

WiFi LIVE ONLINE TRAINING

# Minimum Viable Machine Learning

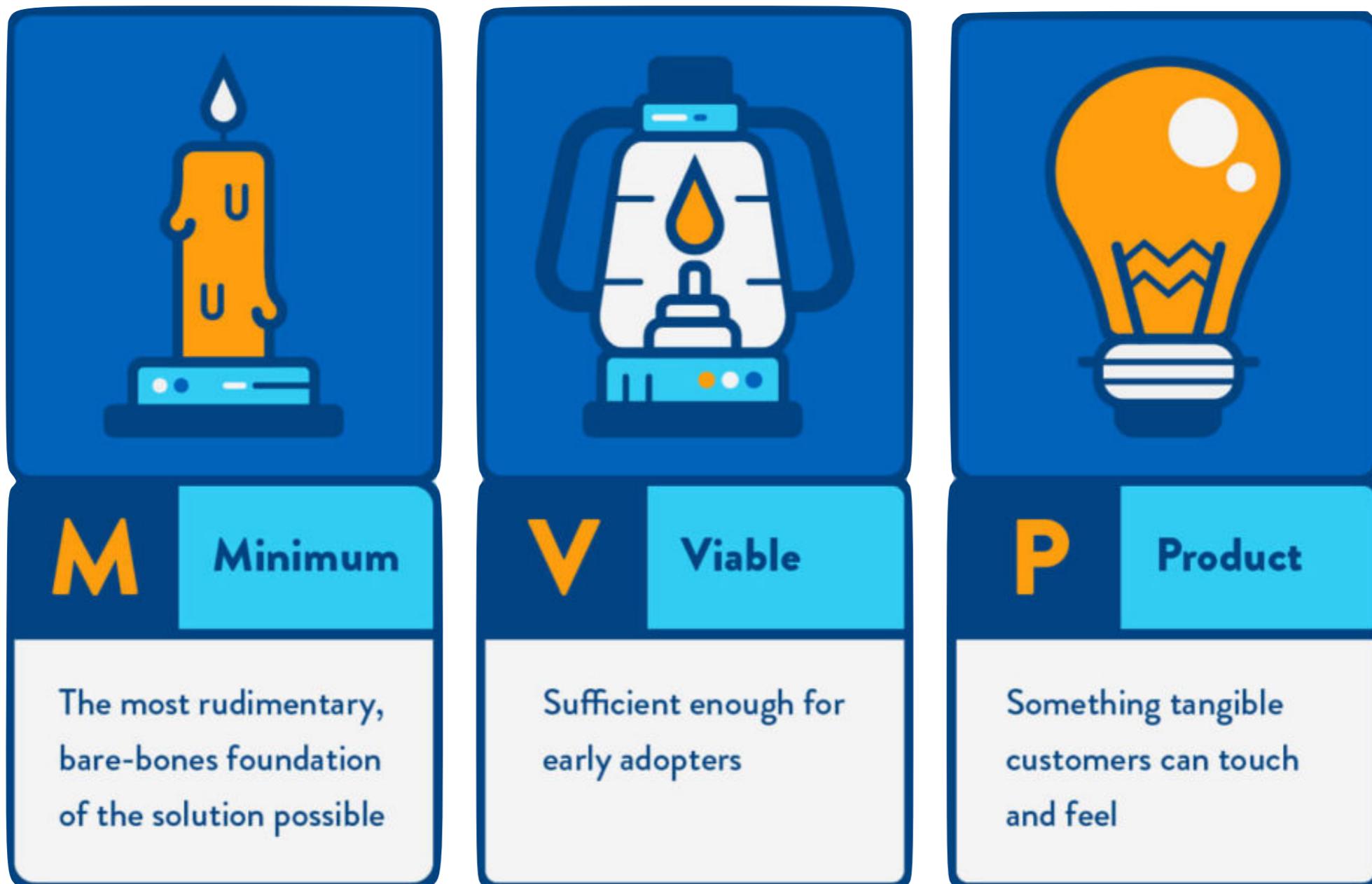
Graduating your models out of Jupyter and into Production

