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***Section:***

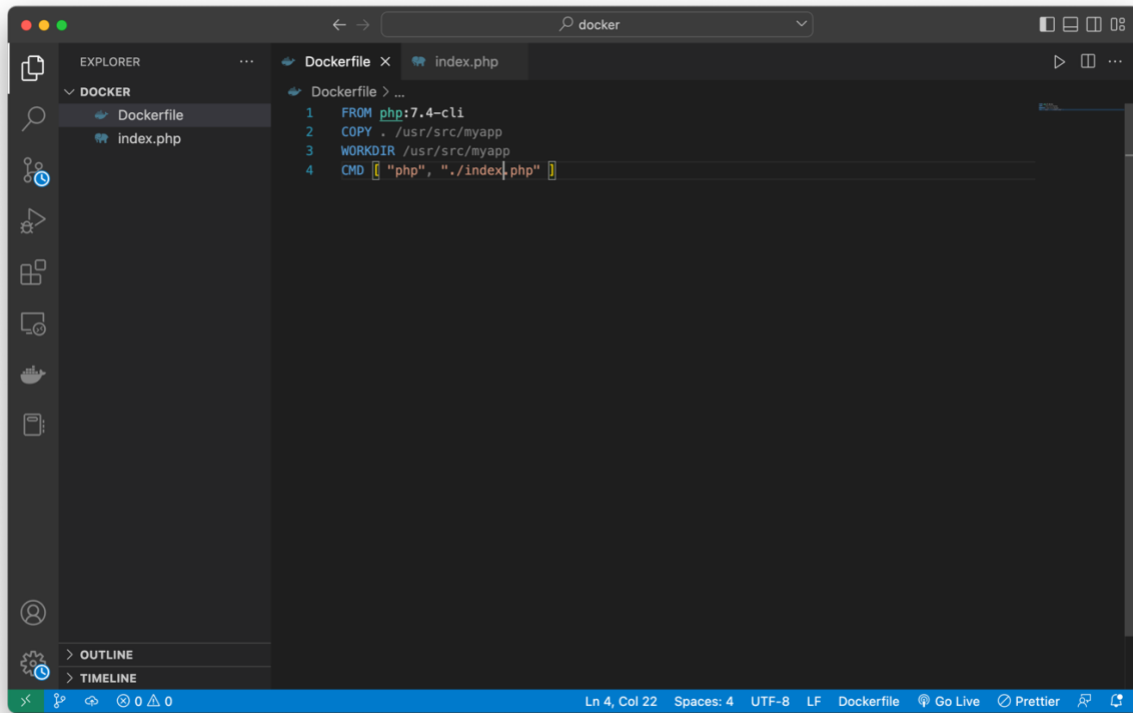
***BCS-7A***

***Subject:***

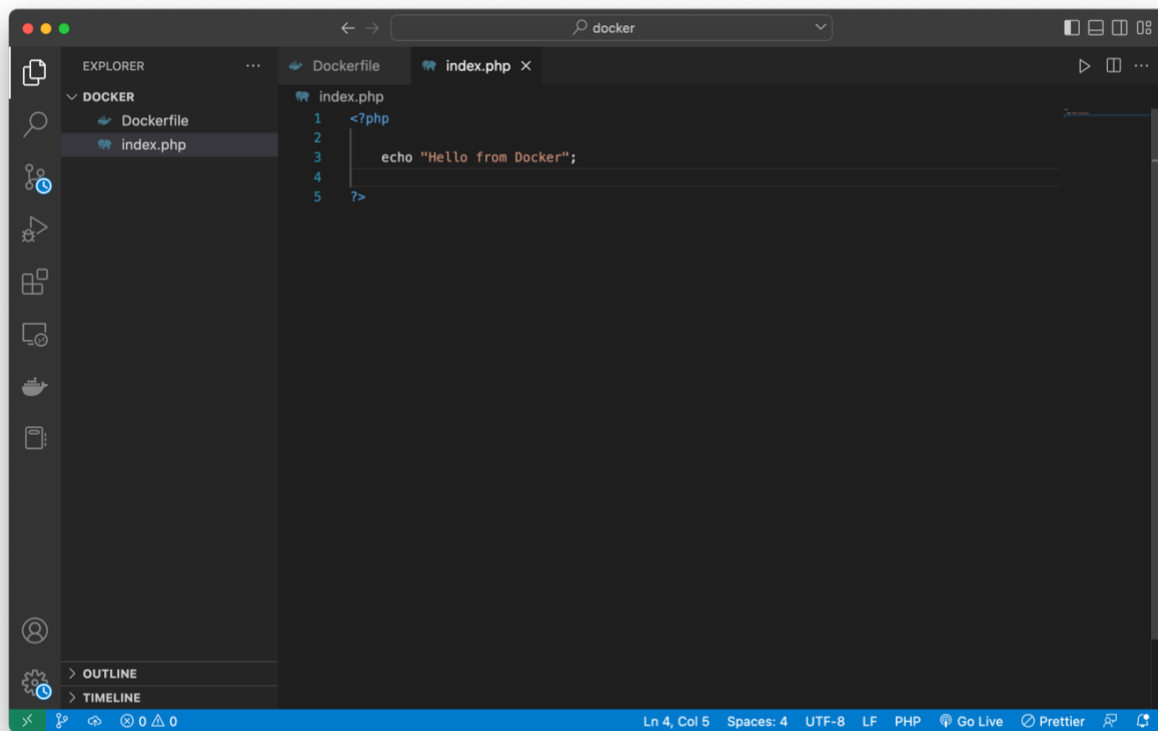
***Cloud Computing***

- **Docker file**

- A file that contains instructions for building a Docker image



- **Application Code**



- **docker build -t my-php-app .**
  - docker build command in Docker is used to build a Docker image from a Dockerfile.
  - The -t flag specifies the name of the image
  - The (.) specifies the context of the build, which is the location of the Dockerfile and the source files for the image



docker — -zsh — 112x34

```
(base) tayyubnaveed@192 docker % docker build -t my-php-app .
[+] Building 335.0s (8/8) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 132B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/php:7.4-cli 6.3s
=> [internal] load build context 0.1s
=> => transferring context: 6.46kB 0.0s
=> [1/3] FROM docker.io/library/php:7.4-cli@sha256:620a6b9f4d4feef2210 327.3s
=> => resolve docker.io/library/php:7.4-cli@sha256:620a6b9f4d4feef221002 0.0s
=> => sha256:691f9ae2a3639de11d95f507bc29c723a7f27b79bdf 2.20kB / 2.20kB 0.0s
=> => sha256:7bbb12d14986e855e5213c6b349e97e0f2e3da8253 9.64kB / 9.64kB 0.0s
=> => sha256:a603fa5e3b4127f210503aaa6189abf6286ee5a7 31.41MB / 31.41MB 88.8s
=> => sha256:620a6b9f4d4feef2210026172570465e9d0c1de7976 1.86kB / 1.86kB 0.0s
