

WiFi LIVE ONLINE TRAINING

Minimum Viable Machine Learning

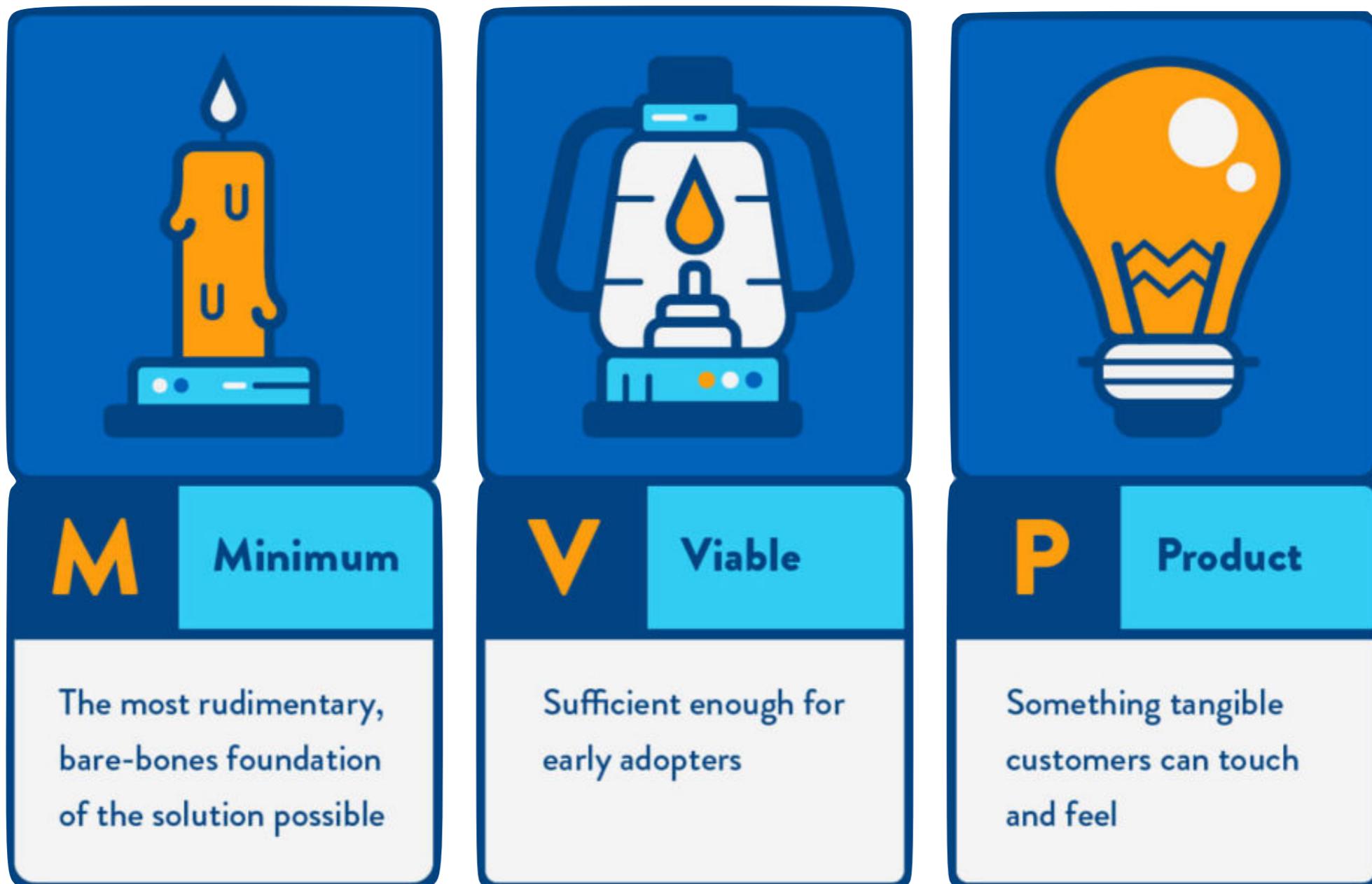
Graduating your models out of Jupyter and into Production