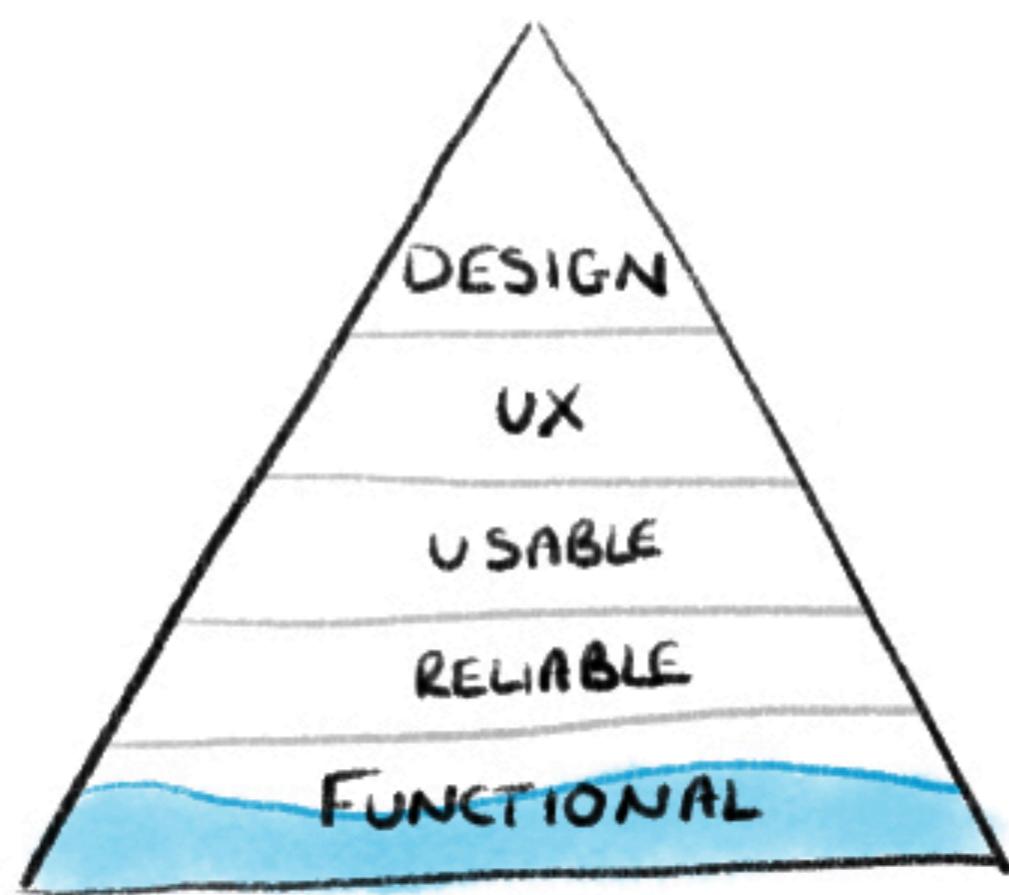


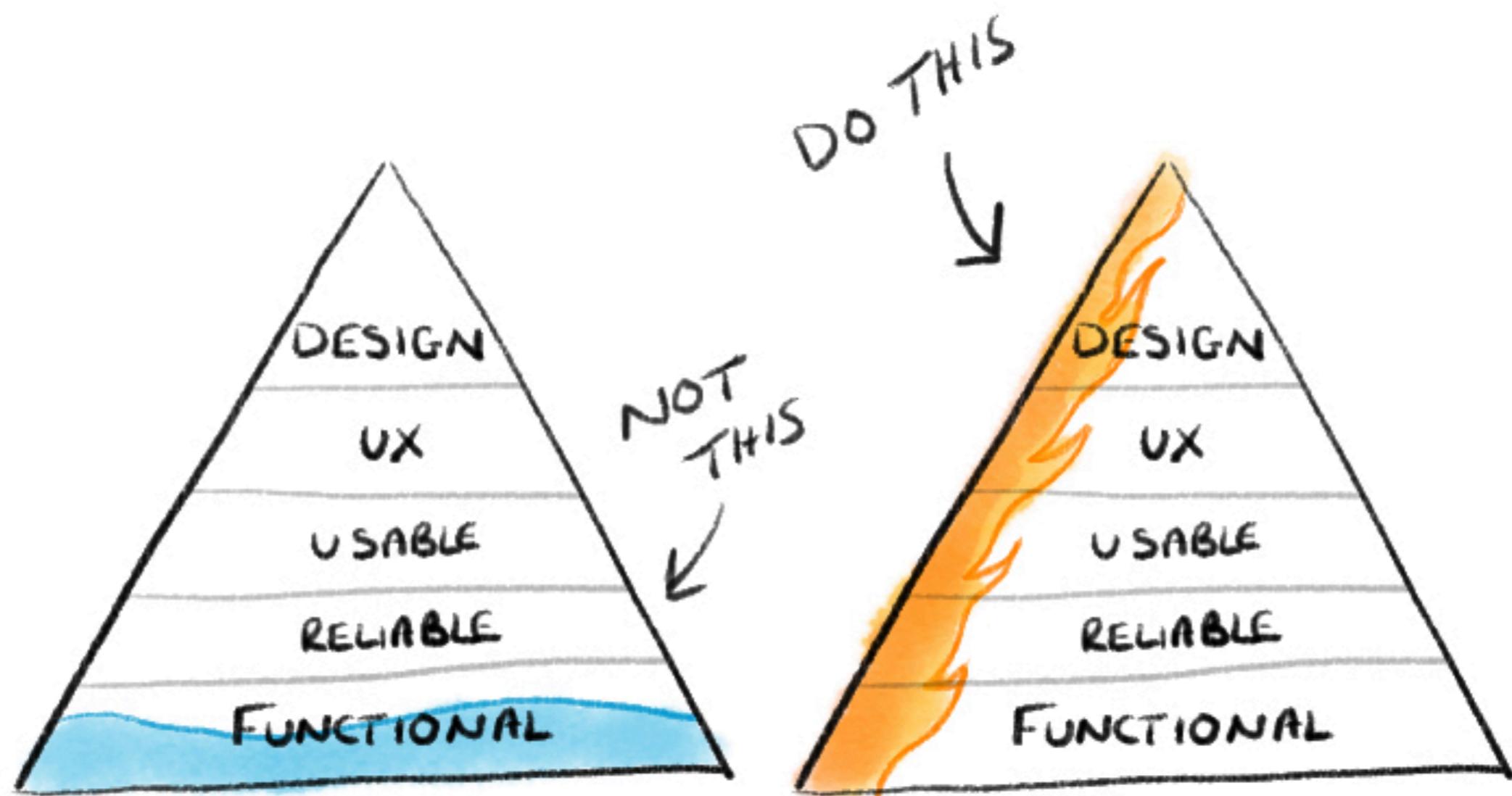
[github.com/maxhumber/MVML](https://github.com/maxhumber/MVML)

**August 27, 2020**

12:00pm – 2:00pm EDT







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## HOW NOT TO BUILD A MINIMUM VIABLE PRODUCT



1



2



3



4



1



2



3



4

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## HOW NOT TO BUILD A MINIMUM VIABLE PRODUCT



1



2



3



4

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## HOW TO BUILD A TRADITIONAL MINIMUM VIABLE PRODUCT



1



2



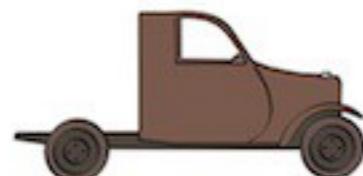
3



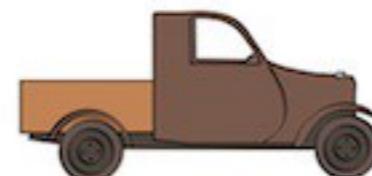
4

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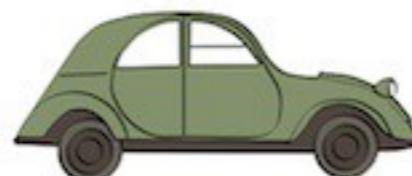
## HOW TO DO MINIMUM VIABLE MACHINE LEARNING



