# Web Based Dashboards

## Module # 2 (Connecting to Okteto)

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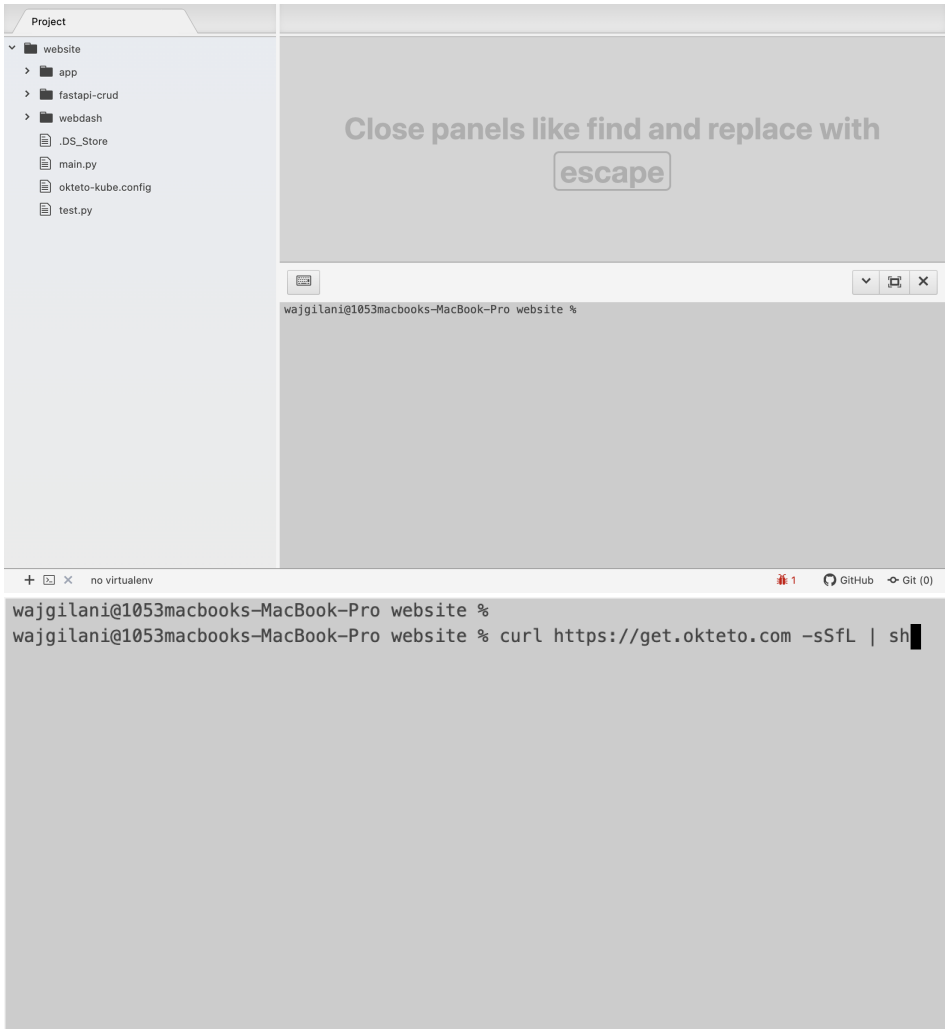
# Step # 1a: Install Okteto CLI (Macs)

The Okteto CLI (Command Line Interface), allows us to develop files in Okteto from our terminal (command prompts).

For **Macs**:




Open the terminal in atom. Type the following command and press enter:

