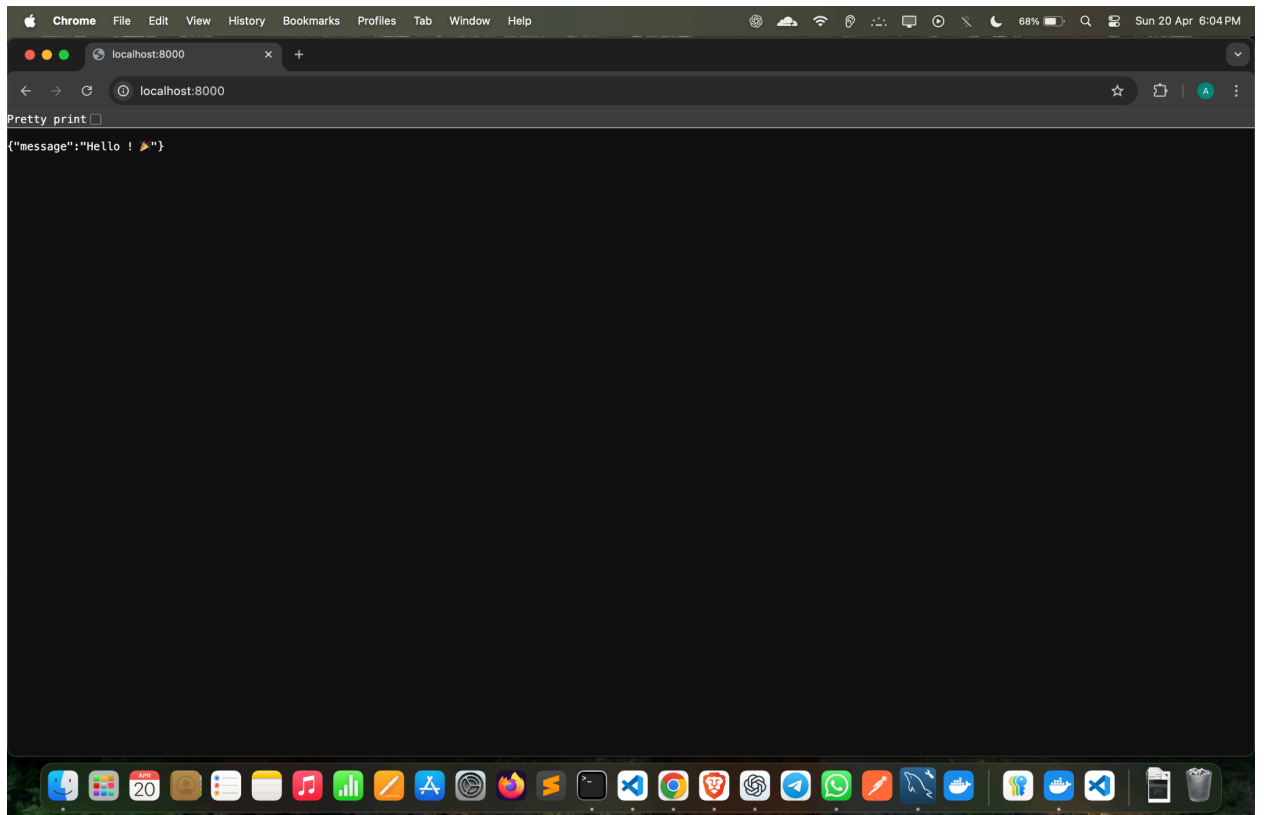
The screenshot shows the Visual Studio Code interface with a project named 'nodejs-docker-example'. The Explorer panel on the left shows the project structure: 'dist', 'node_modules', 'src', '.gitignore', 'Dockerfile', 'package-lock.json', 'package.json', and 'tsconfig.json'. The main editor area is empty, displaying a large, faint Docker logo. The bottom panel shows the 'TERMINAL' tab with the following output:

```
ashishpandey@Ashishs-MacBook-Air nodejs-docker-example % docker buildx build -t myimage .
[+] Building 63.8s (17/17) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 403B                                0.0s
=> WARN: FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 3) 0.0s
=> WARN: FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 19) 0.0s
=> [internal] load metadata for docker.io/library/node:18         11.2s
=> [auth] library/node:pull token for registry-1.docker.io        0.0s
=> [internal] load .dockerignore                                   0.0s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                   0.1s
=> => transferring context: 42.41kB                                  0.1s
=> [builder 1/7] FROM docker.io/library/node:18@sha256:df9fa4e0e39c9b97e30240b5bb1d99bdb 48.7s
=> => sha256:c9fe3c491a78d9d7ca7a7a1f30bf83a44c938d7cc973400703718d790240 2.50kB / 2.50kB 0.0s
=> => sha256:ebf144460616b42eb1462fd80a5e1909e578b1e1f7285b185e468ba2b 64.36MB / 64.36MB 31.9s
=> => sha256:df9fa4e0e39c9b97e30240b5bb1d99bdb861573a82002b2c52ac7d6b8d6d 6.41kB / 6.41kB 0.0s
=> => sha256:ef5c9761ccd9e23cb169fa2fbdc4514ffa9bdab0548d08566ba3adf0afbc 6.40kB / 6.40kB 0.0s
=> => sha256:71daa2c787b0984bbf3b93b60686fc9fe305d28e833914019b2745ab9 48.33MB / 48.33MB 27.9s
=> => sha256:9d81c64672754c46e5d99e385c8f3283bec2060a79ad7dacdb2f5ce904 23.54MB / 23.54MB 8.2s
```

