

Use Case for Docker - To get a refresher

Docker allows you to "containerize" a service/installation and deploy them without the complexity of setup

There are many pre-configured containers on the docker hub

An image is file you create with all of the resources of your application

A Container is a **running instance of the image**

If you pull an image such as a database, you have to create a network to attach it to
Run this command to create your network
`docker network create mongo-network`

To view your network(s)
`docker network ls`

`docker network rm my-network`

To view your images

Docker images

To view logs for any image (to see what the status and what it is doing)

`docker logs < container ID-guid of the running container >`

For the last set of logs

`docker logs <guid of the running container> | tail` (tail only works on UNIX)

To view running process/instances

`docker ps`

To run an image

`docker run <image>`

To see a list of containers

`docker container ls`

To stop a container

`docker stop <container id>`

To delete a container

`docker rm <container id>`

To delete an image

`docker rmi <image id>`

To build your own image (At the end of the day, this is what you want to do below)

First Create a file in project, the file must be called

Dockerfile

Below is the contents of a file in a sample Golang web app

FROM golang:1.17

WORKDIR /go/src/app

COPY . .

RUN mkdir /cmd

RUN go build -o /cmd/app /go/src/app/main.go

ENTRYPOINT ["/cmd/app"]

Save the file in your project directory

Issue the and

`docker build -t my-app:1.0 .`

The `:1.0` is the version

The `.` means current directory

After you run the command, you can go see the app in docker repo by typing at the command prompt

`docker images`

To run the image

`docker run my-app:1.0`

To run the image against a port (to be able to browse)

`docker run -p 3000:3000 my-app:1.0`

Use Case (building my Rock Paper Scissors app)

`docker build -t mygoapprockpaper:1.0 .`

After I built the image

Docker images

lioneljones@lionels-MacBook-Air ~ % **docker images**

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
mygoapprockpaper	1.0	7aaa03f6baa5	42 seconds ago	813MB

lioneljones@lionels-MacBook-Air ~ %

Now that I have an image, I am going to **containerize** it

`docker run -p 8085:8085 mygoapprockpaper:1.0`

lioneljones@lionels-MacBook-Air ~ % **docker run -p 8085:8085 mygoapprockpaper:1.0**

2022/03/23 01:43:42 Starting web server on port 8085

I ran the commands below to view statuses

Last login: Tue Mar 22 20:04:23 on ttys003

lioneljones@lionels-MacBook-Air ~ % **docker images**

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
mygoapprockpaper	1.0	7aaa03f6baa5	9 minutes ago	813MB

lioneljones@lionels-MacBook-Air ~ % **docker ps**

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
0e3775d495d5	mygoapprockpaper:1.0	"/cmd/app"	About a minute ago	Up	About a minute
0.0.0.0:8085->8085/tcp	intelligent_ride				

lioneljones@lionels-MacBook-Air ~ % **docker container ls**

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
0e3775d495d5	mygoapprockpaper:1.0	"/cmd/app"	About a minute ago	Up	About a minute
0.0.0.0:8085->8085/tcp	intelligent_ride				