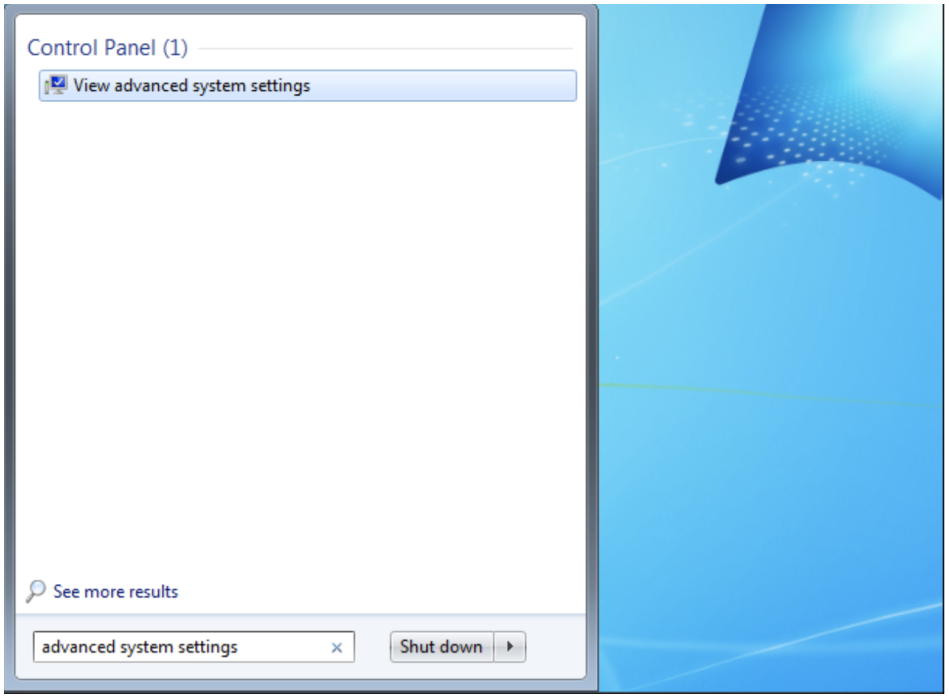
```
curl https://get.okteto.com -sSfL | sh
```

```
wajgilani@1053macbooks-MacBook-Pro website %
wajgilani@1053macbooks-MacBook-Pro website % curl https://get.okteto.com -sSfL | sh
> Downloading https://github.com/okteto/okteto/releases/latest/download/okteto-Darwin-x86_64
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   145  100   145    0     0    630      0 --:--:-- --:--:-- --:--:--   627
100   628  100   628    0     0   1794      0 --:--:-- --:--:-- --:--:--  1794
100 63.2M  100 63.2M    0     0  6991k      0  0:00:09  0:00:09 --:--:--  9.8M
> Installing /usr/local/bin/okteto
Password:
> Okteto successfully installed!
wajgilani@1053macbooks-MacBook-Pro website %
```

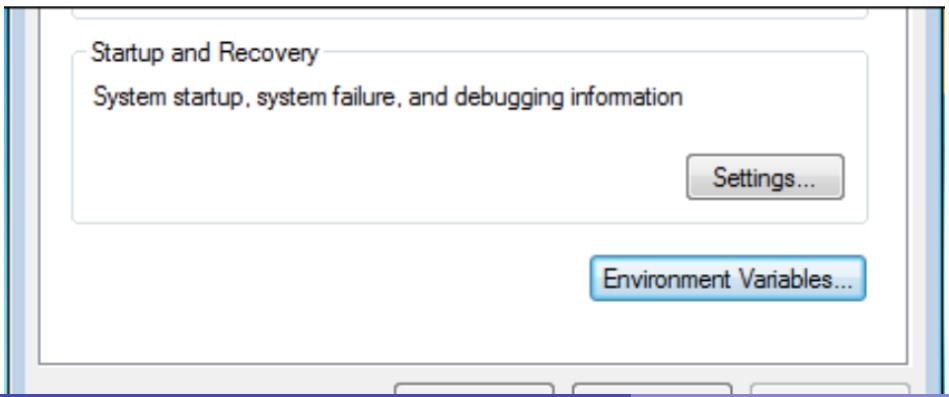
# Step # 1b: Install Okteto CLI (Windows)

For **Windows**:

Download https://downloads.okteto.com/cli/okteto.exe, and then add it to your $PATH