=> => sha256:c428f1a494230852524a2a5957cc5199c36c8b403305e0e 226B / 226B 2.6s
=> => sha256:156740b07ef8a632f9f7bea4e57e4ee5541ade3 91.63MB / 91.63MB 319.5s
=> => sha256:fb5a4c8af82f00730b7427e47bda7f76cea2e2b9aea4217 270B / 270B 3.1s
=> => sha256:972155ae644b037435eddf206152975f6fd3eae 10.74MB / 10.74MB 132.0s
=> => sha256:a8e3b94fe6c130216f4567f987d8a71cfebc44bb098f9f 491B / 491B 89.9s
=> => extracting sha256:a603fa5e3b4127f210503aaa6189abf6286ee5a73deeaab4 2.3s
=> => sha256:c770041054676af58c6ee8deb45af5a2bb7007d 32.62MB / 32.62MB 280.9s
=> => extracting sha256:c428f1a494230852524a2a5957cc5199c36c8b403305e0e8 0.0s
=> => sha256:d3e4898bfd255fa3e37a5e19cdc4c75818f26476d 2.45kB / 2.45kB 132.9s
=> => sha256:30f377be467858ef94e5cbc0916b4621d07e457b0aedb 244B / 244B 133.4s
=> => extracting sha256:156740b07ef8a632f9f7bea4e57e4ee5541ade376adf9169 5.3s
=> => extracting sha256:fb5a4c8af82f00730b7427e47bda7f76cea2e2b9aea42175 0.0s
=> => extracting sha256:972155ae644b037435eddf206152975f6fd3eae1dddeb632 0.2s
=> => extracting sha256:a8e3b94fe6c130216f4567f987d8a71cfebc44bb098f9f1d 0.0s
=> => extracting sha256:c770041054676af58c6ee8deb45af5a2bb7007d1743f280f 1.6s
=> => extracting sha256:d3e4898bfd255fa3e37a5e19cdc4c75818f26476d9160f70 0.0s
=> => extracting sha256:30f377be467858ef94e5cbc0916b4621d07e457b0aedb00b 0.0s
=> [2/3] COPY . /usr/src/myapp 1.1s
=> [3/3] WORKDIR /usr/src/myapp 0.0s
```