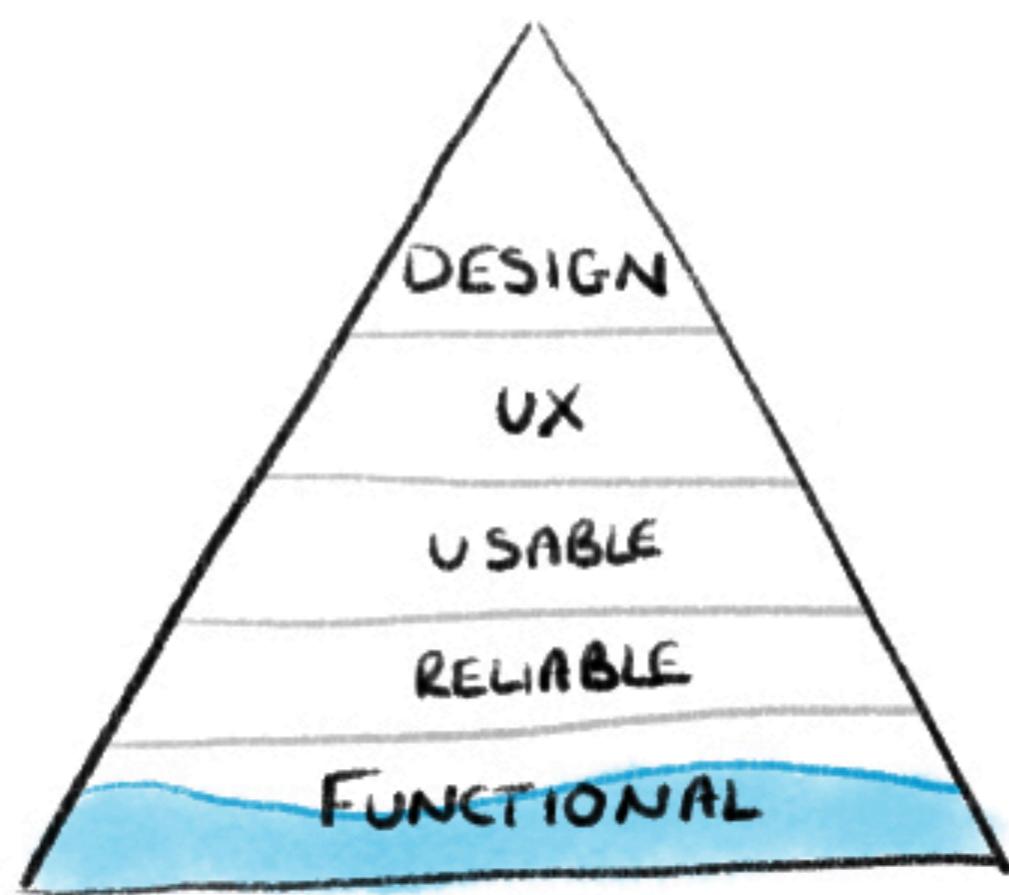


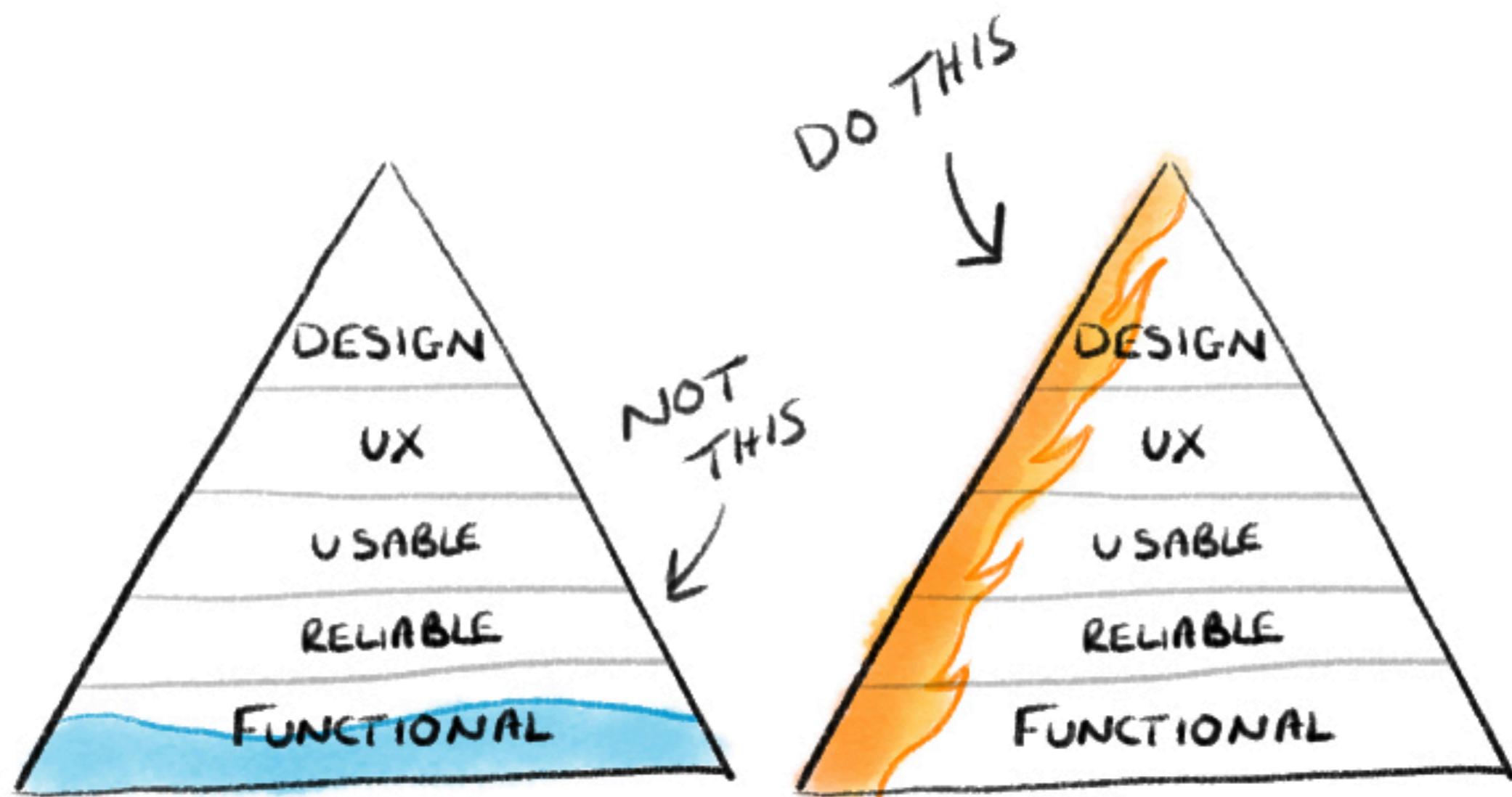
github.com/maxhumber/MVML

November 16, 2020

12:00pm – 2:00pm EST







HOW NOT TO BUILD A MINIMUM VIABLE PRODUCT



1



2



3



4



1



2



3



4

HOW NOT TO BUILD A MINIMUM VIABLE PRODUCT



1



2



3



4

HOW TO BUILD A TRADITIONAL MINIMUM VIABLE PRODUCT



1



2

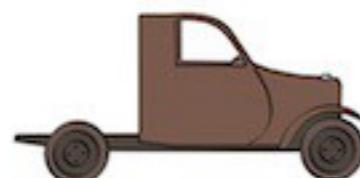


3