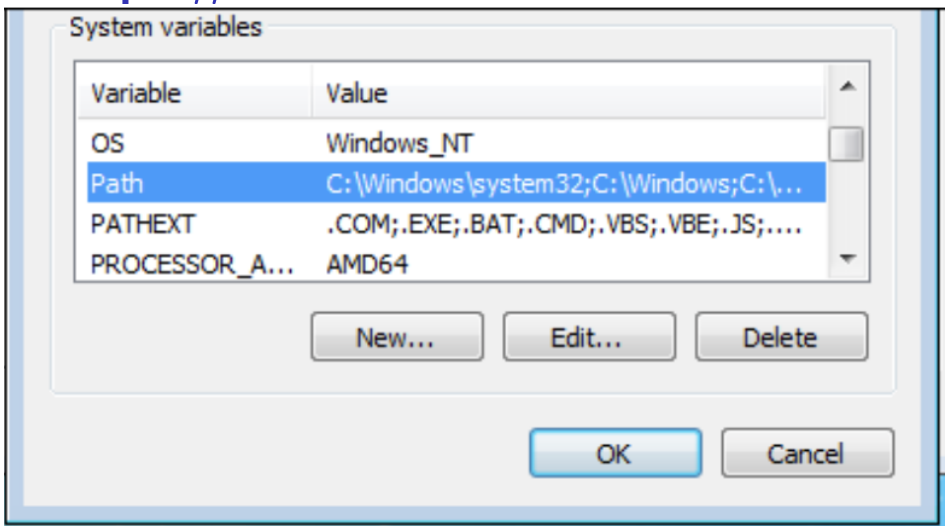



The first several steps of the process are the same for Windows 7, 8, and 10. Start by pressing the Windows key to open up the Start Menu or Start Screen, then search for "advanced system settings." You can alternatively browse through Control Panel to System and Security ¿ System and click on the Advanced system settings hyperlink in the left hand pane.

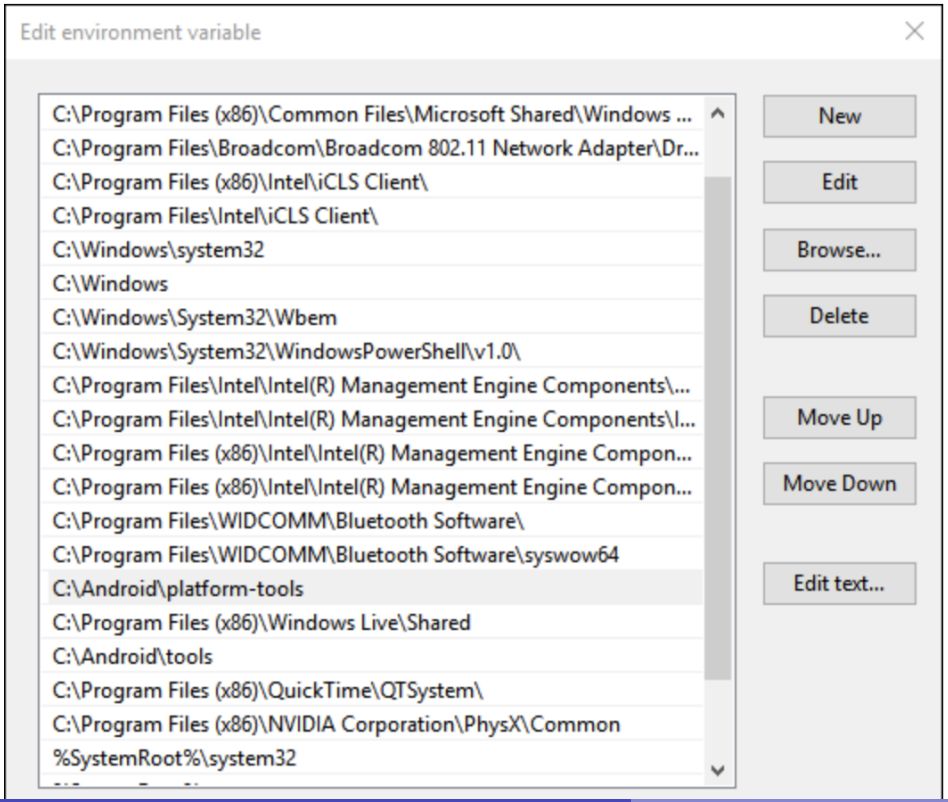



Once the System Properties window opens, click on the "Environment Variables" button.

