

Read me: DOCKER IMPLEMENTATION

Below are the steps you need to follow in order to deploy docker for any web application.

Download & Install Docker

1. Go to <https://www.docker.com/get-started/>
2. Download docker desktop on Mac (for my PC)
3. Install Docker desktop

Create a Web Application

4. Download the XAMPP server and install it.
5. Create a project folder inside XAMPP/htdocs with name as '**projectDocker**'.
6. Create a simple web page using HTML/PHP and save it as index.php
7. Launch the XAMPP application and start the server.

View a newly created web page

8. Open Browser and type <http://localhost/projectDocker/index.php>
9. The web page should open with the desired view.

Configuring Docker

10. Open Terminal on Mac
11. Navigate to the project folder (XAMPP/htdocs/projectDocker) in terminal
12. Write "docker init"
13. It will ask for the programming language - we need to choose by navigating up & down and pressing ENTER
14. Select **php with Apache** for our cases since we require the php page to be hosted on Apache server.
15. It will ask for the PHP version
16. Enter the current version of PHP, in our case 8.2.0.
17. It asked for "**What's the relative directory (with a leading .) for your app?**"
18. Select current directory (in our case)
19. It will ask for which port we want to use
20. Enter any port no., in our case, i used 8090, *These settings will be saved in compose.yaml file*
21. It will create 4 files in the project folder
 1. compose.yaml
 2. Dockerfile
 3. README.Docker.md
 4. .dockerignore

Build & Run the docker

22. In terminal run **docker compose up --build** command
23. It built the docker image in 66 seconds for the first time

View the page

24. Open Browser and type <http://localhost:8090/>
25. The web page should open with the desired view.

Building & Running the docker, after any changes in the webpage

26. If required to change the webpage, the docker must be built again by using **docker compose up --build** command (This time it will not take much time).

When we run the build command, something like below should be seen,

```
[+] Building 6.2s (10/10) FINISHED                                docker:desktop-linux
=> [server internal] load build definition from Dockerfile        0.1s
=> => transferring dockerfile: 2.49kB                             0.0s
=> [server] resolve image config for docker-image://docker.io/docker/doc 2.6s
=> CACHED [server] docker-image://docker.io/docker/dockerfile:1@sha256:f 0.0s
=> [server internal] load metadata for docker.io/library/php:8.2.0-apach 2.1s
=> [server internal] load .dockerignore                          0.0s
=> => transferring context: 692B                                   0.0s
=> [server internal] load build context                          0.0s
=> => transferring context: 1.14kB                                 0.0s
=> CACHED [server 1/3] FROM docker.io/library/php:8.2.0-apache@sha256:73 0.0s
=> [server 2/3] COPY . /var/www/html                             0.1s
=> [server 3/3] RUN mv "/usr/local/etc/php/php.ini-production" "/usr/loc 0.5s
=> [server] exporting to image                                   0.1s
=> => exporting layers                                           0.1s
=> => writing image sha256:70d50dc74ae47f31a88dde54b933bc6edffc17c5a7d01 0.0s
=> => naming to docker.io/library/projectdocker-server          0.0s
[+] Running 1/1
✔ Container projectdocker-server-1 Recreated                    0.2s
Attaching to server-1
server-1 | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using
server-1 | 172.18.0.2. Set the 'ServerName' directive globally to suppress this message
server-1 | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using
server-1 | 172.18.0.2. Set the 'ServerName' directive globally to suppress this message
server-1 | [Fri Jul 19 01:52:49.966896 2024] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.54
server-1 | (Debian) PHP/8.2.0 configured -- resuming normal operations
server-1 | [Fri Jul 19 01:52:49.967065 2024] [core:notice] [pid 1] AH00094: Command line: 'apache2 -D
server-1 | FOREGROUND'
server-1 | [Fri Jul 19 01:53:20.506713 2024] [php:error] [pid 17] [client 192.168.65.1:40557] PHP Fatal
server-1 | error: Uncaught Error: Call to undefined function mysqli_connect() in /var/www/html/index.php:13\nStack
server-1 | trace:\n#0 {main}\n thrown in /var/www/html/index.php on line 13
```

```
server-1 | 192.168.65.1 - - [19/Jul/2024:01:53:20 +0000] "GET / HTTP/1.1" 500 378 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/126.0.0.0 Safari/537.36"
server-1 | 192.168.65.1 - - [19/Jul/2024:01:53:20 +0000] "GET /favicon.ico HTTP/1.1" 404 490 "http://localhost:8090/" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/126.0.0.0 Safari/537.36"
```

Additional information

27. If the website has a database available, then an extension of this DB will have to be used in the docker then **compose.yaml**, **Dockerfile** will have to be updated for the desired setup.