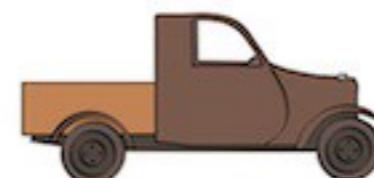


4

HOW TO DO MINIMUM VIABLE MACHINE LEARNING



1



2

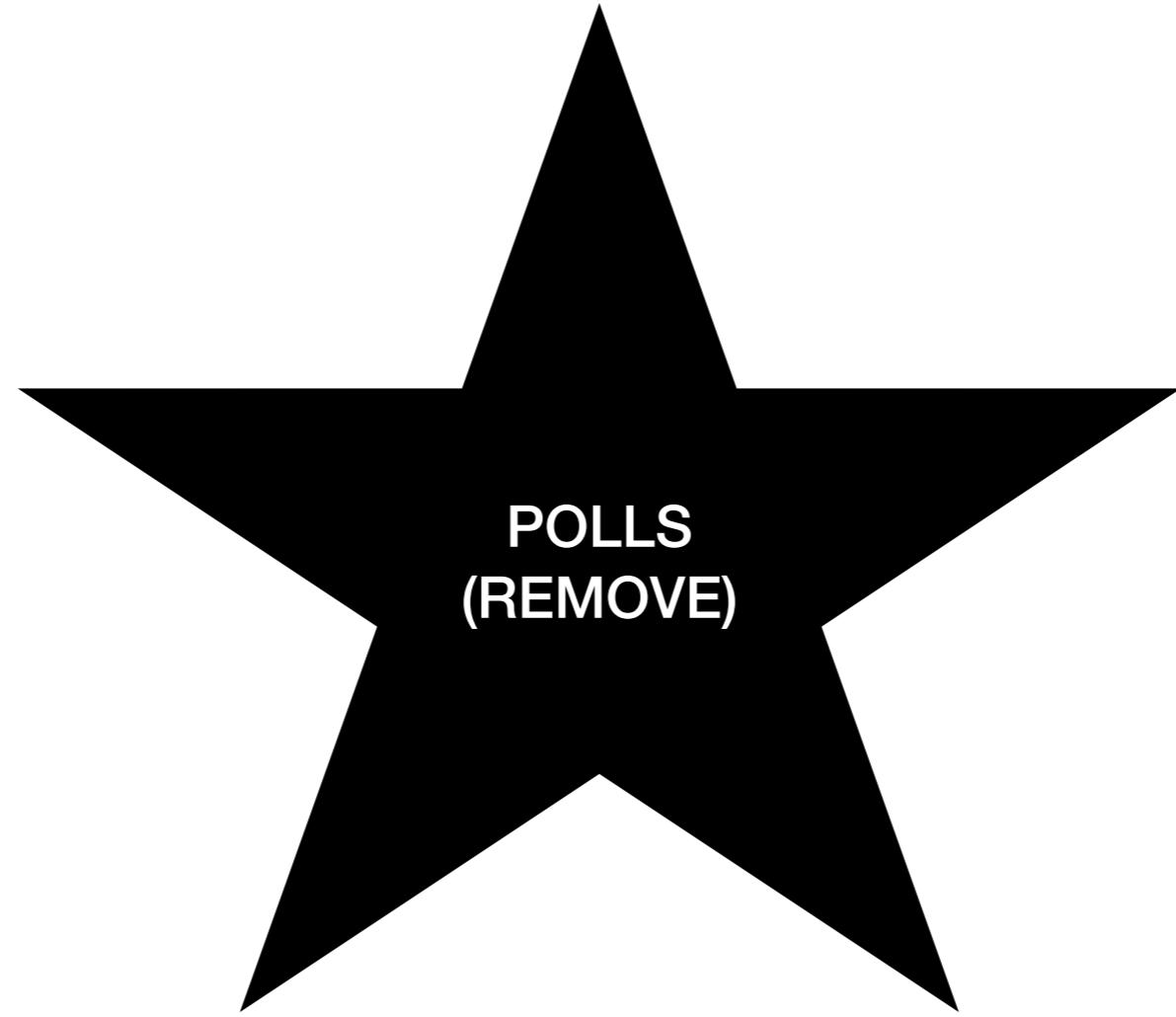


3



4





1. Have you ever done any frontend web development?
2. Have you ever deployed a machine learning model?

But first

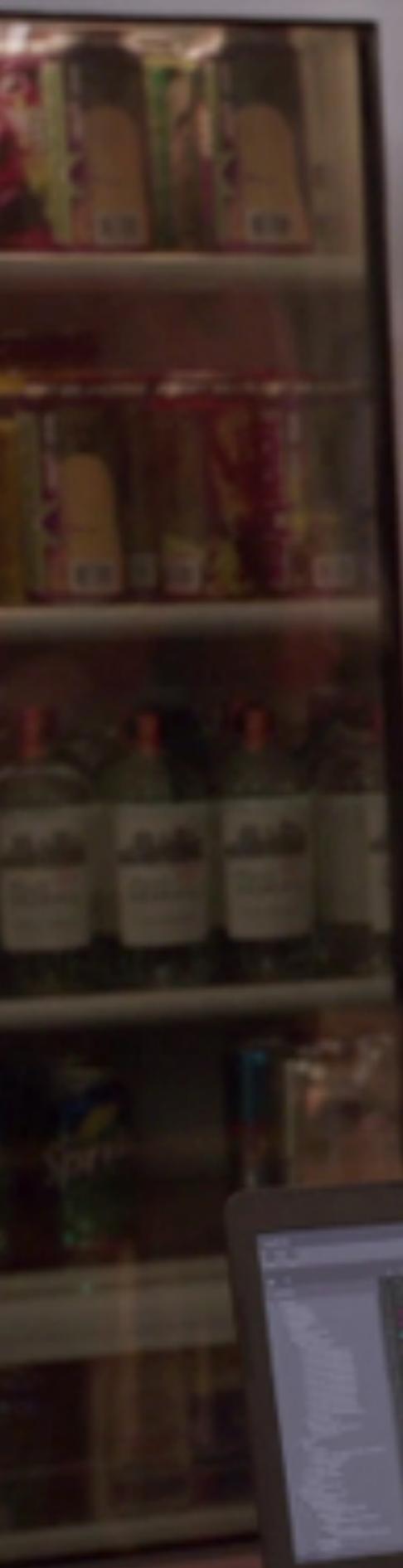


DATA

Full
stack
developer









1

Develop

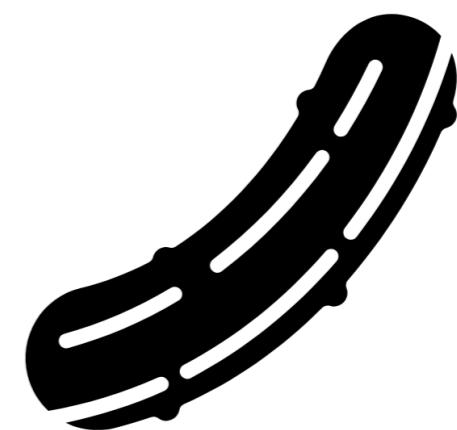
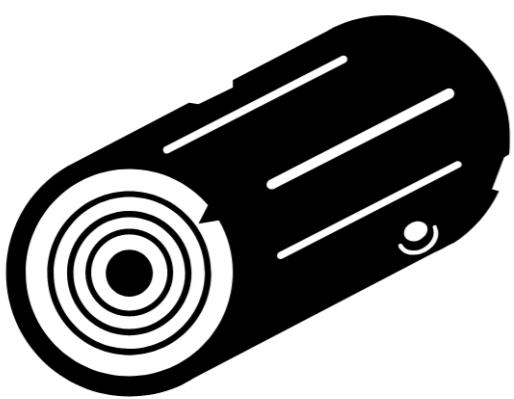