# Step # 1b: Install Okteto CLI (Windows) Continued

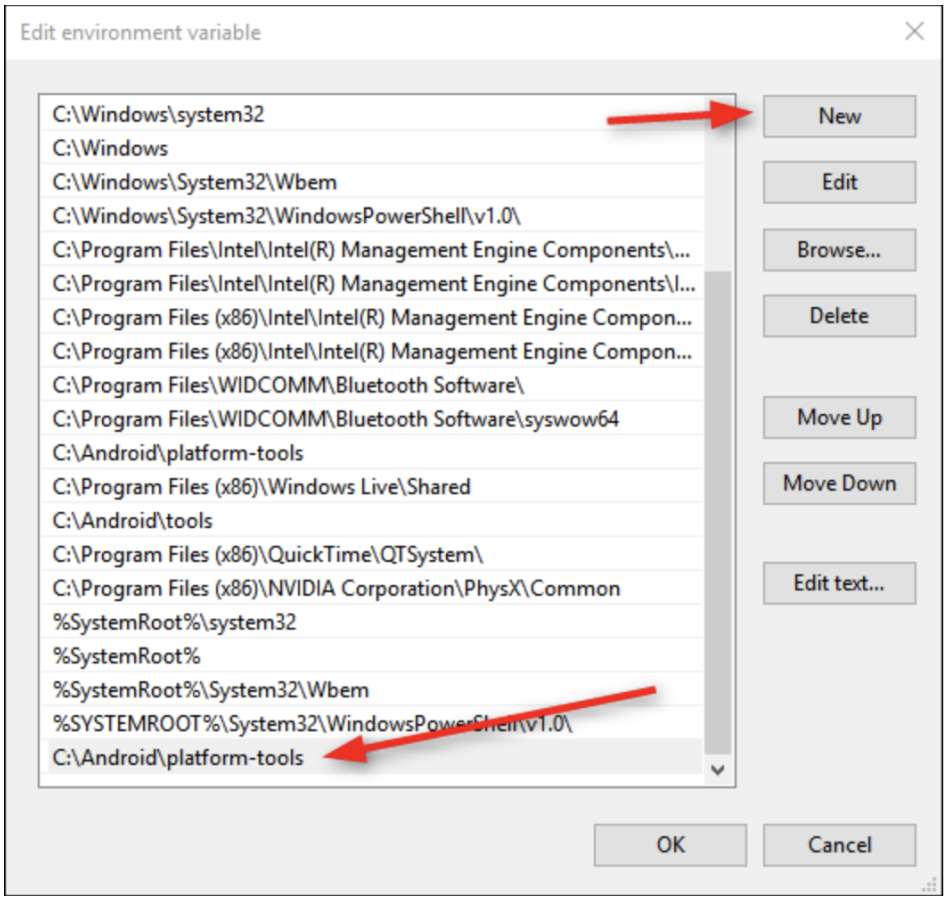



In the "System Variables" box, look for a variable called Path. Select that and click on the "Edit" button.




In Windows 10, this process is both easier and less confusing. Once you've clicked the edit button, a new dialog box will appear with each location in the path on a separate line. This is a dramatic improvement over the way previous versions of Windows handled path locations, and makes easy work of adding a new one.

# Step # 1b: Install Okteto CLI (Windows) Continued




First, click the 'new' button, which will add a line at the end of the list. Add your location (wherever your okteto.exe file is on your computer) and hit Enter. There is no need to add a semicolon like in Windows 7 and 8. Click the "OK" button and you're finished.

Now you can execute the okteto command from anywhere.

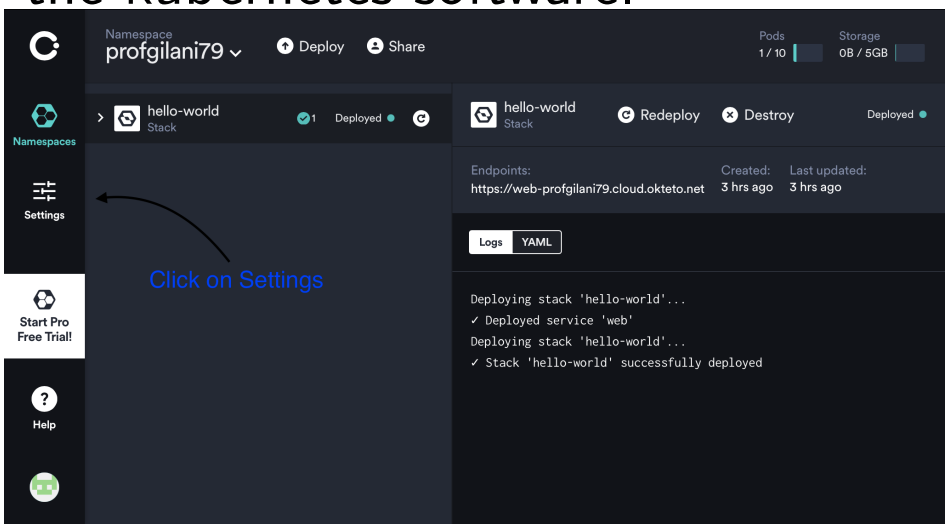
# Step # 2: Try Running Okteto Command

```
wajgilani@1053macbooks-MacBook-Pro website % okteto
Manage development containers

Usage:
  okteto [command]

Available Commands:
  analytics   Enable / Disable analytics
  build       Build (and optionally push) a Docker image
  config      Manages okteto configuration values of the authenticated user
  create      Creates resources
  delete      Deletes resources
  doctor      Generates a zip file with the okteto logs
  down        Deactivates your development container
  exec        Execute a command in your development container
  help        Help about any command
  init        Automatically generates your okteto manifest file
```