docker — -zsh — 112x34

```
> [1/3] FROM docker.io/library/php:7.4-cli@sha256:620a6b9f4d4feef2210 327.3s
=> => resolve docker.io/library/php:7.4-cli@sha256:620a6b9f4d4feef221002 0.0s
=> => sha256:691f9ae2a3639de11d95f507bc29c723a7f27b79bdf 2.20kB / 2.20kB 0.0s
=> => sha256:7bbb12d14986e855e5213c6b349e97e0f2e3da8253 9.64kB / 9.64kB 0.0s
=> => sha256:a603fa5e3b4127f210503aaa6189abf6286ee5a7 31.41MB / 31.41MB 88.8s
=> => sha256:620a6b9f4d4feef2210026172570465e9d0c1de7976 1.86kB / 1.86kB 0.0s
=> => sha256:c428f1a494230852524a2a5957cc5199c36c8b403305e0e 226B / 226B 2.6s
=> => sha256:156740b07ef8a632f9f7bea4e57e4ee5541ade3 91.63MB / 91.63MB 319.5s
=> => sha256:fb5a4c8af82f00730b7427e47bda7f76cea2e2b9aea4217 270B / 270B 3.1s
=> => sha256:972155ae644b037435eddf206152975f6fd3eae 10.74MB / 10.74MB 132.0s
=> => sha256:a8e3b94fe6c130216f4567f987d8a71cfebc44bb098f9f 491B / 491B 89.9s
=> => extracting sha256:a603fa5e3b4127f210503aaa6189abf6286ee5a73deeaab4 2.3s
=> => sha256:c770041054676af58c6ee8deb45af5a2bb7007d 32.62MB / 32.62MB 280.9s
=> => extracting sha256:c428f1a494230852524a2a5957cc5199c36c8b403305e0e8 0.0s
=> => sha256:d3e4898bfd255fa3e37a5e19cdc4c75818f26476d 2.45kB / 2.45kB 132.9s
=> => sha256:30f377be467858ef94e5cbc0916b4621d07e457b0aedb 244B / 244B 133.4s
=> => extracting sha256:156740b07ef8a632f9f7bea4e57e4ee5541ade376adf9169 5.3s
=> => extracting sha256:fb5a4c8af82f00730b7427e47bda7f76cea2e2b9aea42175 0.0s
=> => extracting sha256:972155ae644b037435eddf206152975f6fd3eae1dddeb632 0.2s
=> => extracting sha256:a8e3b94fe6c130216f4567f987d8a71cfebc44bb098f9f1d 0.0s
=> => extracting sha256:c770041054676af58c6ee8deb45af5a2bb7007d1743f280f 1.6s
=> => extracting sha256:d3e4898bfd255fa3e37a5e19cdc4c75818f26476d9160f70 0.0s
=> => extracting sha256:30f377be467858ef94e5cbc0916b4621d07e457b0aedb00b 0.0s
=> [2/3] COPY . /usr/src/myapp 1.1s
=> [3/3] WORKDIR /usr/src/myapp 0.0s
=> => exporting to image 0.0s
=> => exporting layers 0.0s
=> => writing image sha256:e3890cc7e36f5bbd65b85f615f310e4f8b2aabf372267 0.0s
=> => naming to docker.io/library/my-php-app 0.0s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
(base) tayyubnaveed@192 docker % docker run -it --rm --name my-running-app my-php-app
Hello from Docker!
(base) tayyubnaveed@192 docker %
```