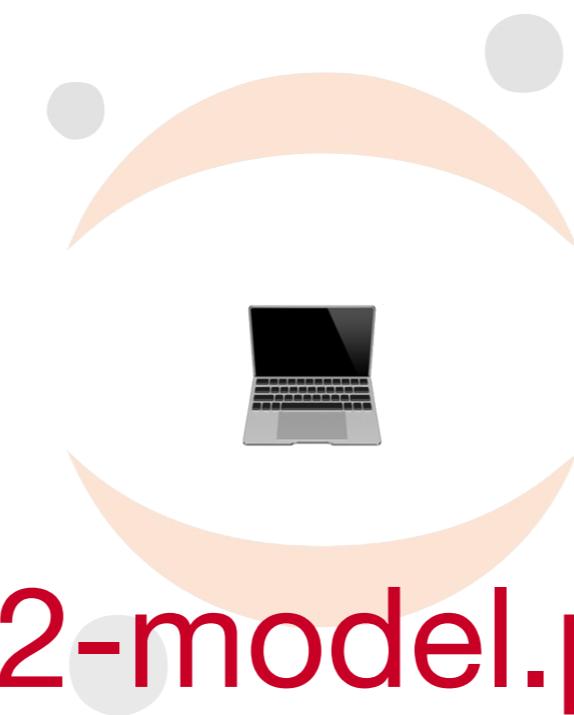
01-model.ipynb

**MOVE
FAST AND
BREAK
THINGS**

TRY A BUNCH OF







02-model.py



ACTIVITY

`exercises/move_fast.py`

Q&A

2

Design



Create a file called hello.py

```
from flask import Flask
app = Flask(__name__)

@app.route("/")
def hello():
    return "Hello World!"

if __name__ == "__main__":
    app.run()
```

Finally run the web app using this command:

```
$ python hello.py
* Running on http://localhost:5000/
```

Open <http://localhost:5000/> in your webbrowser, and “Hello World!” should appear.

Create a file called hello.py:

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from flask import Flask
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Open <http://localhost:5000> in your browser. You should see "Hello World!" appear.

untitled - Paint

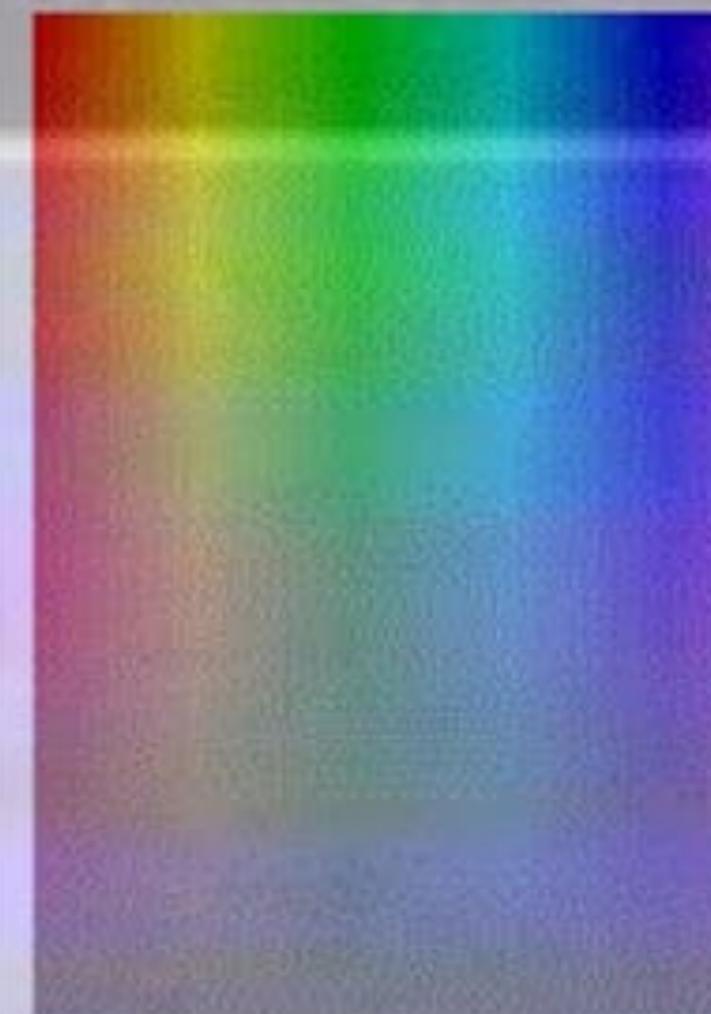


PaintWinCE

File Edit View Image Options Help



raised by
the internet



Tutorial 1



CONGRATULATIONS!



This IS NOT A JOKE!