Type okteto in the command prompt, and you should see a list of commands available to you. That means that your okteto cli has been successfully downloaded.

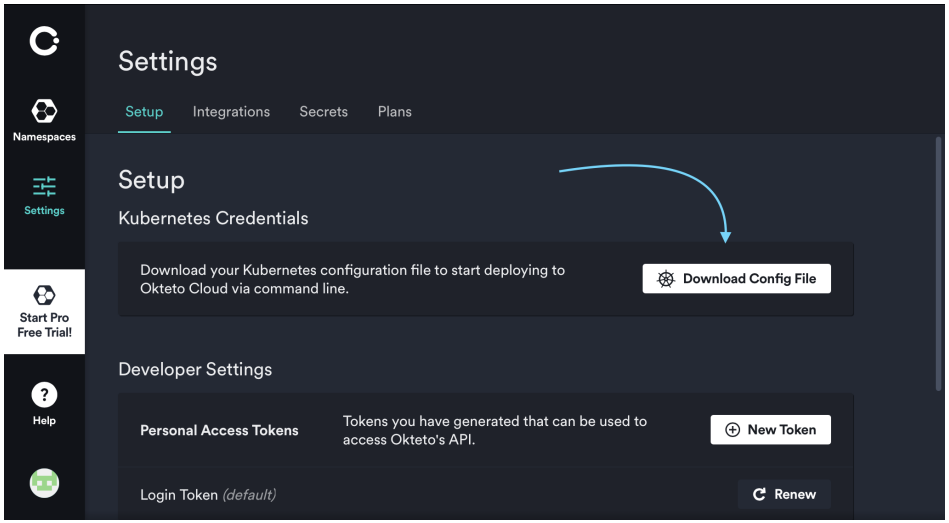
# Step # 3: Download Kubernetes Credentials

We will now download the credentials to connect our computer to the kubernetes software in Okteto. But what is kubernetes? It is software that manages containers on servers. But what is a container? A container is a new kind of technology that allows a server to run multiple applications, separated from one another. Kubernetes is the software that manages all of these containers and applications in the cloud, across many different servers. Web applications hosted in the cloud tend to be managed using the kubernetes software.




Log into your Okteto account, then click on Settings on the left-hand side.

# Step # 3: Download Kubernetes Credentials (Continued)




Click on the Download Config File button. A file will be downloaded onto your computer. After downloading the file, run the following command in your terminal:

Macs:

```
export KUBECONFIG=$HOME/Downloads/okteto-kube.config:$KUBECONFIG:-$HOME/.kube/config
```

Windows:

```
$Env:KUBECONFIG=("$HOME\Downloads\okteto-kube.config;$Env:KUBECONFIG;$HOME\.kube\config")
```

# Step # 3: Download Kubernetes Credentials (Continued)

Now to make sure your credentials have been configured correctly, run the following command in the prompt:

## kubectl get all

```
wajgilani@1053macbooks-MacBook-Pro website % kubectl get all
NAME                         READY   STATUS    RESTARTS   AGE
pod/web-6cd4587896-264wn     1/1     Running   0          151m

NAME          TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)    AGE
service/web   ClusterIP   10.154.3.64    <none>        8080/TCP   151m

NAME                  READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/web   1/1     1            1           151m

NAME                               DESIRED   CURRENT   READY   AGE
replicaset.apps/web-6cd4587896     1         1         1       151m
```

# Step # 4: Create Our requirements.txt File

We need to create a requirements.txt file, that will keep track of all the libraries that we installed into our virtual environment. That will be loaded up along with our python files into Okteto. From inside your virtual environment, type in the following commands:

```
pip freeze > requirements.txt
```