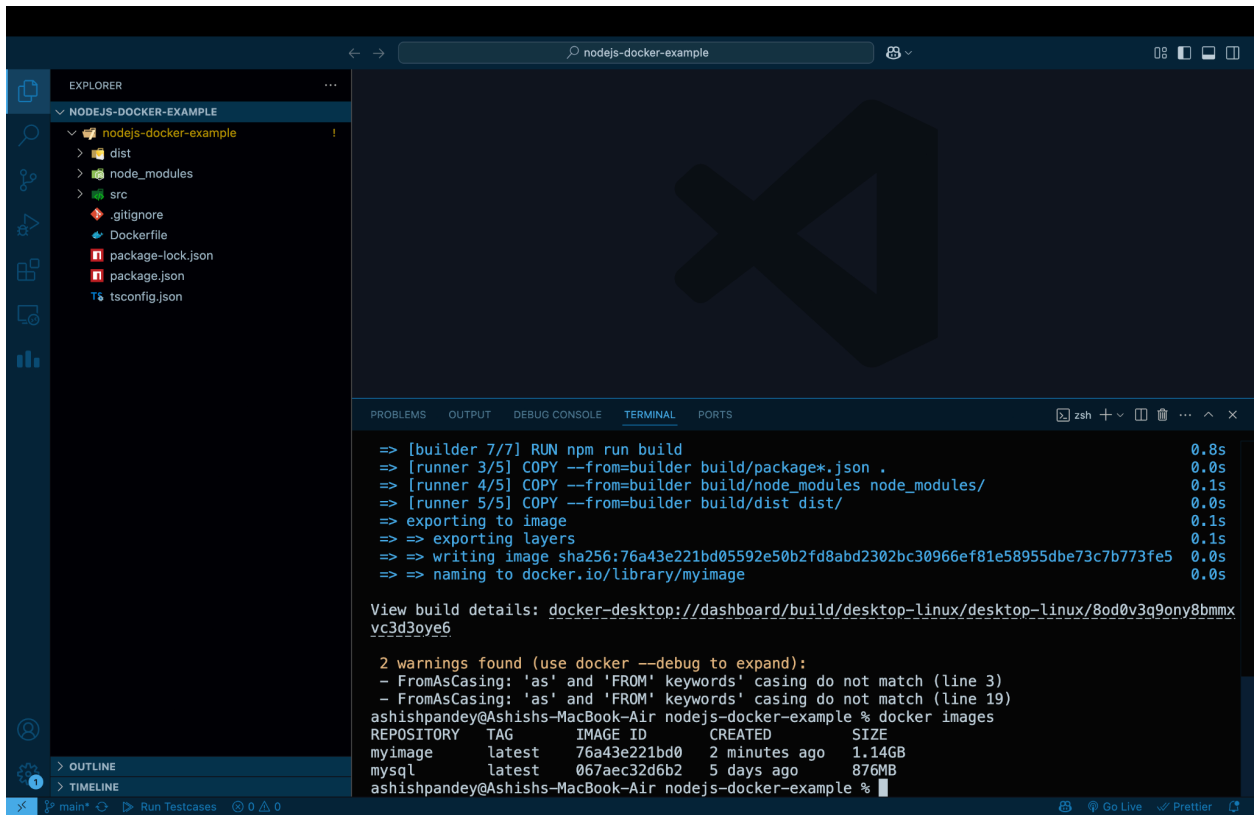
3) Started serving the code inside the container:

```
ashishpandey@Ashishs-MacBook-Air nodejs-docker-example % docker run -it -p 8000:8000 myimage  
> container-tut@1.0.0 start  
> node dist/index  
Server Started on PORT 8000 🍷
```

4) Running from container:



5) List of images:



The screenshot shows the VS Code interface with the Explorer view on the left displaying the project structure for 'nodejs-docker-example'. The main editor area shows the Docker build output in the TERMINAL view. The build process includes steps for running npm, copying files, exporting layers, writing the image, and naming it. Below the build output, a warning message is displayed, followed by a table listing Docker images.

```
=> [builder 7/7] RUN npm run build 0.8s
=> [runner 3/5] COPY --from=builder build/package*.json . 0.0s
=> [runner 4/5] COPY --from=builder build/node_modules node_modules/ 0.1s
=> [runner 5/5] COPY --from=builder build/dist dist/ 0.0s
=> exporting to image 0.1s
=> => exporting layers 0.1s
=> => writing image sha256:76a43e221bd05592e50b2fd8abd2302bc30966ef81e58955dbe73c7b773fe5 0.0s
=> => naming to docker.io/library/myimage 0.0s
```

View build details: [docker-desktop://dashboard/build/desktop-linux/desktop-linux/80d0v3q9ony8bmmxvc3d3oye6](#)

2 warnings found (use docker --debug to expand):

- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 3)
- FromAsCasing: 'as' and 'FROM' keywords' casing do not match (line 19)

ashishpandey@Ashishs-MacBook-Air nodejs-docker-example % docker images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
myimage	latest	76a43e221bd0	2 minutes ago	1.14GB
mysql	latest	067aec32d6b2	5 days ago	876MB

ashishpandey@Ashishs-MacBook-Air nodejs-docker-example %