03-jinja.ipynb

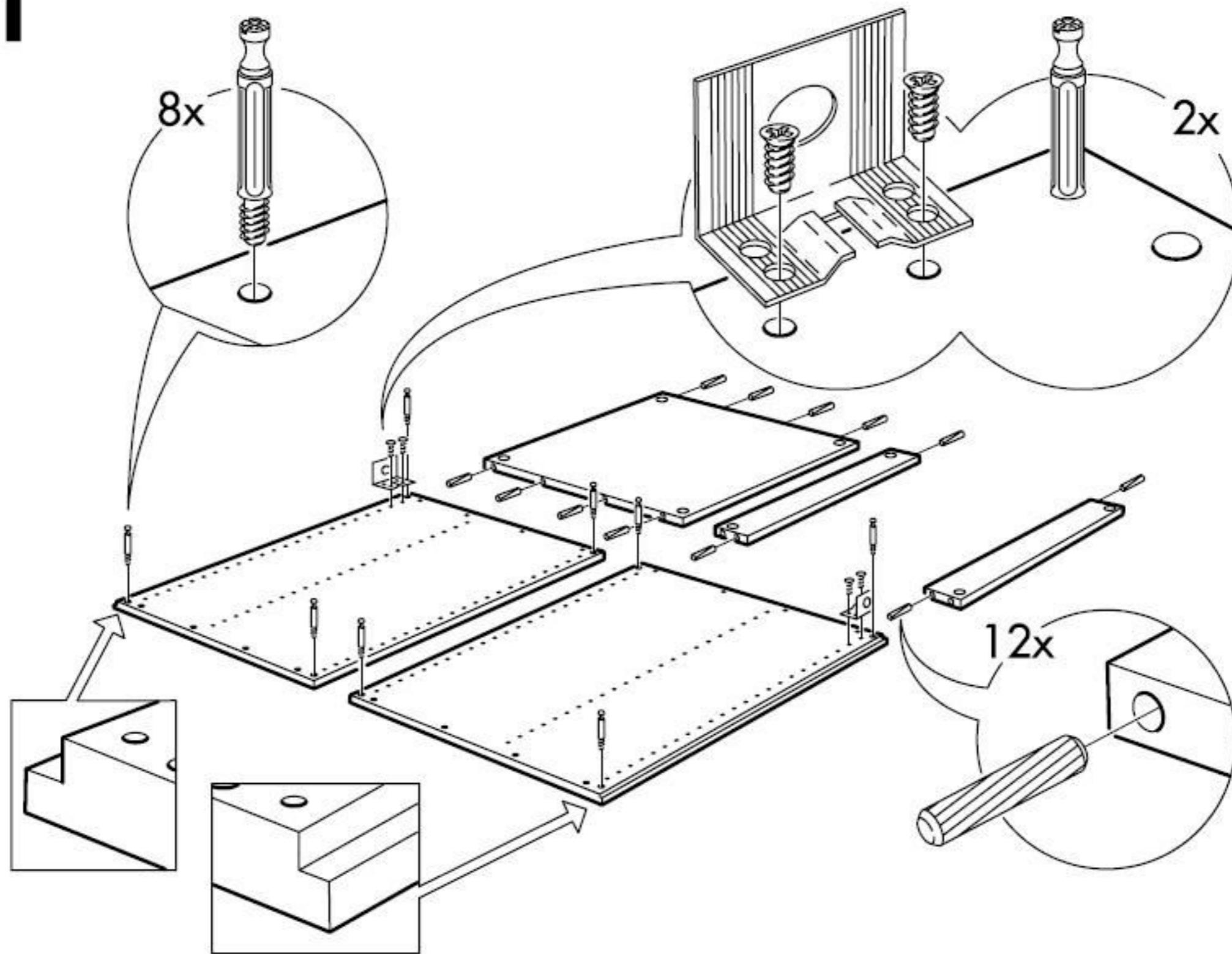


A minimalist stylesheet for HTML elements

No class names, no frameworks, just *semantic* HTML and you're done.

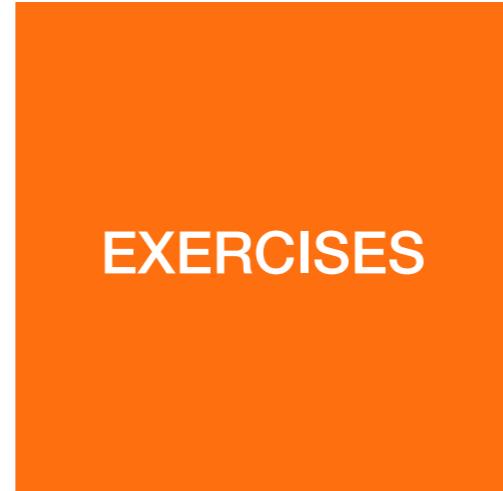


04-A/B.html

1



05-app.py



EXERCISES

[**exercises/flask_regression.py**](#)