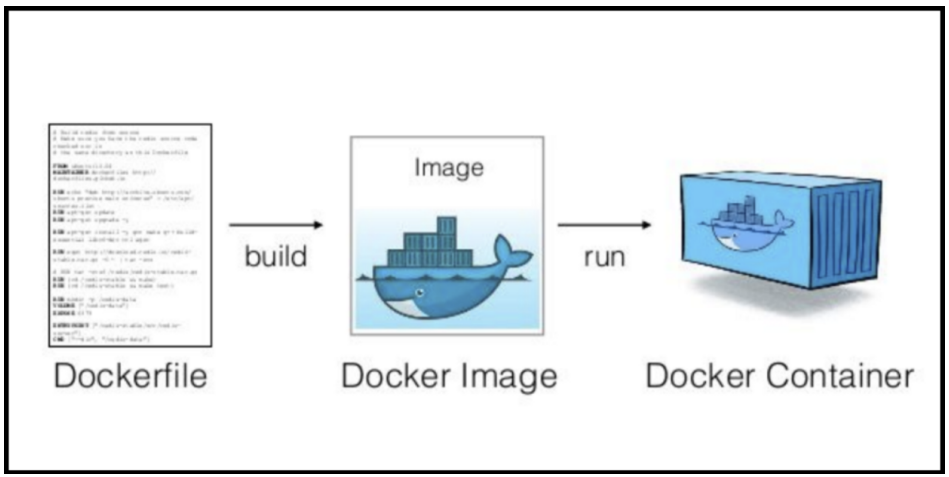
Now open up your requirements.txt file, you see how it added all those libraries:

requirements.txt

```
asgiref==3.3.4
click==8.0.1
fastapi==0.65.1
h11==0.12.0
pydantic==1.8.2
starlette==0.14.2
typing-extensions==3.10.0.0
uvicorn==0.14.0

```

# Step # 5: Create Dockerfile

We now have to create a Dockerfile. A Dockerfile is nothing more than a text file containing a few keywords and norms that Docker uses to generate an image. This image is then used to construct a container or a set of containers, all of which have the same configuration.




Remember that kubernetes is basically software that manages containers on a server. In each of these containers are different applications that are running. On Okteto, our web application will be running in a container that is just for our web application.

In order to make sure that our container in Okteto is properly set up (similar to our vitrual environment), we need to define the libraries, files and folders we need, through our Dockerfile.