1



2

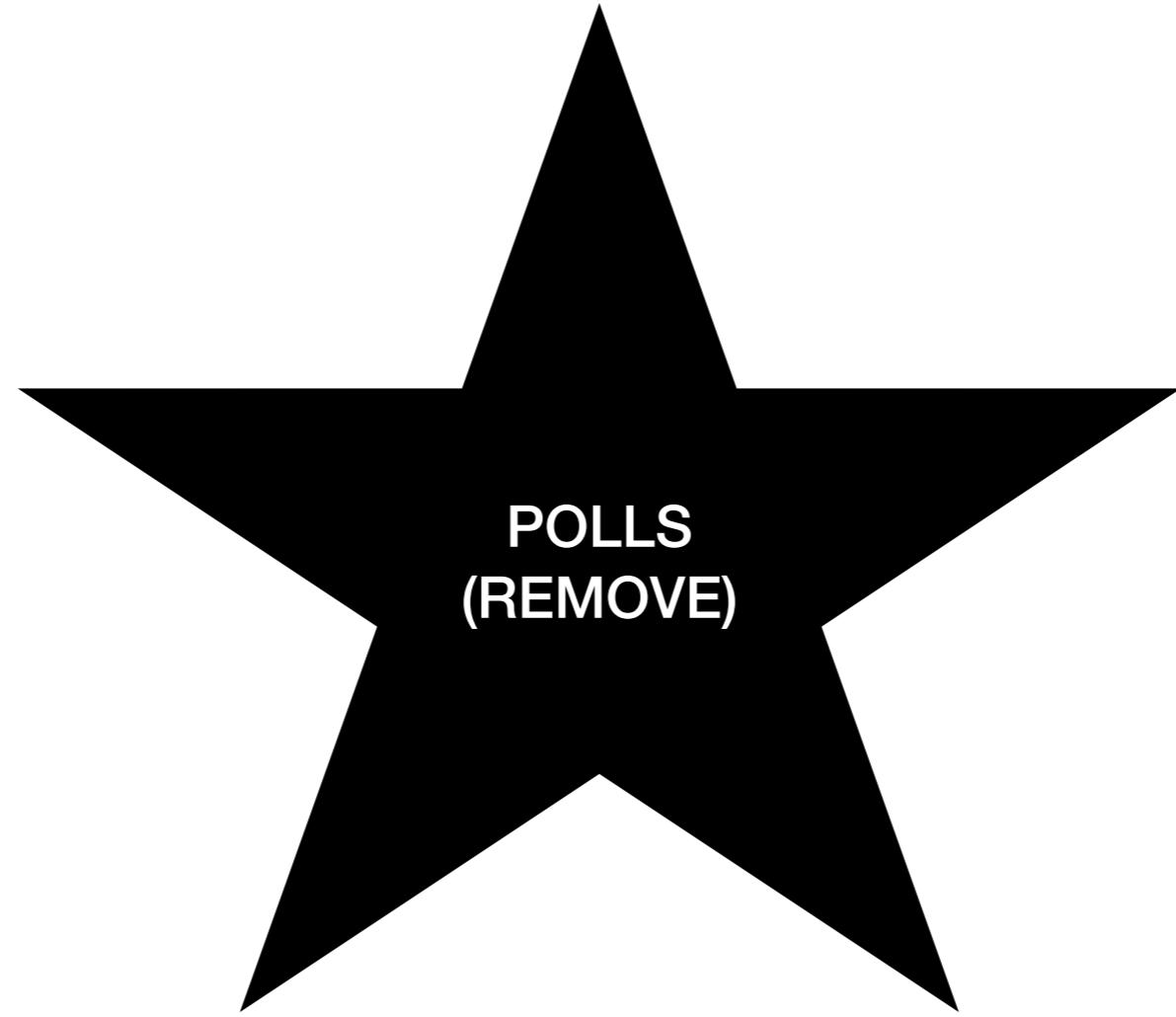


3



4





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

But first

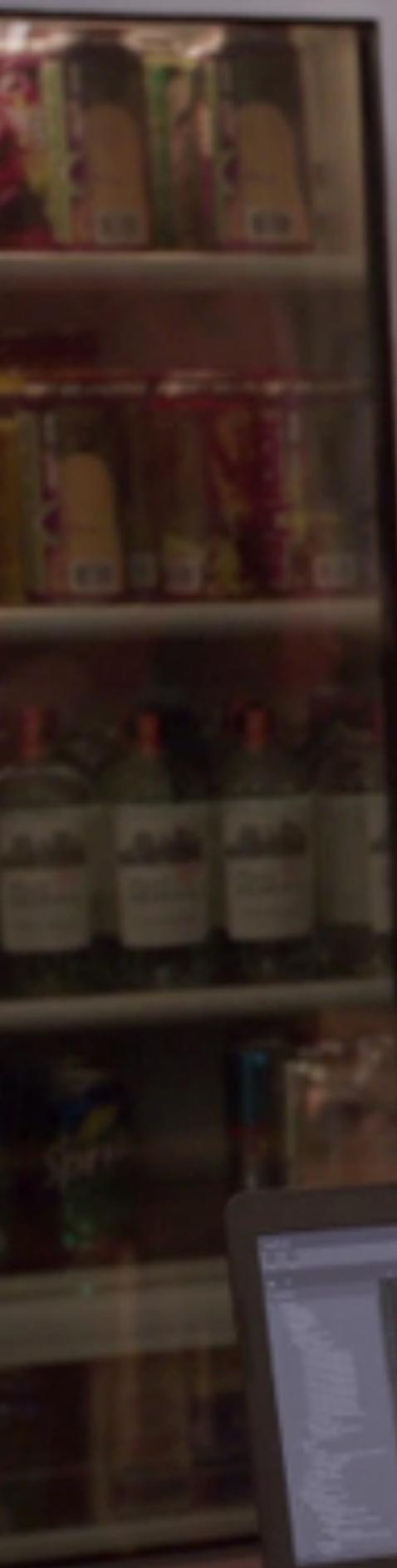


DATA

Full  
stack  
MURCHKIN









1

Develop

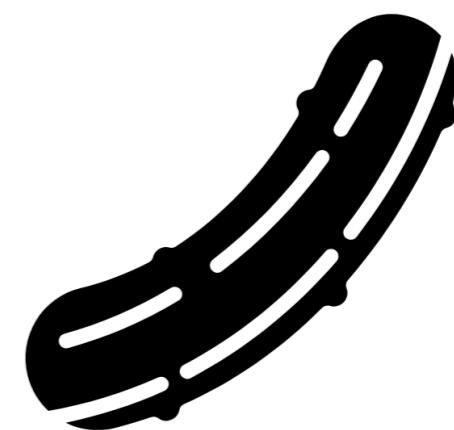
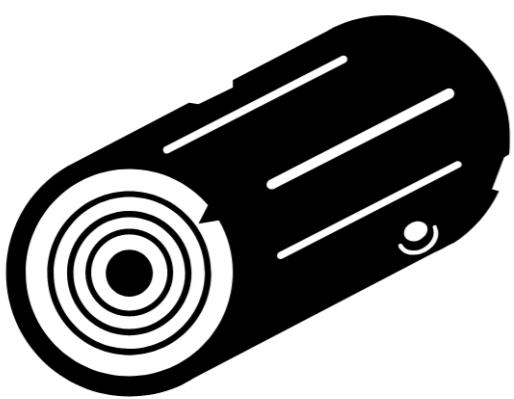