Q&A

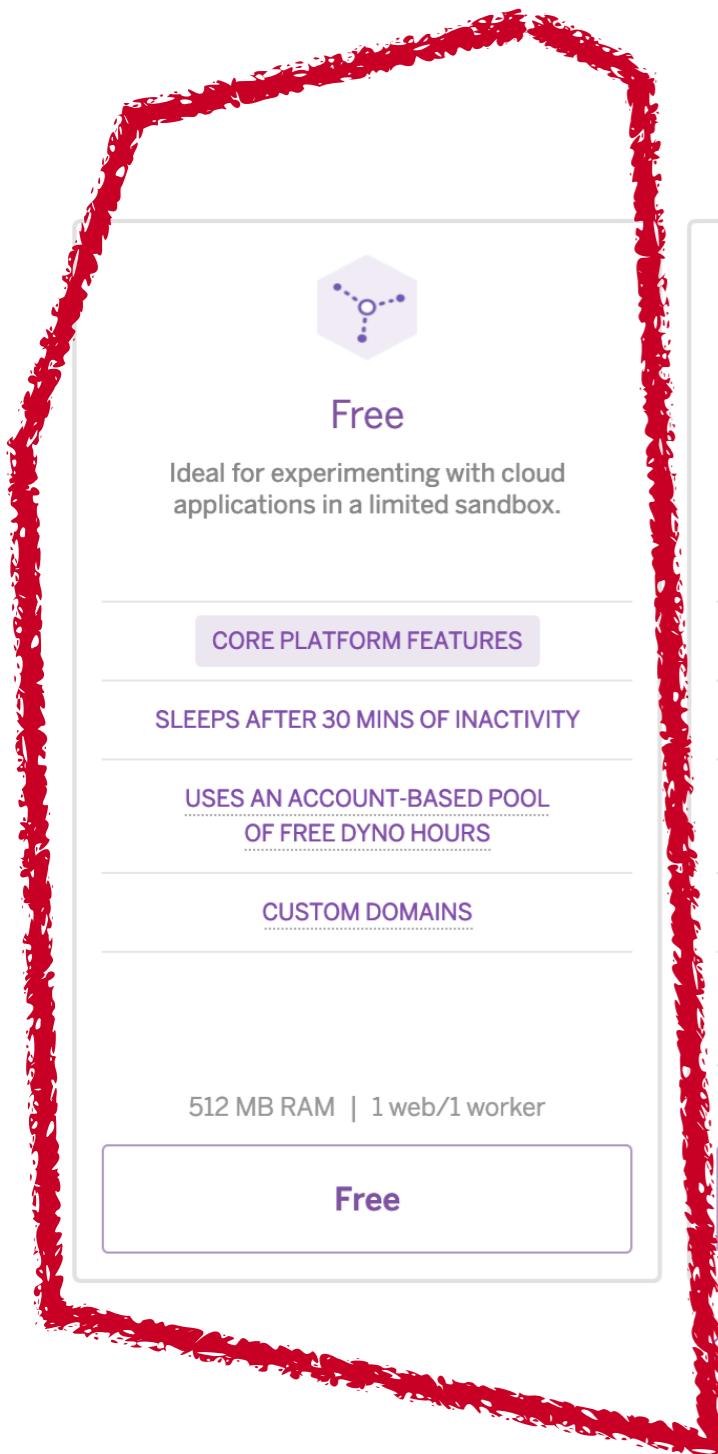






HEROKU

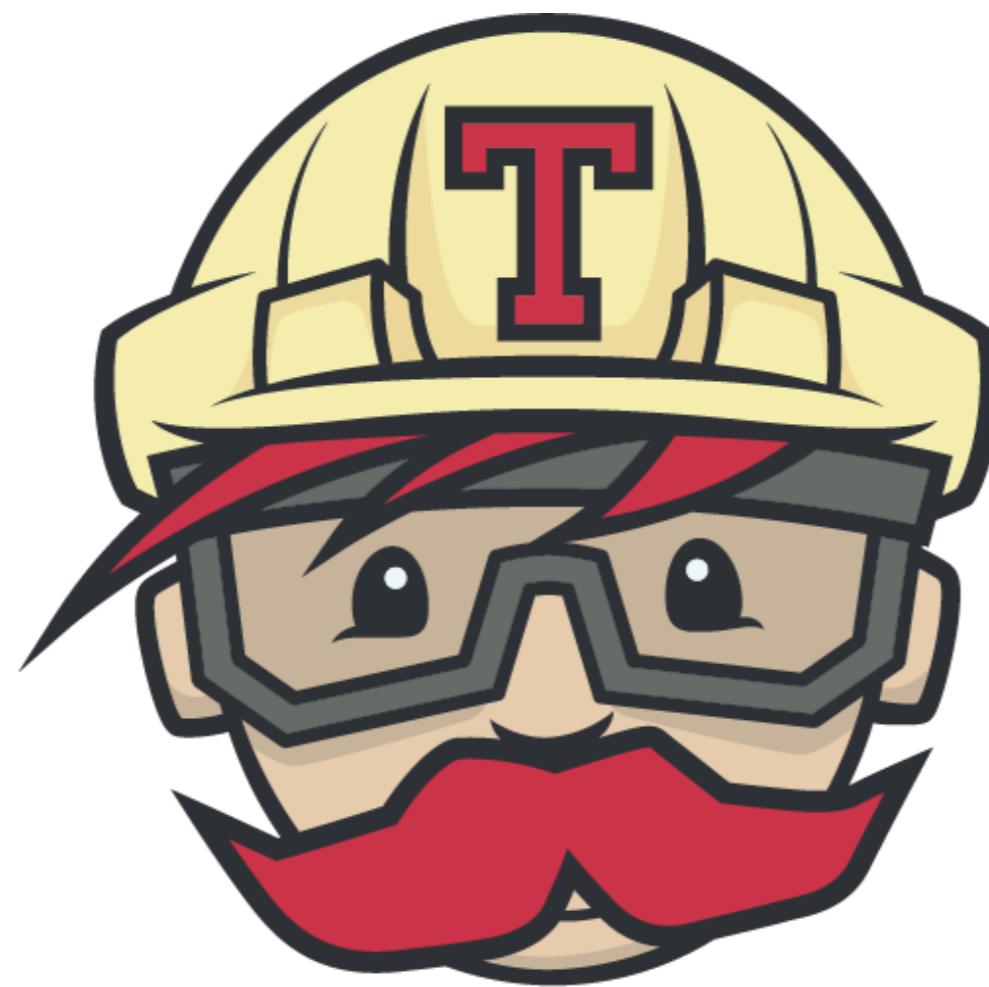
CITY OF
GRANBO



Plan	Core Platform Features	Memory & Process Types	Price
Free	CORE PLATFORM FEATURES SLEEPS AFTER 30 MINS OF INACTIVITY USES AN ACCOUNT-BASED POOL OF FREE DYNOS CUSTOM DOMAINS	512 MB RAM 1 web/1 worker	Free
Hobby	CORE PLATFORM FEATURES NEVER SLEEPS FREE SSL & AUTOMATED CERTIFICATE MANAGEMENT FOR CUSTOM DOMAINS APPLICATION METRICS MULTIPLE WORKERS FOR MORE POWERFUL APPS	512 MB RAM 10 Process Types	\$7 per dyno/month <small>prorated to the second</small>

PROFESSIONAL	
 Standard <small>1X 2X</small> Enhanced visibility, performance, and availability for powering your professional applications.	 Performance <small>M L</small> Superior performance when it's most critical for your super scale, high traffic apps.
ALL HOBBY FEATURES + SIMPLE HORIZONTAL SCALABILITY THRESHOLD ALERTS PREBOOT LANGUAGE RUNTIME METRICS 512MB OR 1GB RAM <small>∞ Process Types</small>	ALL STANDARD FEATURES + MIX WITH STANDARD 1X, 2X DYNOS DEDICATED AUTOSCALING 2.5GB OR 14GB RAM

To start using a Professional plan, select the plan inside the Heroku Dashboard.







06-A-deploy_heroku.md



Moisey Uretsky, Cofounder DigitalOcean

Originally Answered: What are the advantages and disadvantages of using heroku?

Advantages

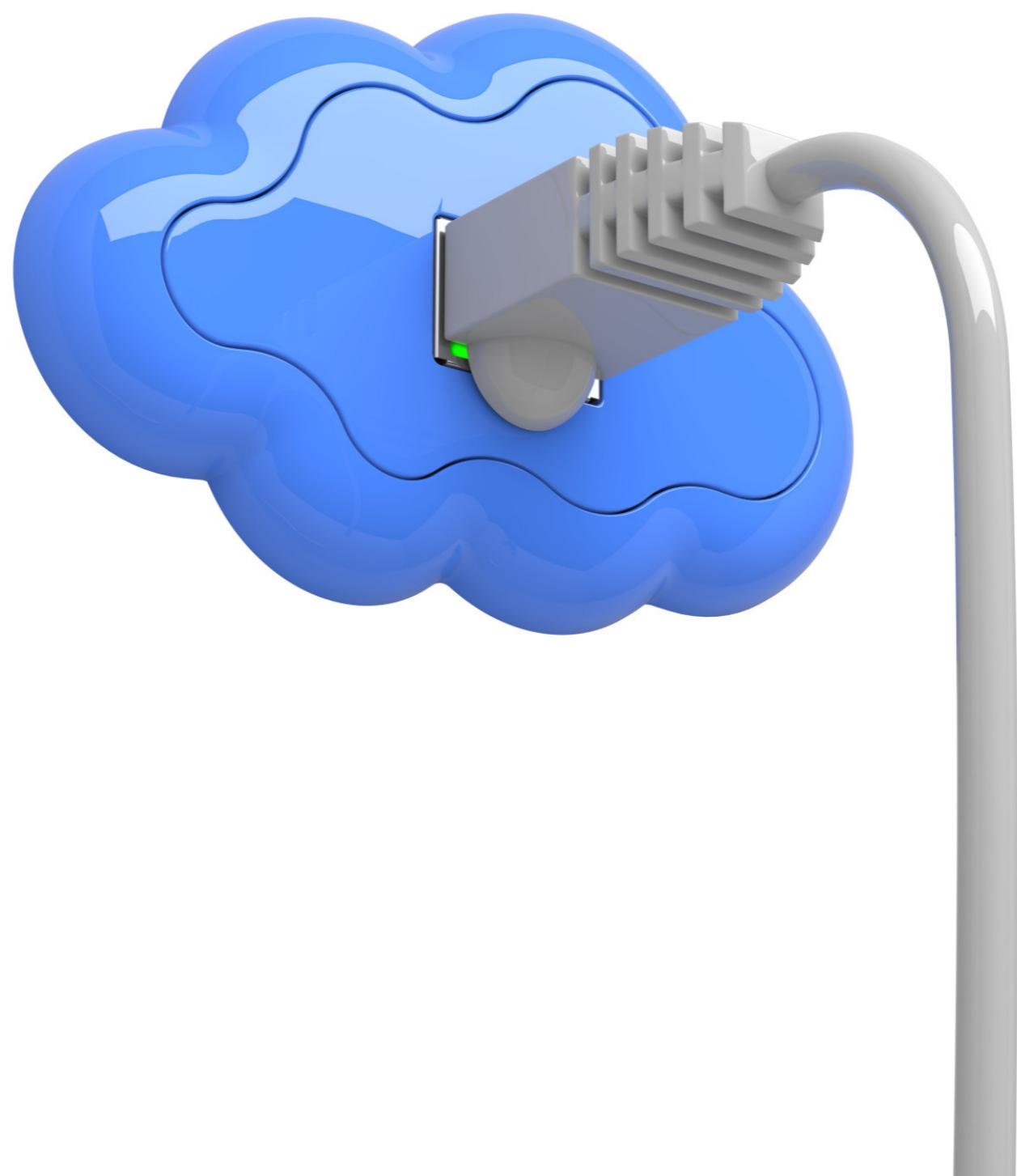
- Easy setup - as a PaaS you don't need to know how to install and configure Apache, nginx, unicorn, passenger, MySQL, Postgres etc
- Easier to scale initially - spin up more dynos, size up DBs etc
- Great plugin support for third party apps