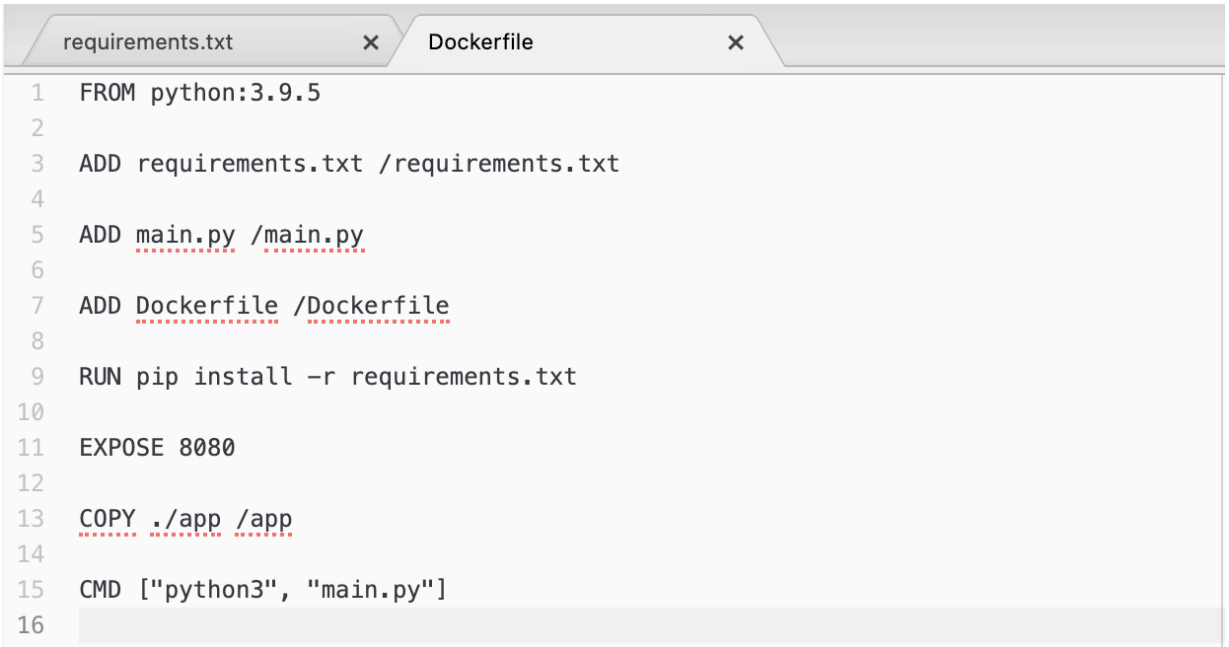
create DockerFile

okteto up, it will ask you to create a oketo.yml file, select Y

you should see:

# Step # 5: Create Dockerfile

```
FROM python:3.9.5

ADD requirements.txt /requirements.txt

ADD main.py /main.py

ADD Dockerfile /Dockerfile

RUN pip install -r requirements.txt

EXPOSE 8080

COPY ./app /app

CMD ["python3", "main.py"]
```



# Step # 6: Login and Upload

Now we are ready to load up our files in Okteto:

```
okteto login
```

```
wajgilani@nbp-25-207-166 website % source webdash/bin/activate
(webdash) wajgilani@nbp-25-207-166 website % okteto login
Authentication will continue in your default browser
You can also open a browser and navigate to the following address:
https://cloud.okteto.com/auth/authorization-code?redirect=http%3A%2F%2F127.0.0.1%3A53071%2Fauthorization-code%2Fcallback%3Fstate%3DYdXGsNpbynoAhbI623Uo
nwwid3mohxRX7qCHx9fdoo4%3D&state=YdXGsNpbynoAhbI623Uonwwid3mohxRX7qCHx9fdoo4%3D
✓ Logged in as profgilani79
    Run `okteto namespace` to switch your context and download your Kubernetes credentials.
(webdash) wajgilani@nbp-25-207-166 website %
```

This will open a page on your browser, telling you that you are logged in:

# Step # 6: Login and Upload

Run

```
okteto namespace
```

```
(webdash) wajgilani@nbp-25-207-166 website % okteto namespace
 ✓  Updated context 'cloud_okteto_com' in '/Users/wajgilani/.kube/config'
(webdash) wajgilani@nbp-25-207-166 website %
```

Now type:

```
okteto up
```

The first time you run this command, okteto will ask you to create a manifest (okteto.yml), type y, for yes.

```
okteto manifest (okteto.yml) doesn't exist, do you want to create it? [y/n] y
This command walks you through creating an okteto manifest.
It only covers the most common items, and tries to guess sensible defaults.
See https://okteto.com/docs/reference/manifest for the official documentation about the okteto manifest.
```

# You Are Now Connected to Okteto

```
(webdash) wajgilani@nbp-25-207-166 website % okteto up
 ✓  Persistent volume successfully attached
 ✓  Images successfully pulled
 ✓  Files synchronized
    Context:   cloud_okteto_com
    Namespace: profgilani79
    Name:      website
    Forward:   8080 -> 8080
    Reverse:   9000 <- 9000

Welcome to your development container. Happy coding!
profgilani79:website app>
```

We are now ready to execute the code. Notice how the prompt has changed, it shows we are in the development environment. Enter your virtual environment:

```
source webdash/bin/activate
```