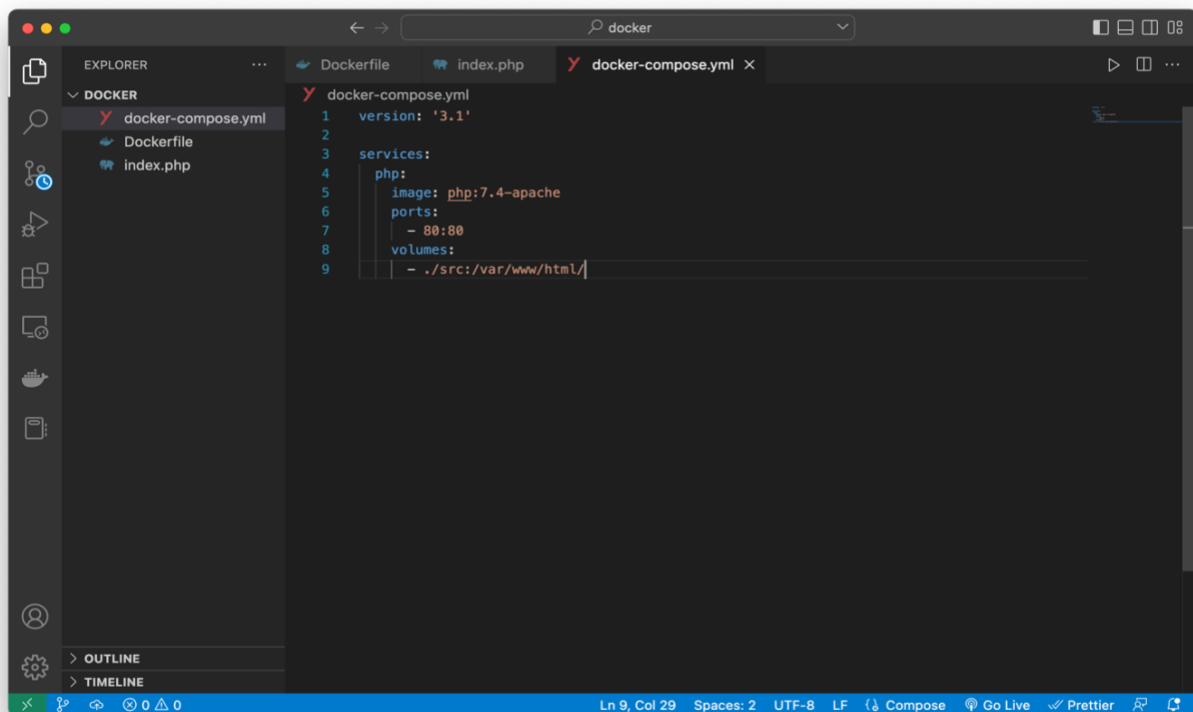
- **docker run -d -p 80:80 --name my-apache-php-app**
  - This command is used to create and run a container from image

[illegible]



- **docker-compose.yml file**

- The docker-compose file is used for defining and running multi-container Docker applications.
- A docker-compose file is a configuration file that specifies the services that make up an application, the dependencies between them, and how they should be deployed.



The screenshot shows a code editor interface with a dark theme. The Explorer panel on the left shows a project structure with a 'DOCKER' folder containing 'docker-compose.yml', 'Dockerfile', and 'index.php'. The main editor area displays the 'docker-compose.yml' file with the following content:

```
1 version: '3.1'
2
3 services:
4   php:
5     image: php:7.4-apache
6     ports:
7       - 80:80
8     volumes:
9       - ./src:/var/www/html/
```

The status bar at the bottom indicates the cursor is at Line 9, Column 29, with 2 spaces, UTF-8 encoding, and LF line endings. It also shows extensions like Compose, Go Live, and Prettier.

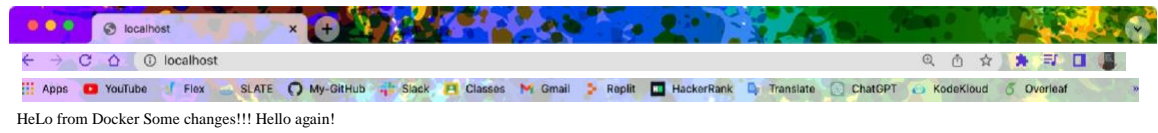
- ***docker-compose up -d***

```

(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker %
(base) tayyubnaveed@192 docker % docker stop $(docker ps -a -q)
d64baadd353d
(base) tayyubnaveed@192 docker % docker compose -d
unknown shorthand flag: 'd' in -d
(base) tayyubnaveed@192 docker % docker-compose up -d
[+] Running 14/14
  # php Pulled 112.1s
  # a603fa5e3b41 Already exists 0.0s
  # c428f1a49423 Already exists 0.0s
  # 156740b07ef8 Already exists 0.0s
  # fb5a4c8af82f Already exists 0.0s
  # 25f85b498fd5 Pull complete 49.8s
  # 9b233e420ac7 Pull complete 49.8s
  # fe42347c4ecf Pull complete 49.9s
  # d14eb2ed1e17 Pull complete 91.5s
  # 66d98f73acb6 Pull complete 91.8s
  # d2c43c5efbc8 Pull complete 106.9s
  # ab590b48ea47 Pull complete 107.1s
  # 80692ae2d067 Pull complete 107.3s
  # 05e465aaa99a Pull complete 107.4s
[+] Running 2/2
  # Network docker_default Created 0.2s
  # Container docker-php-1 Started 1.5s
(base) tayyubnaveed@192 docker %