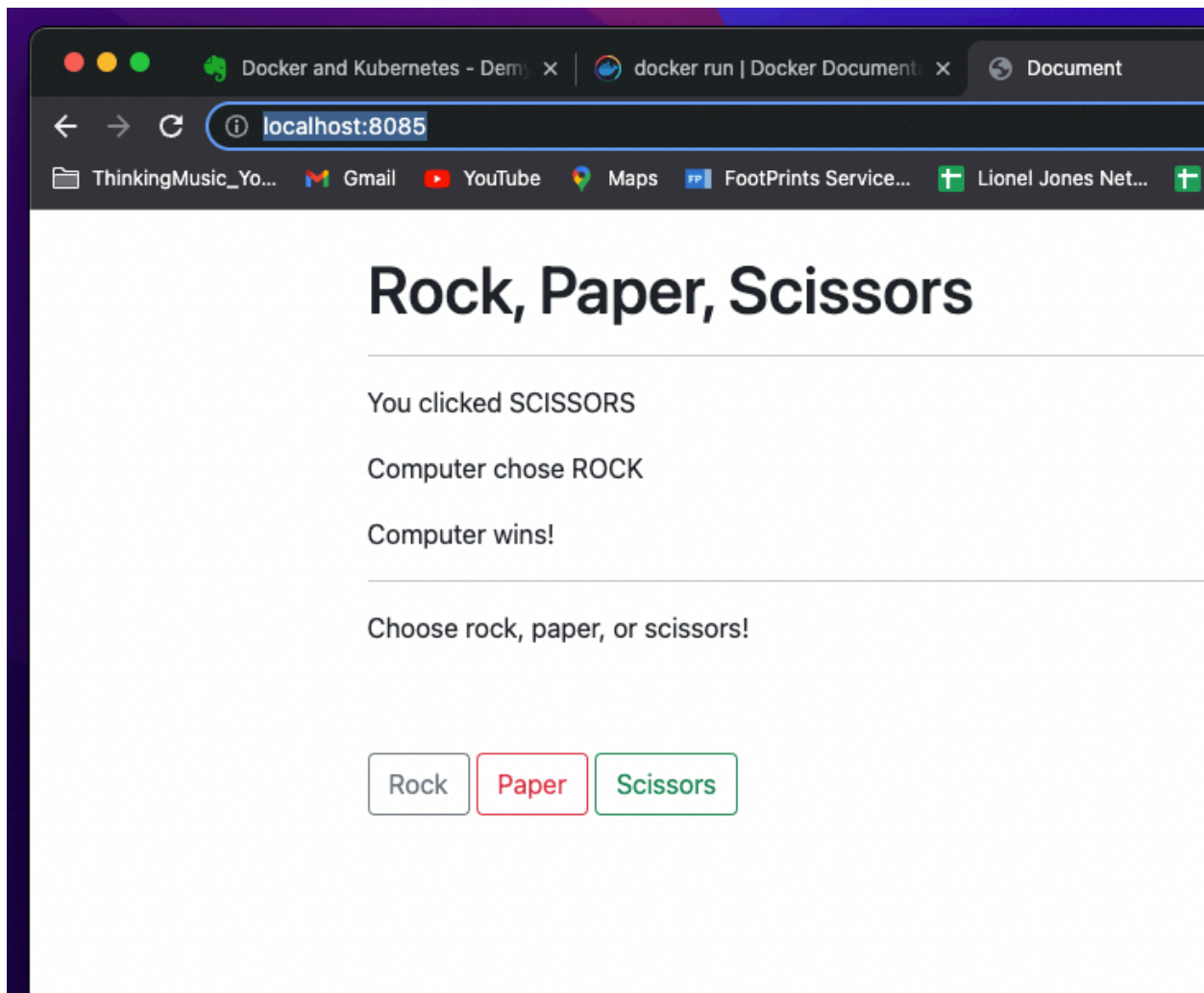
lioneljones@lionels-MacBook-Air ~ %

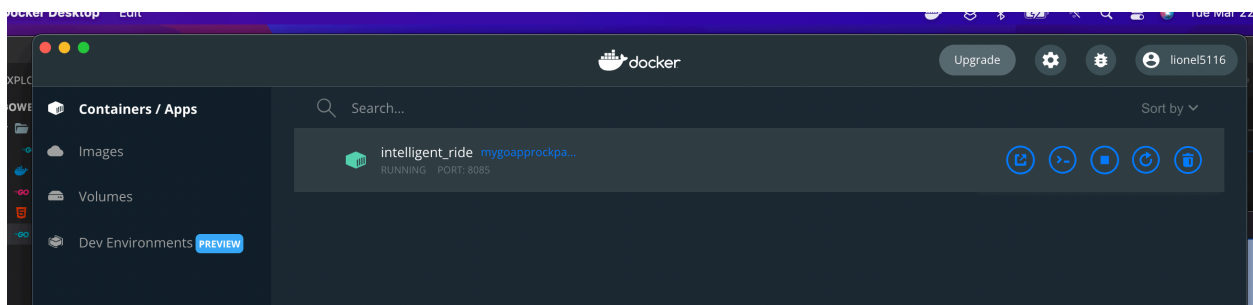
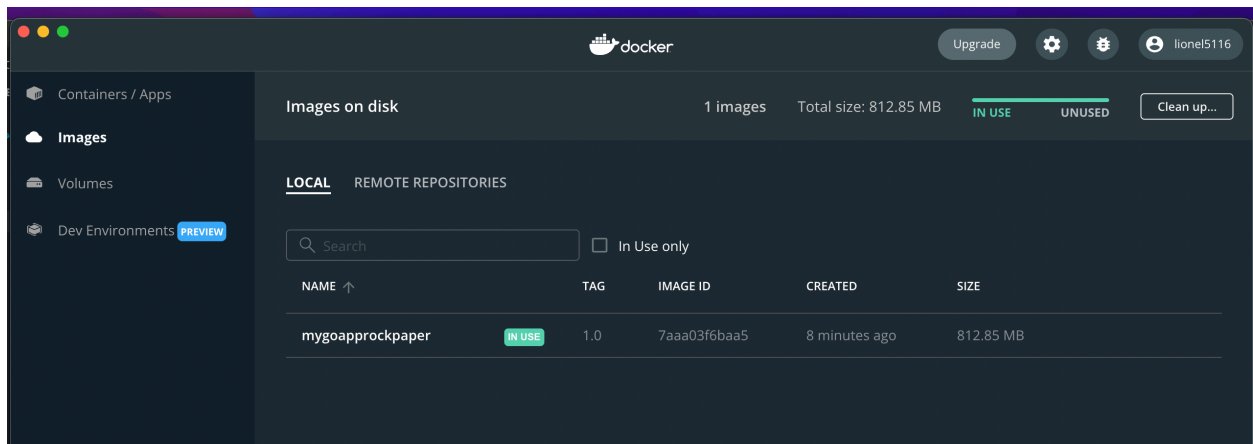
As you can see above, after I did a docker run ..., it created a container for my image to run on and the port
Was forwarded to 8085