# Install Your Libraries

We have to re-install our libraries:

```
pip install -r requirements.txt
```

You will see all your libraries, re-install into okteto.

```
(webdash) profgilani79:website app> pip install -r requirements.txt
Collecting asgiref==3.3.4
  Downloading asgiref-3.3.4-py3-none-any.whl (22 kB)
Collecting click==8.0.1
  Downloading click-8.0.1-py3-none-any.whl (97 kB)
     |████████████████████████████████| 97 kB 3.6 MB/s
Collecting fastapi==0.65.1
  Downloading fastapi-0.65.1-py3-none-any.whl (50 kB)
     |████████████████████████████████| 50 kB 3.4 MB/s
Collecting h11==0.12.0
  Downloading h11-0.12.0-py3-none-any.whl (54 kB)
     |████████████████████████████████| 54 kB 773 kB/s
Collecting pydantic==1.8.2
  Downloading pydantic-1.8.2-cp39-cp39-manylinux2014_x86_64.whl (11.3 MB)
     |████████████████████████████████| 11.3 MB 21.4 MB/s
Collecting starlette==0.14.2
  Downloading starlette-0.14.2-py3-none-any.whl (60 kB)
     |████████████████████████████████| 60 kB 6.2 MB/s
Collecting typing-extensions==3.10.0.0
  Downloading typing_extensions-3.10.0.0-py3-none-any.whl (26 kB)
Collecting uvicorn==0.14.0
  Downloading uvicorn-0.14.0-py3-none-any.whl (50 kB)
     |████████████████████████████████| 50 kB 2.8 MB/s
Installing collected packages: typing-extensions, starlette, pydantic, h11, click, asgiref, uvicorn, fastapi
Successfully installed asgiref-3.3.4 click-8.0.1 fastapi-0.65.1 h11-0.12.0 pydantic-1.8.2 starlette-0.14.2 typing-extensions-3.10.0.0 uvicorn-0.14.0
```

# Run IT!!!

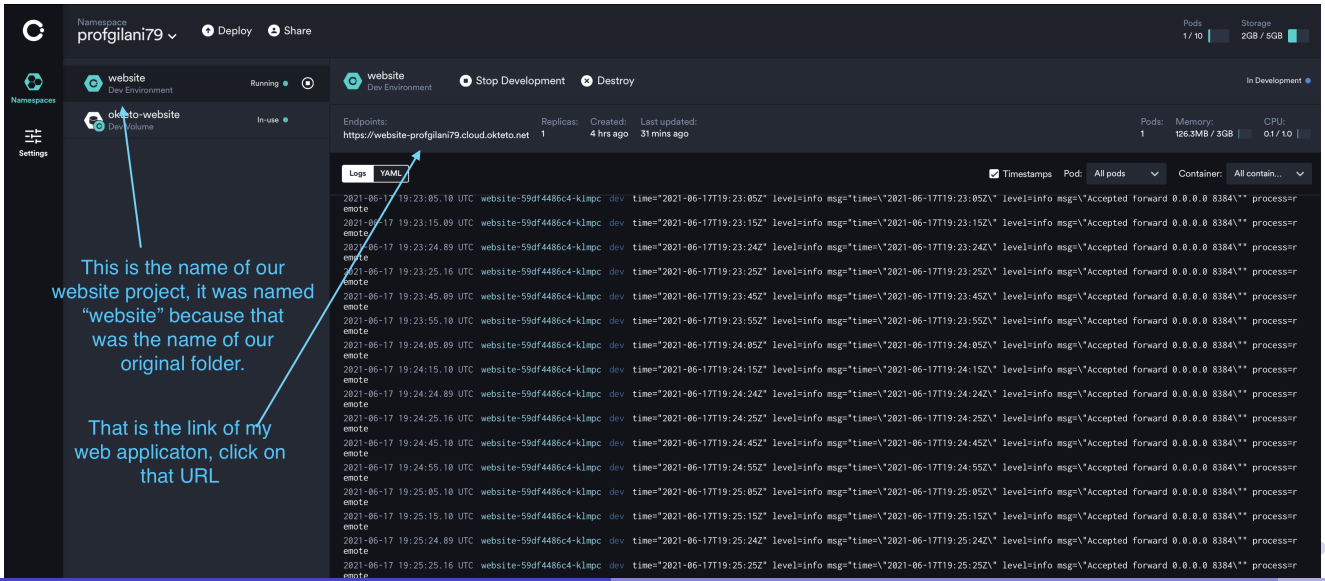
Now run your website!

```
python main.py
```

You will see all your libraries, re-install into okteto.

```
(webdash) profgilani79:website app> python main.py
INFO:     Uvicorn running on http://0.0.0.0:8080 (Press CTRL+C to quit)
INFO:     Started reloader process [115] using statreload
INFO:     Started server process [117]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
```

Now go to your okteto site:



# Your Website is Now Live

My URL is https://website-profgilani79.cloud.okteto.net

{"message":"HELLO WORLD!!! Welcome to fastAPI!!"}

When you press CTRL+C, we exit out of the server. Unfortunately when we do that, our website is no longer up. In the next module, we will discuss "deploying" the app, so that it will always be up.