```

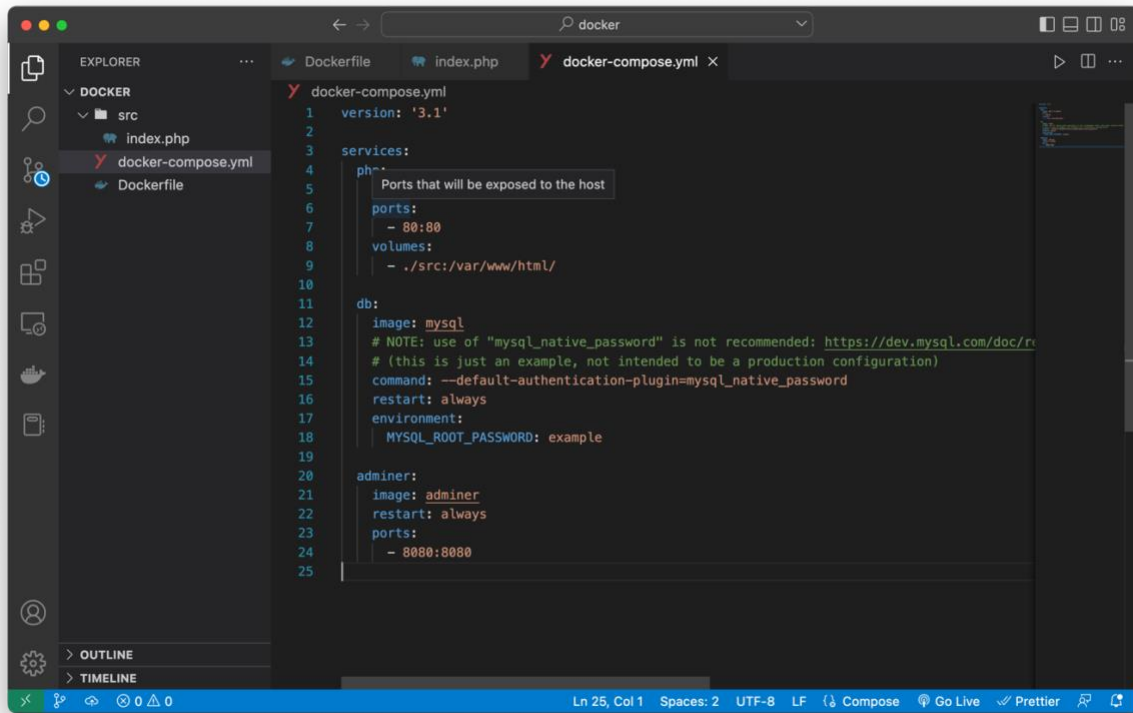




HeLo from Docker Some changes!!! Hello again!

---

- ***Adding MySQL service in docker-compose file***



The screenshot shows a code editor with a dark theme. The Explorer panel on the left shows a project structure with a 'DOCKER' folder containing 'src' (with 'index.php') and 'docker-compose.yml'. The main editor displays the 'docker-compose.yml' file with the following content:

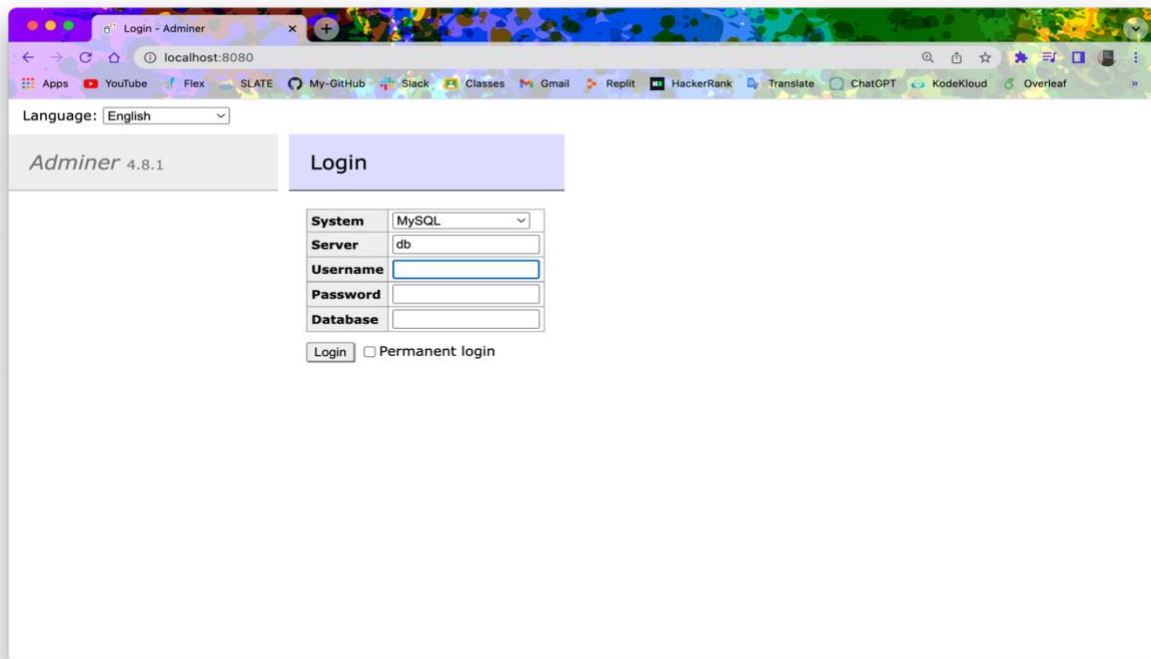
```
1 version: '3.1'
2
3 services:
4   php:
5     # Ports that will be exposed to the host
6     ports:
7       - 80:80
8     volumes:
9       - ./src:/var/www/html/
10
11   db:
12     image: mysql
13     # NOTE: use of "mysql_native_password" is not recommended: https://dev.mysql.com/doc/r
14     # (this is just an example, not intended to be a production configuration)
15     command: --default-authentication-plugin=mysql_native_password
16     restart: always
17     environment:
18       MYSQL_ROOT_PASSWORD: example
19
20   adminer:
21     image: adminer
22     restart: always
23     ports:
24       - 8080:8080
25
```