E.g. - "RUN docker-php-ext-install mysqli && docker-php-ext-enable mysqli"

28. Also we can deploy multi containerized applications.

Application functionality

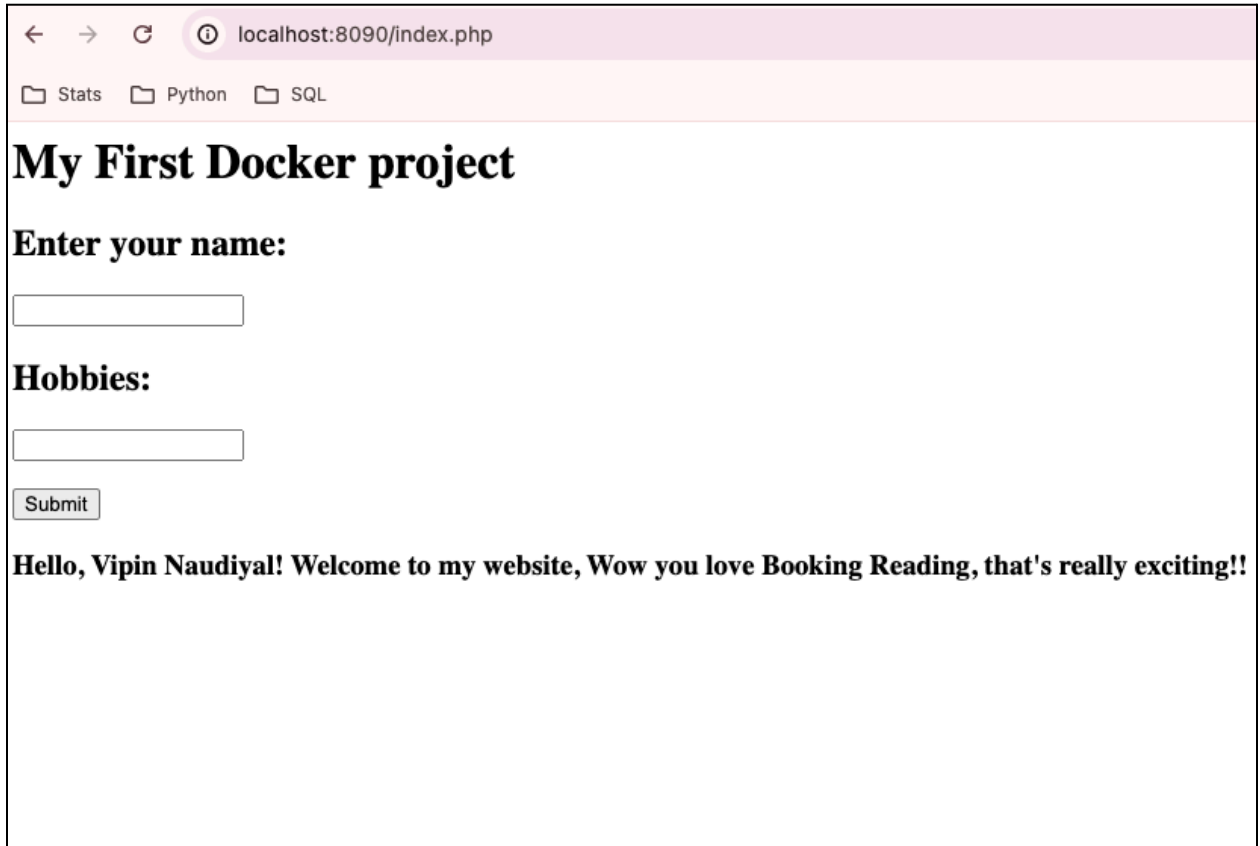
This application is a simple web application which runs a PHP code. There is a form where users can input their name and hobby,, and the PHP script will greet the user with their name.

Technical stack/framework

This application is using the XAMPP server which has the below components.

- Apache/2.4.54 (Unix) OpenSSL/1.1.1s PHP/8.2.0 mod_perl/2.0.12 Perl/v5.34.1
- Database client version: libmysql - mysqlnd 8.2.0
- PHP version: 8.2.0

Sample View



A screenshot of a web browser window. The address bar shows 'localhost:8090/index.php'. Below the address bar, there are three tabs labeled 'Stats', 'Python', and 'SQL'. The main content area has a heading 'My First Docker project'. Below the heading, there is a form with two input fields: 'Enter your name:' and 'Hobbies:'. Below these fields is a 'Submit' button. Below the button, there is a message: 'Hello, Vipin Naudiyal! Welcome to my website, Wow you love Booking Reading, that's really exciting!!'.

localhost:8090/index.php

Stats Python SQL

My First Docker project

Enter your name:

Hobbies:

Submit

Hello, Vipin Naudiyal! Welcome to my website, Wow you love Booking Reading, that's really exciting!!

Github link

<https://github.com/vipinnaudiyal/projectDocker>

Author

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