I enter the URL

<http://localhost:8085/>

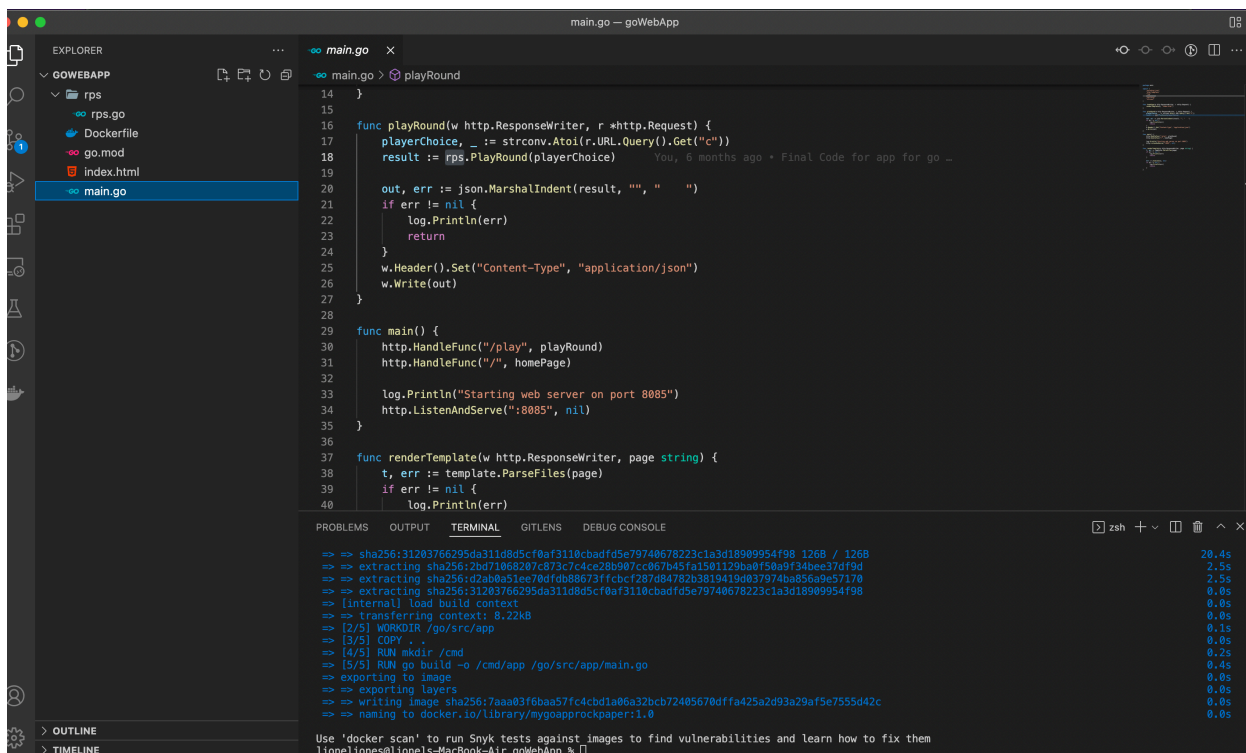
And the site comes up





You can view the GUI above to see the statuses of your image/container

So in a nutshell:
I created a sample Go Project (From Udemy Course)



I created a docker file
I run docker command to create an image
I ran a command to run the image in a container
I was able to browse the application through the docker image
Project Name:
GoWebApp

Explanation of the Docker File

The explanation of the file below:

The WORKDIR:

This is the directory that your build files will be copied to after your project is built

The COPY ..