The status bar at the bottom indicates 'Ln 25, Col 1', 'Spaces: 2', 'UTF-8', 'LF', and shows icons for Docker Compose, Go Live, and Prettier.

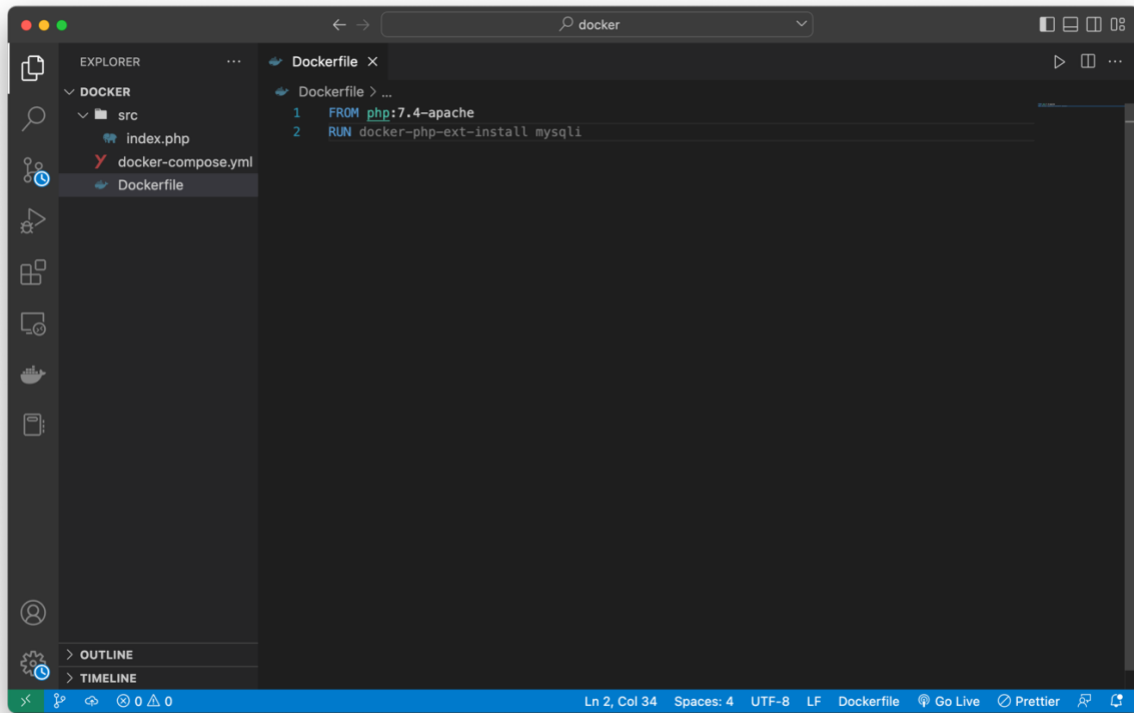
```

(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker %
(base) tayyubnaheed@192 docker % docker stop $(docker ps -a -q)
d64baadd353d
(base) tayyubnaheed@192 docker % docker compose -d
unknown shorthand flag: 'd' in -d
(base) tayyubnaheed@192 docker % docker-compose up -d
[+] Running 14/14
  # php Pulled 112.1s
  # a603fa5e3b41 Already exists 0.0s
  # c428f1a49423 Already exists 0.0s
  # 156740b07ef8 Already exists 0.0s
  # fb5a4c8af82f Already exists 0.0s
  # 25f85b498fd5 Pull complete 49.8s
  # 9b233e420ac7 Pull complete 49.8s
  # fe42347c4ecf Pull complete 49.9s
  # d14eb2ed1e17 Pull complete 91.5s
  # 66d98f773acb6 Pull complete 91.8s
  # d2c43c5efbc8 Pull complete 106.9s
  # ab590b48ea47 Pull complete 107.1s
  # 80692ae2d867 Pull complete 107.3s
  # 05e465aaa09a Pull complete 107.4s
[+] Running 2/2
  # Network docker_default Created 0.2s
  # Container docker-php-1 Started 1.5s
(base) tayyubnaheed@192 docker % docker-compose down
[+] Running 2/2
  # Container docker-php-1 Removed 1.3s
  # Network docker_default Removed 0.1s
(base) tayyubnaheed@192 docker % _