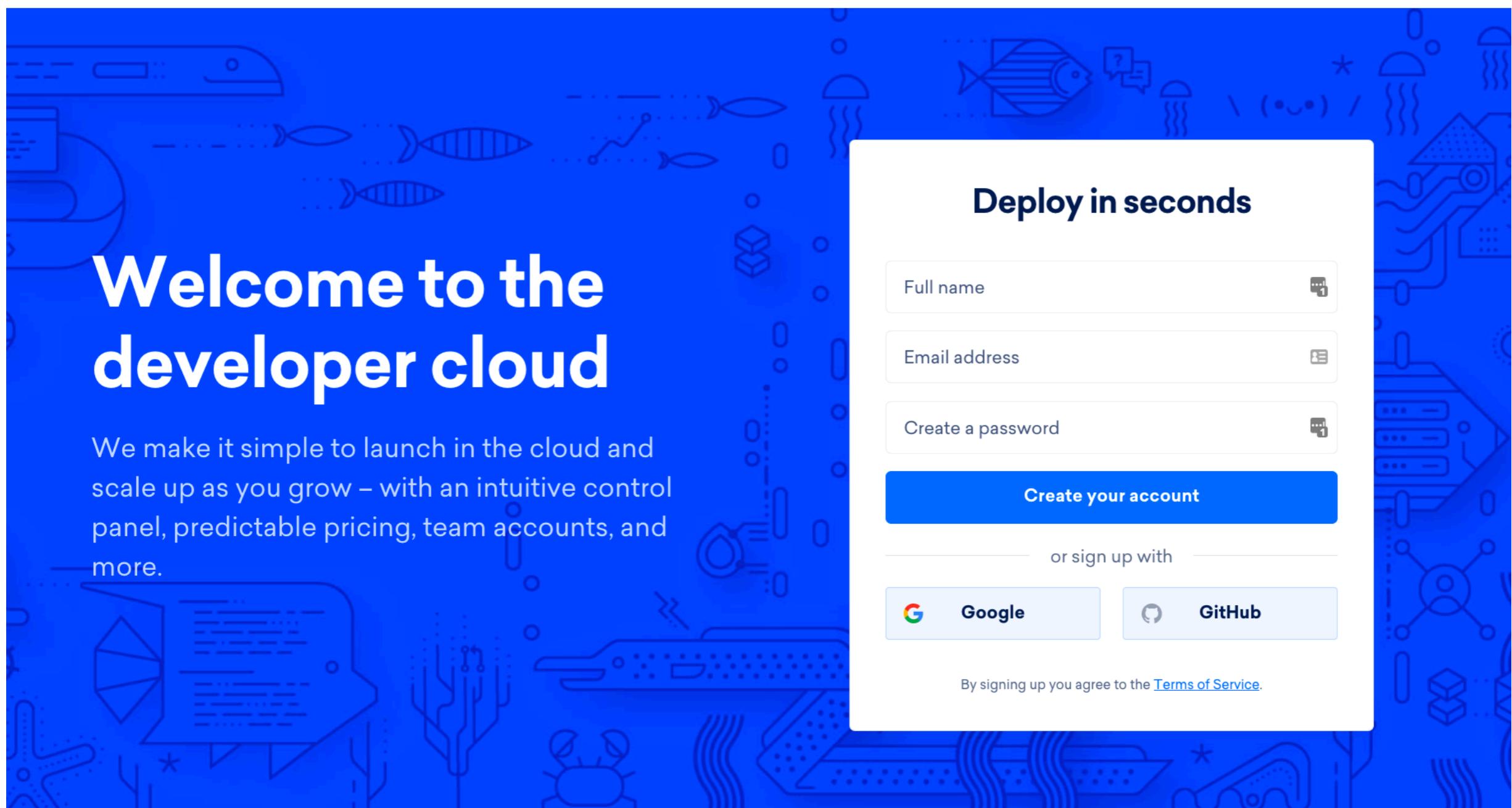
Disadvantages

- Pricey - after the free tier the pricing is steep, you will pay literally 3x - 5x more than a comparable performing setup through an IaaS
- Performance - as highlighted by rap genius recently the switch away from being purely a Rails PaaS and the updates to the routing engine has worse performance which translates to more dynos and still higher costs
- Lock-In - since you aren't managing your infrastructure you can't move it to take advantage of savings
- Single point of failure - granted it happens rarely but it's there. Architecting around this on your own requires a lot of experience but you'll be glad once you get past the learning curve.