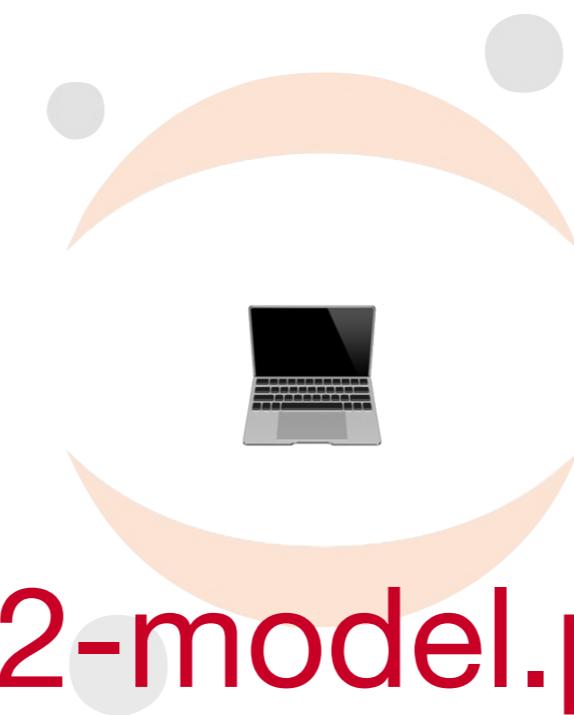
01-model.ipynb

**MOVE  
FAST AND  
BREAK  
THINGS**

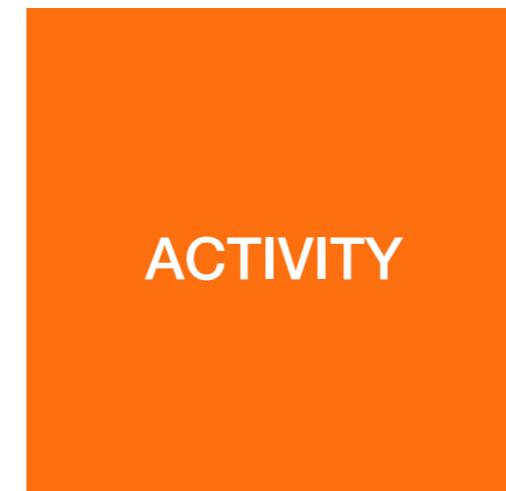
TRY A BUNCH OF







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:

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

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```

Finally run the web app using the command:

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

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

# untitled - Paint

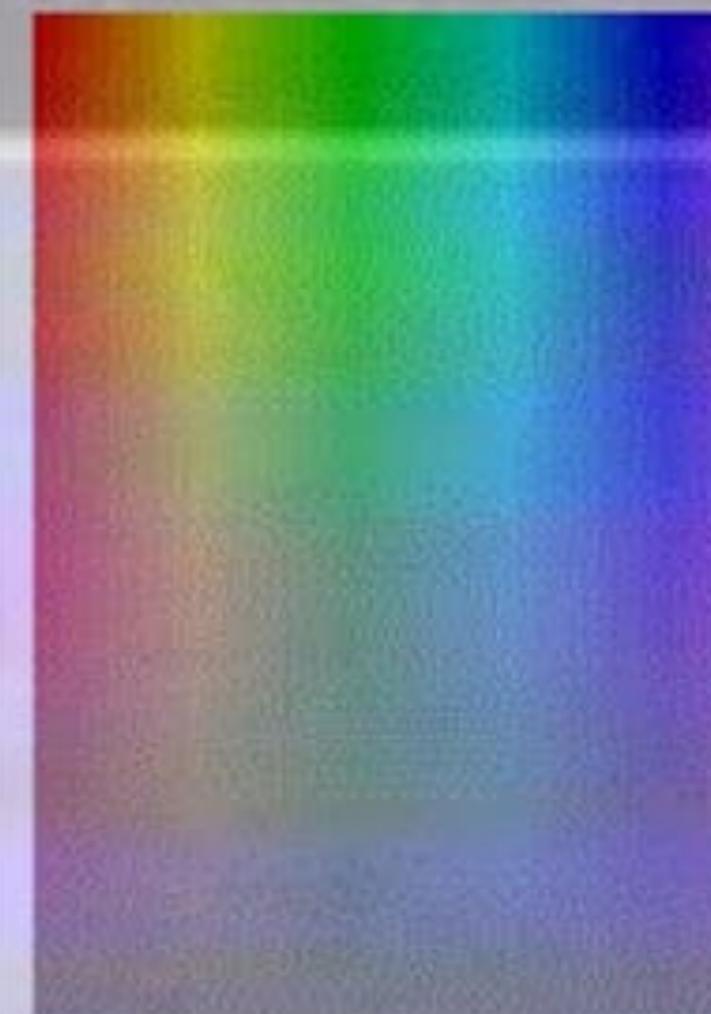


PaintWinCE

File Edit View Image Options Help



raised by  
the internet



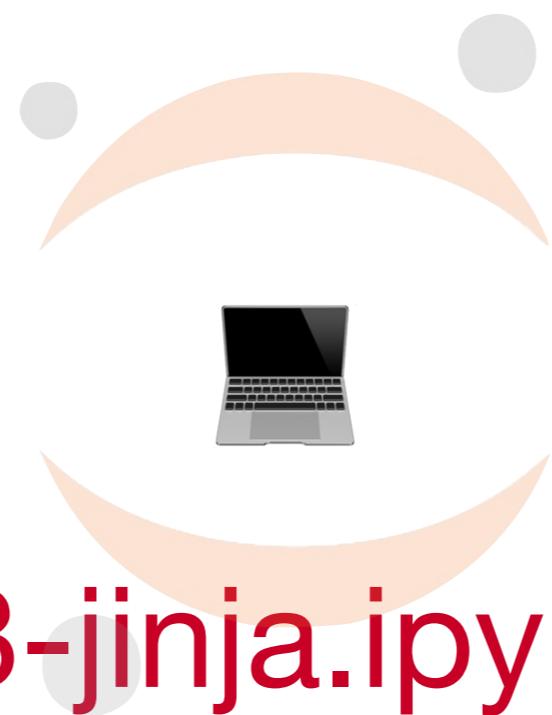
Tutorial 1



CONGRATULATIONS!



This IS NOT A JOKE!