```

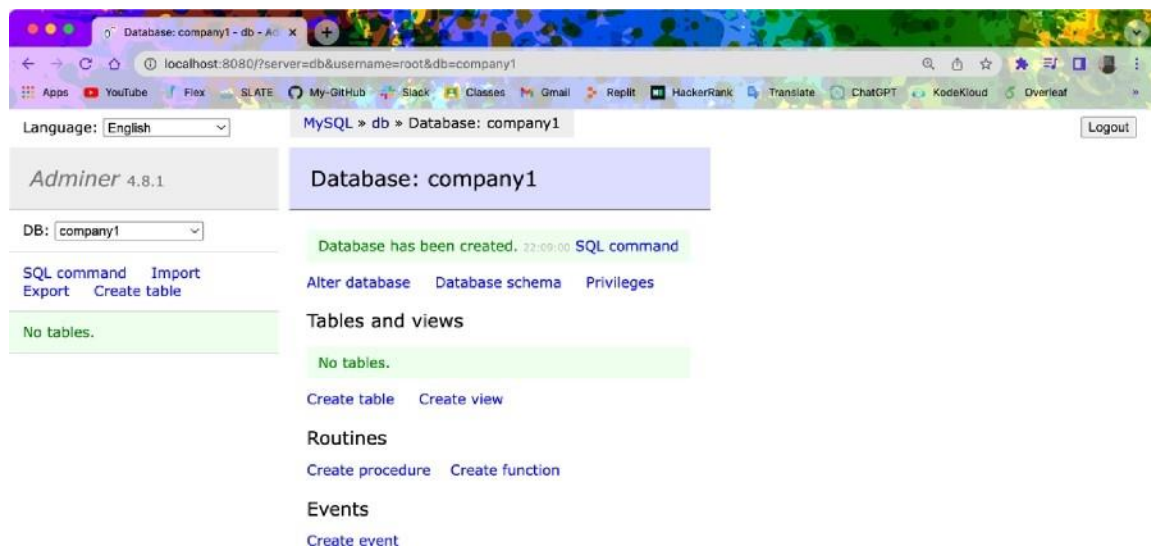


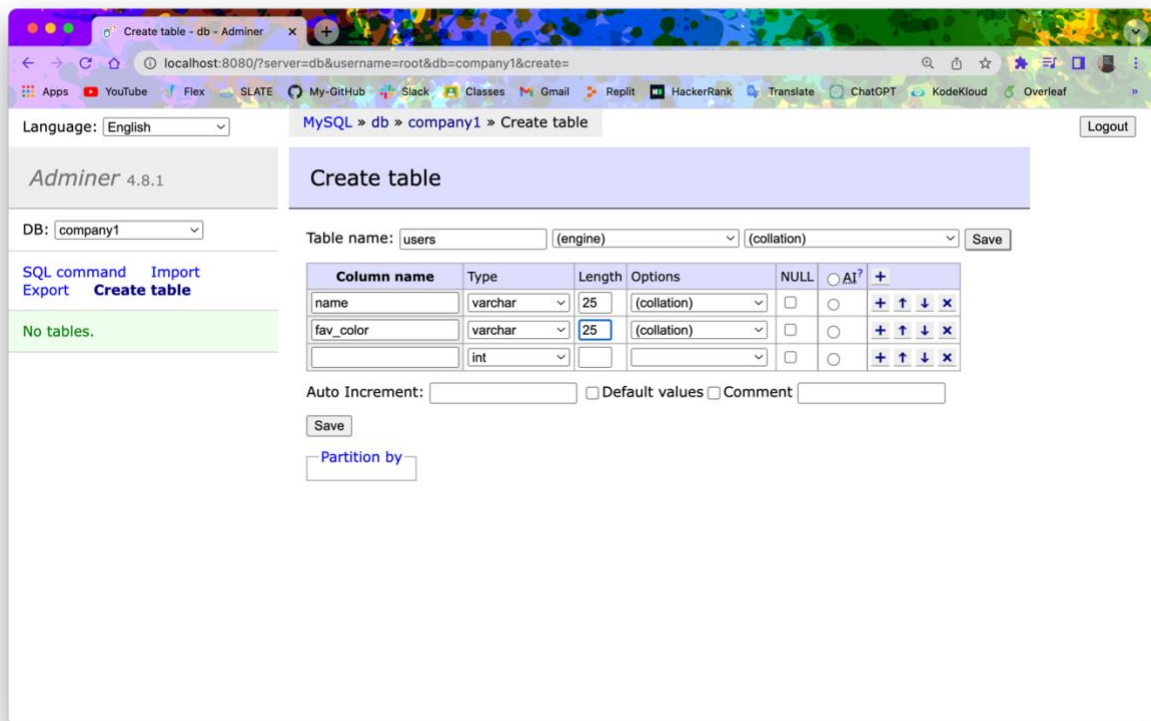
- *creating Apache docker file*



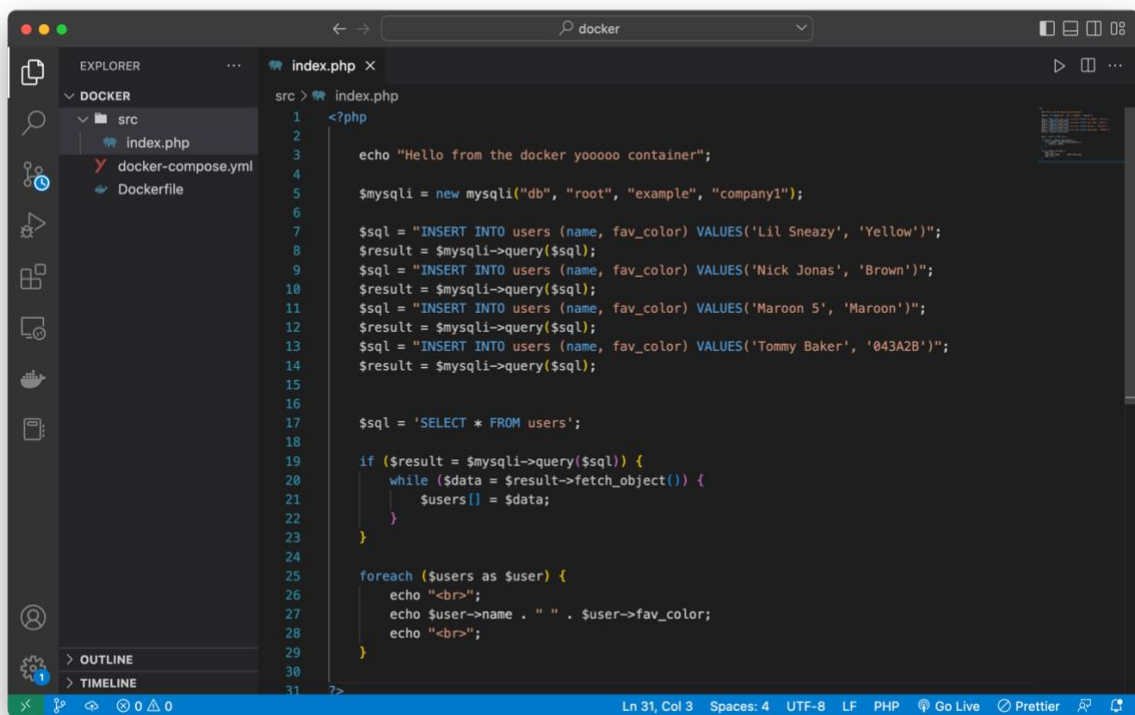
```
Dockerfile
1 FROM php:7.4-apache
2 RUN docker-php-ext-install mysqli
```

The screenshot shows a code editor with a sidebar on the left containing an Explorer view with folders like 'DOCKER' and 'src', and files like 'index.php', 'docker-compose.yml', and 'Dockerfile'. The main editor area displays the 'Dockerfile' with two lines of code. The status bar at the bottom indicates 'Ln 2, Col 34', 'Spaces: 4', 'UTF-8', 'LF', and various extensions like 'Dockerfile', 'Go Live', 'Prettier', and '0 errors'.





## • Final Application Code



- ***Final Output***