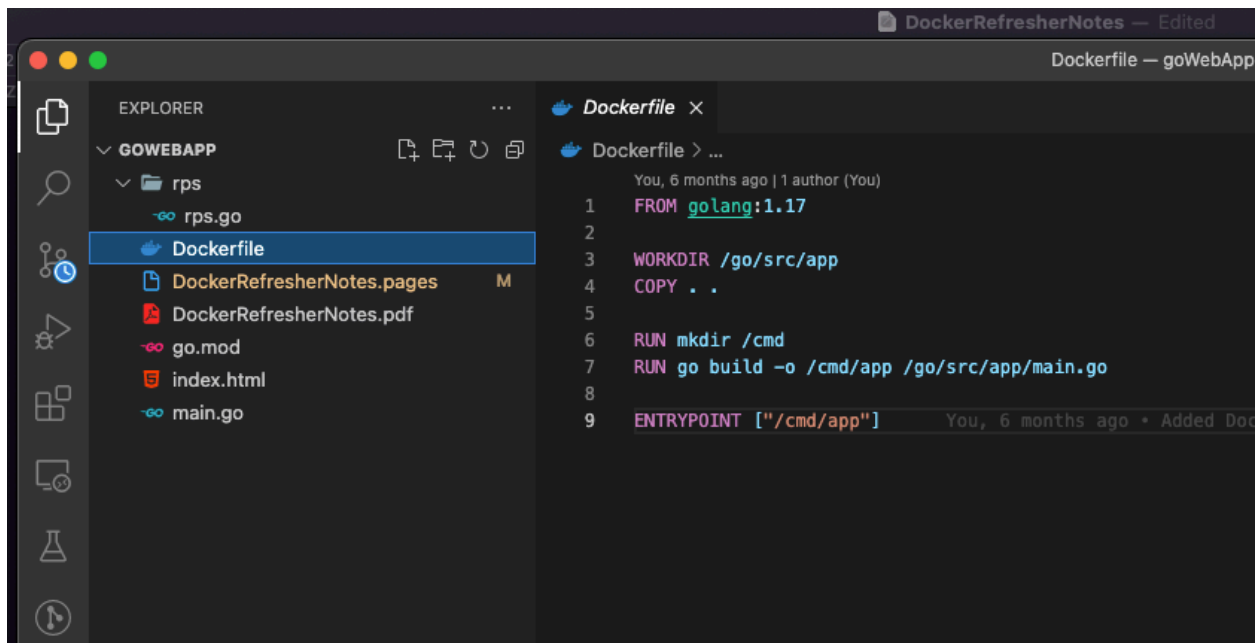
This means copy all of the build files to the working directory

The RUN

This runs a command - mkdir /cmd

RUN go ..

This issues the go run command to build the project, -o output the build files to the working directory you specified earlier in the file, and the build file is main.go



The screenshot shows a code editor with a sidebar on the left and a main editor area on the right. The sidebar, titled 'EXPLORER', shows a file tree for a project named 'GOWEBAPP'. Inside 'GOWEBAPP', there is a folder 'rps' containing 'rps.go', and several files: 'Dockerfile' (highlighted), 'DockerRefresherNotes.pages', 'DockerRefresherNotes.pdf', 'go.mod', 'index.html', and 'main.go'. The main editor area shows the content of the 'Dockerfile' with the following lines:

```
1 FROM golang:1.17
2
3 WORKDIR /go/src/app
4 COPY . .
5
6 RUN mkdir /cmd
7 RUN go build -o /cmd/app /go/src/app/main.go
8
9 ENTRYPOINT ["/cmd/app"]
```

The editor interface includes a top bar with the file name 'Dockerfile' and a close button, and a status bar at the bottom right indicating the file was edited 'You, 6 months ago'.