03-jinja.ipynb

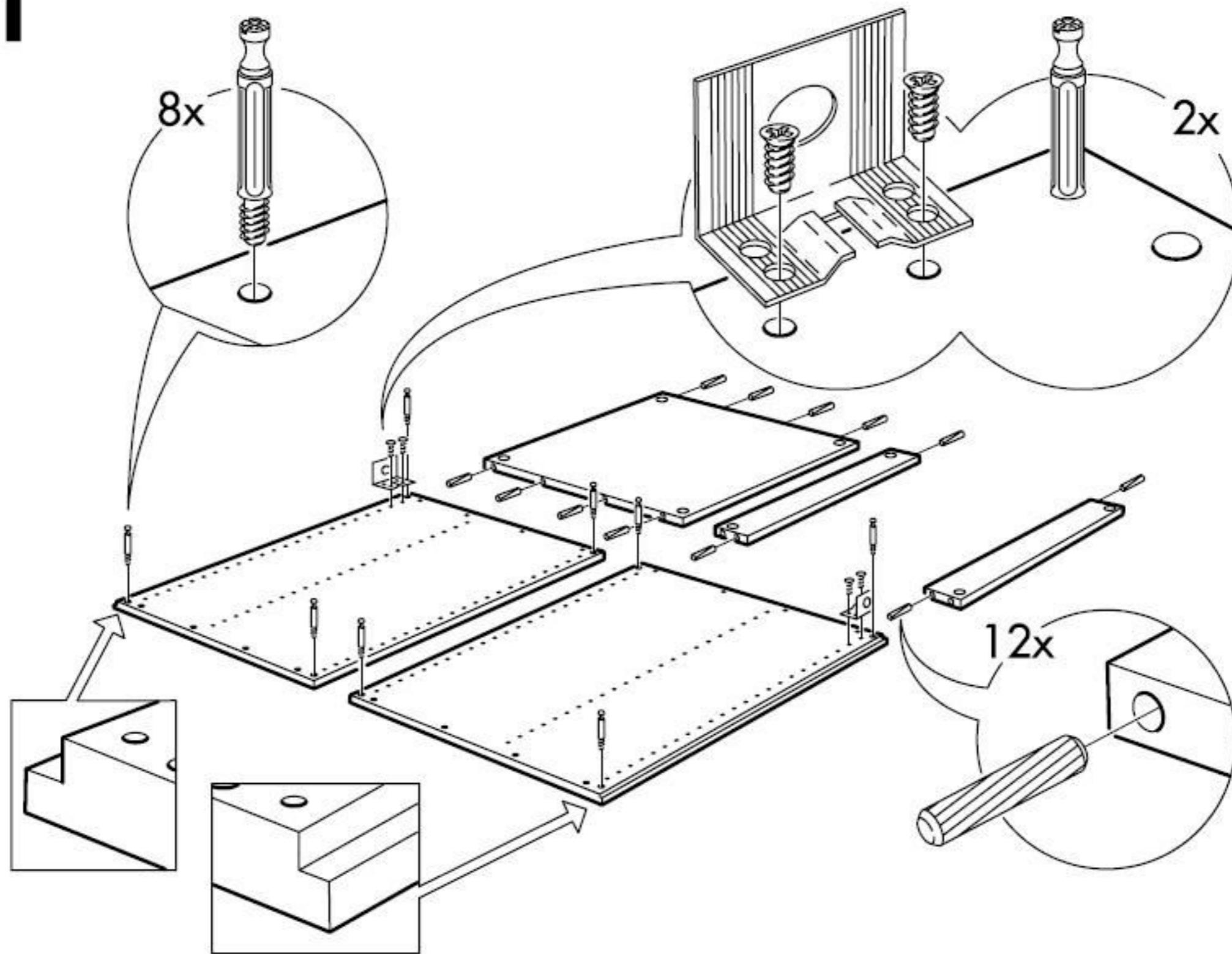


## A minimalist stylesheet for HTML elements

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

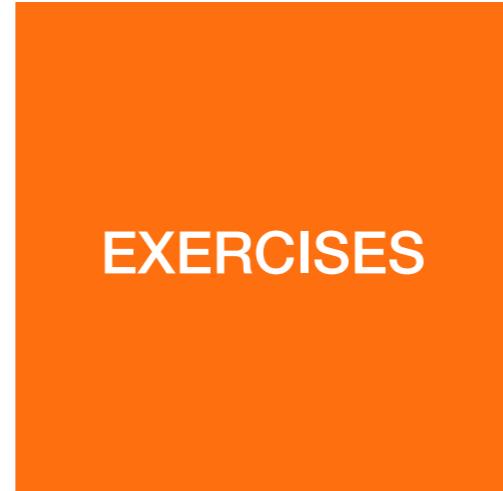


# 04-A/B.html

**1**



# 05-app.py



EXERCISES

[\*\*exercises/flask\\_regression.py\*\*](#)