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🕒 Droplets

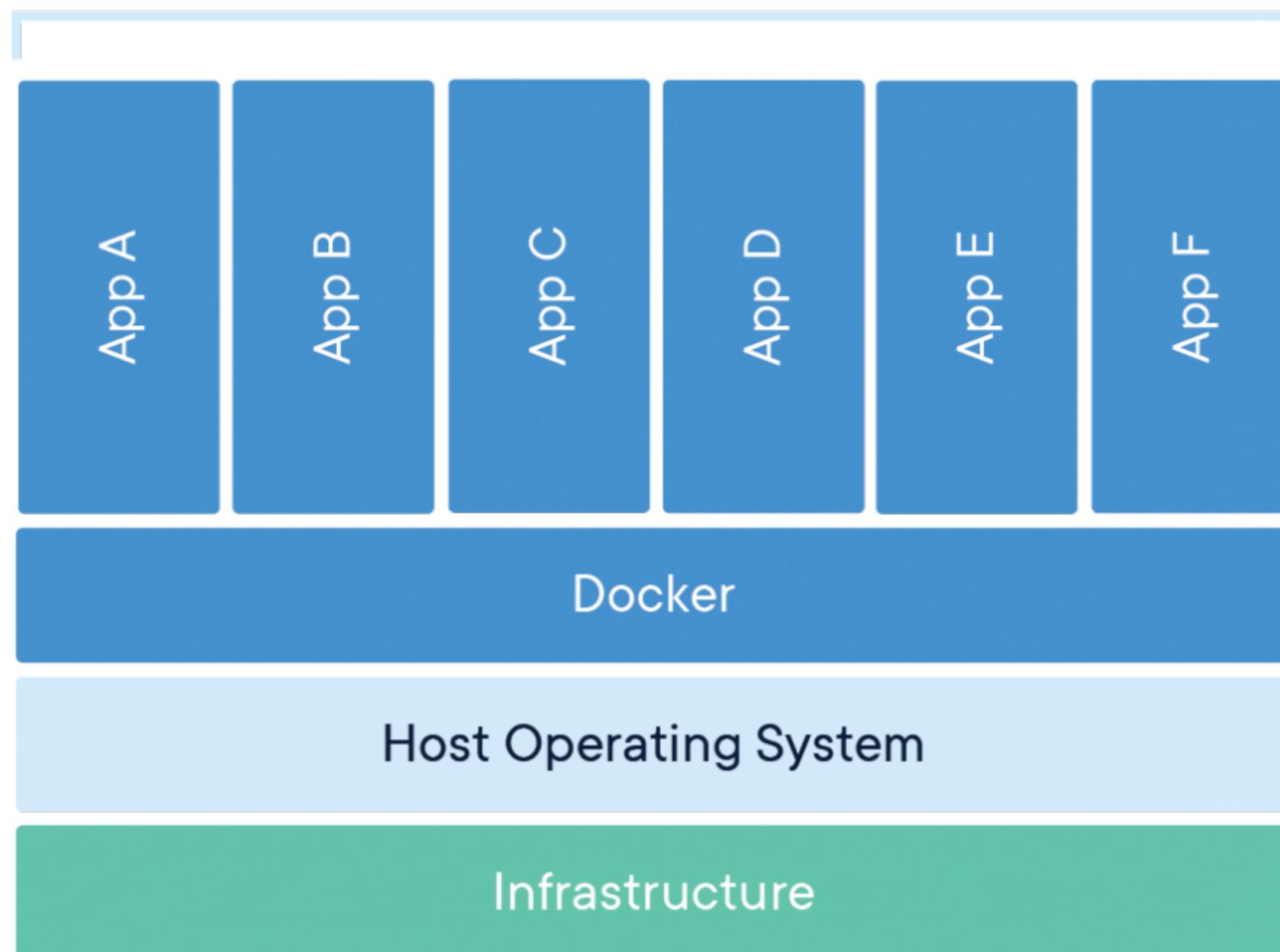
Droplets are virtual machines available in multiple configurations of CPU, memory and SSD.

	SHARED CPU	DEDICATED CPU		
	Standard	General Purpose	CPU-Optimized	
			NEW Memory-Optimized	
<p>Balanced virtual machines with a healthy amount of memory tuned to host and scale applications like blogs, web apps, testing and staging environments, in-memory caching, and databases. Learn more</p>				
MEMORY VCPUS TRANSFER SSD DISK PRICE				
1 GB	1 vCPU	1 TB	25 GB	\$5/mo \$0.007/hr
2 GB	1 vCPU	2 TB	50 GB	\$10/mo \$0.015/hr
3 GB	1 vCPU	3 TB	60 GB	\$15/mo \$0.022/hr



Getting started

Containerized Applications







06-B-deploy_docker.md



HOMEWORK

07-HW-custom_domains.md

Q&A

THE END

minimum viable machine learning ×

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</> SCENARIO

Deploy Machine Learning Apps with Dokku

By Max Humber

MACHINE LEARNING

O'Reilly Media, Inc. April 2020

Minimum Viable Machine Learning IV



</> SCENARIO

Serve Machine Learning Models with Flask

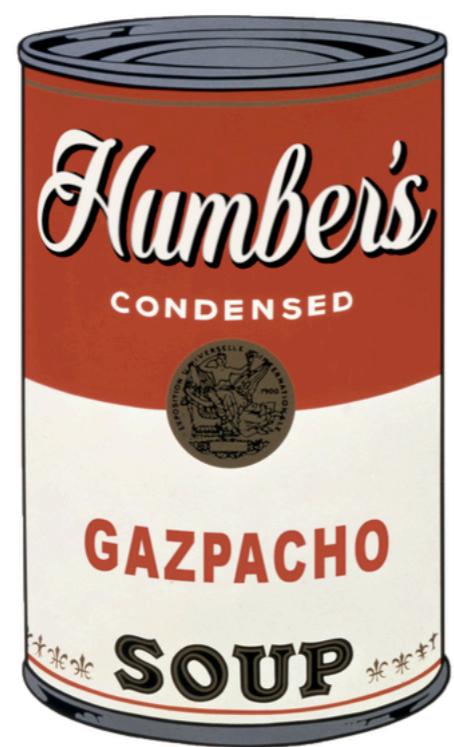
By Max Humber

MACHINE LEARNING

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Minimum Viable Machine Learning III

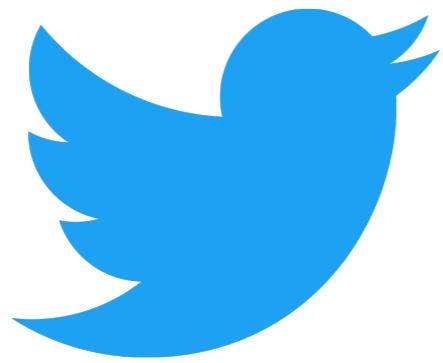
**Kata**coda



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