Q&A

3

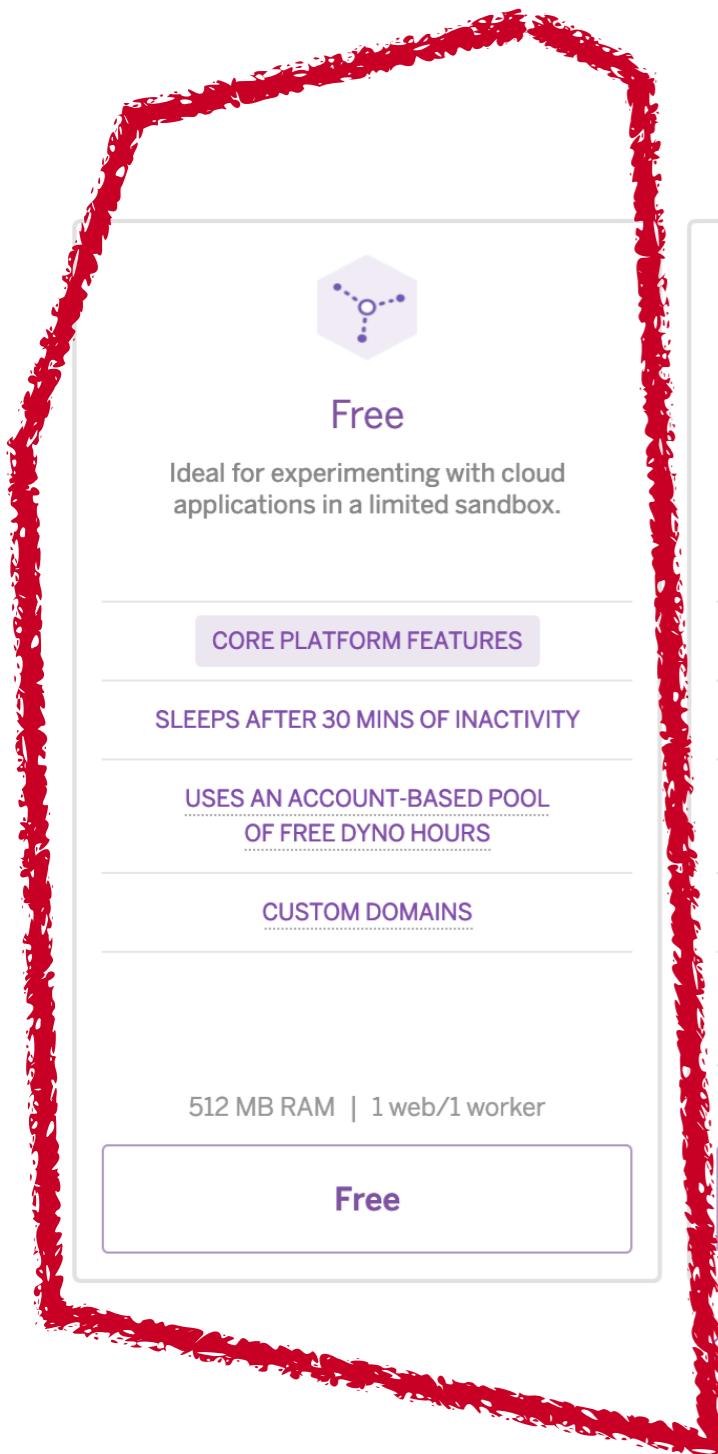
Deploy





HEROKU

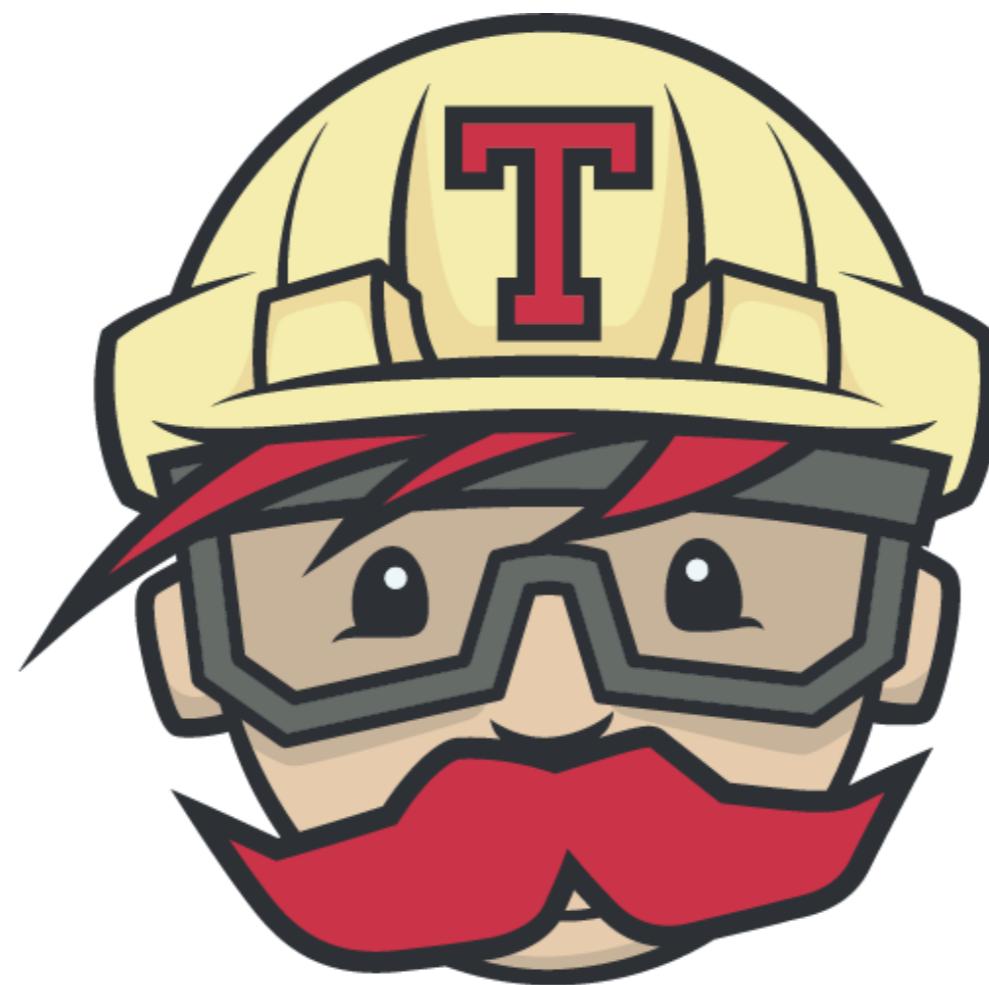
CITY OF  
GRANBO



Plan	Core Platform Features	Memory & Process Types	Price
<b>Free</b>	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
<b>Hobby</b>	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	
 <b>Standard</b> <small>1X 2X</small> Enhanced visibility, performance, and availability for powering your professional applications.	 <b>Performance</b> <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

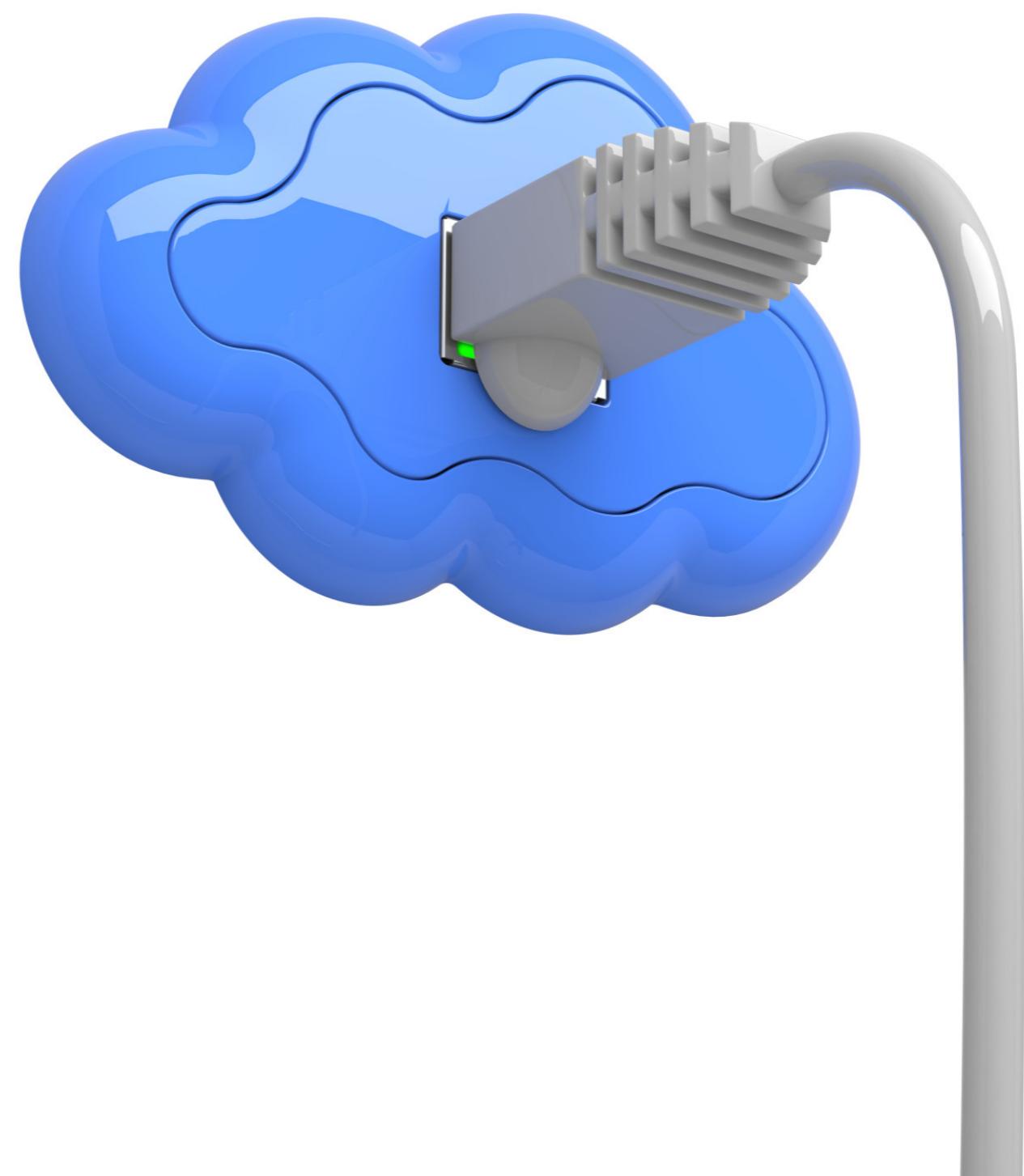
- Easy setup - as a PaaS you don't need to know how to install and configure Apache, nginx, unicorn, passenger, MySQL, Postgres etc
- Easier to scale initially - spin up more dynos, size up DBs etc
- Great plugin support for third party apps

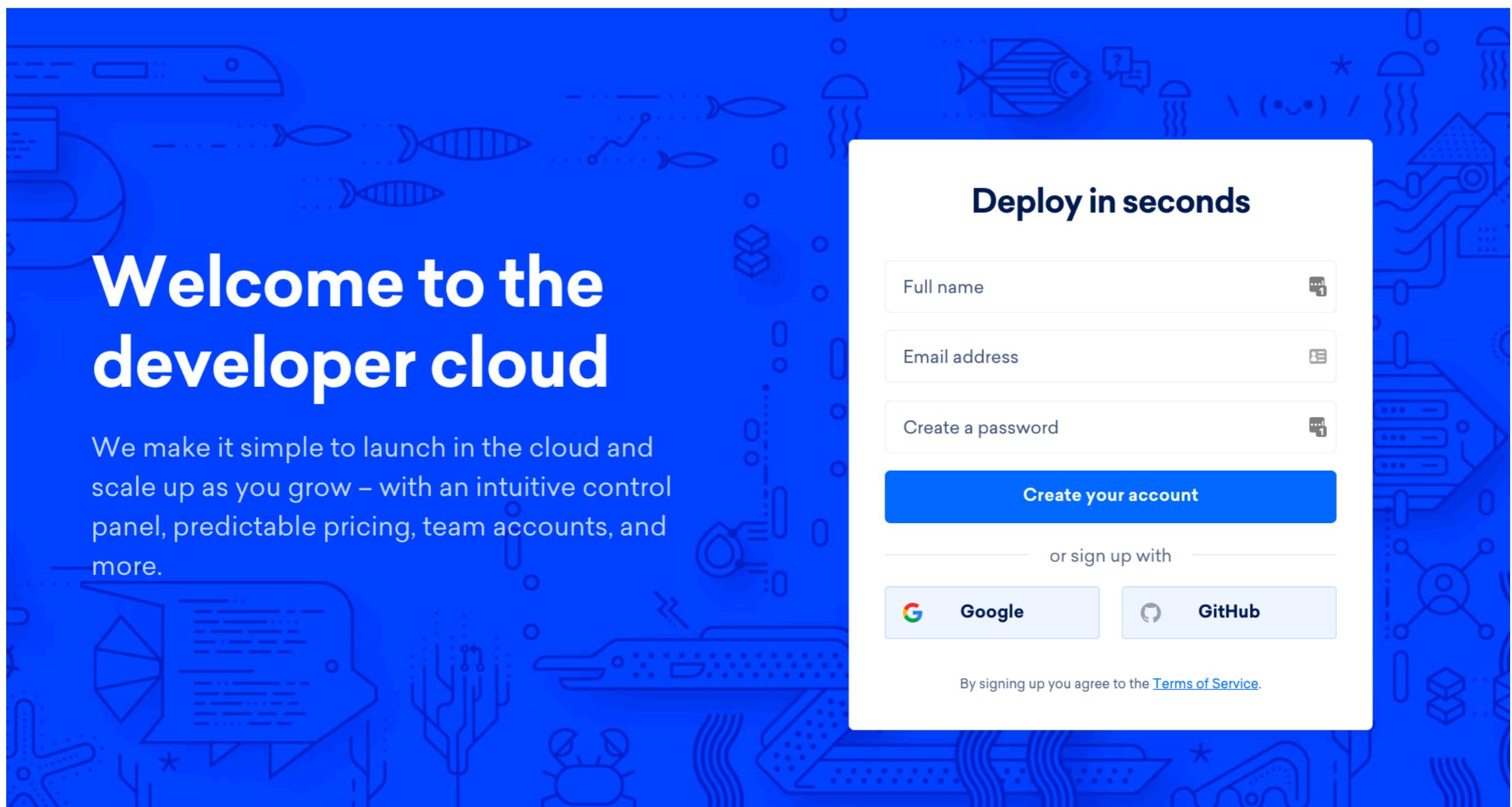
### Disadvantages

- 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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UP!





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## 🕒 Droplets

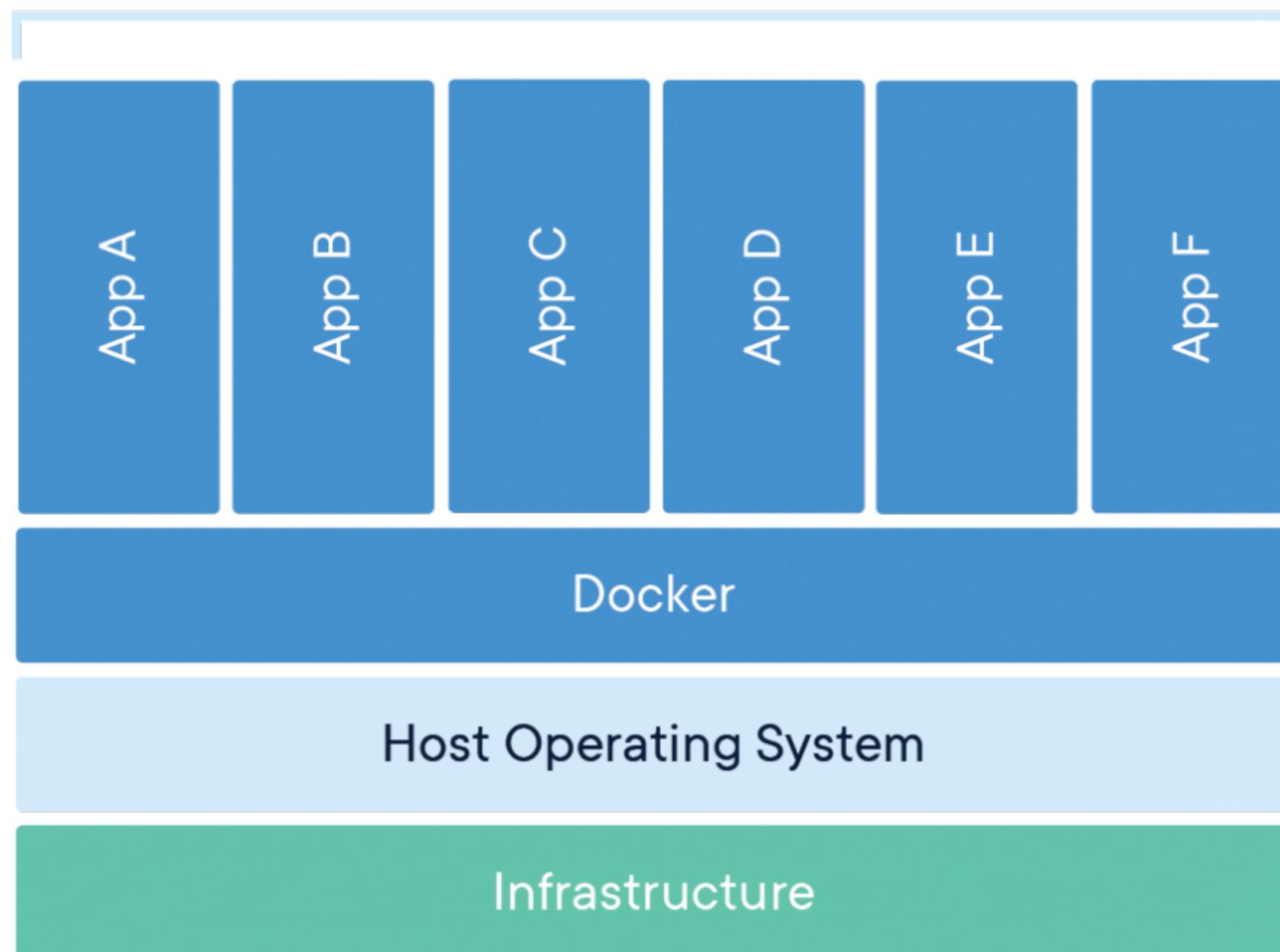
Droplets are virtual machines available in multiple configurations of CPU, memory and SSD.

	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. <a href="#">Learn more</a></p>				
<b>MEMORY</b> <b>VCPUS</b> <b>TRANSFER</b> <b>SSD DISK</b> <b>PRICE</b>				
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 ×

Scenarios ▾

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&lt;/&gt; SCENARIO

### Deploy Machine Learning Apps with Dokku

By Max Humber

MACHINE LEARNING

O'Reilly Media, Inc. April 2020

### Minimum Viable Machine Learning IV



&lt;/&gt; SCENARIO

### Serve Machine Learning Models with Flask

By Max Humber

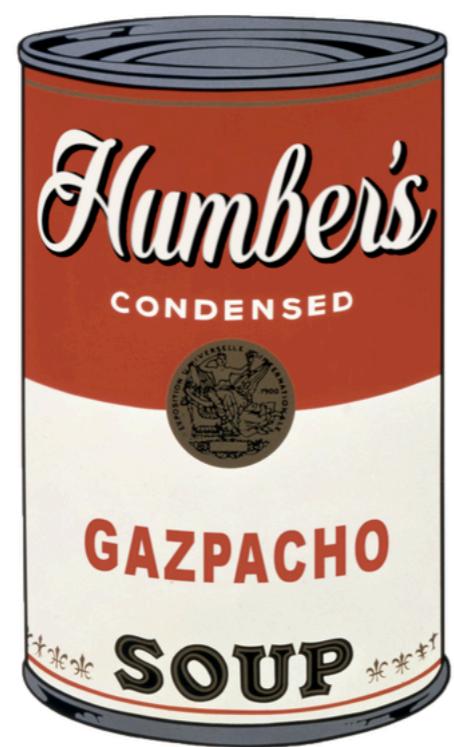
MACHINE LEARNING

O'Reilly Media, Inc. April 2020

### Minimum Viable Machine Learning III

**Kata**coda





[github.com/maxhumber/gazpacho](https://github.com/maxhumber/gazpacho)



[github.com/maxhumber/gif](https://github.com/maxhumber/gif)

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LIVE ONLINE TRAINING

## Minimum viable machine learning

By Max Humber

MACHINE LEARNING

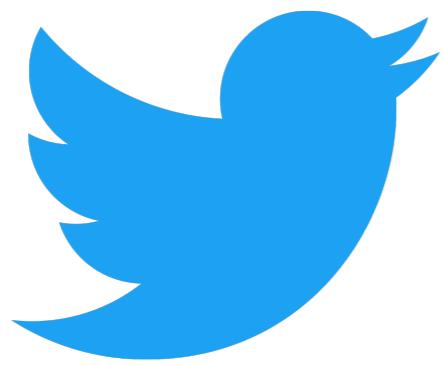
Session date:

November 16, 2020

137 spots available

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