LIVE ONLINE TRAINING

Data Engineering for Data Scientists

Build resilient pipelines to support stronger models

MAX HUMBER

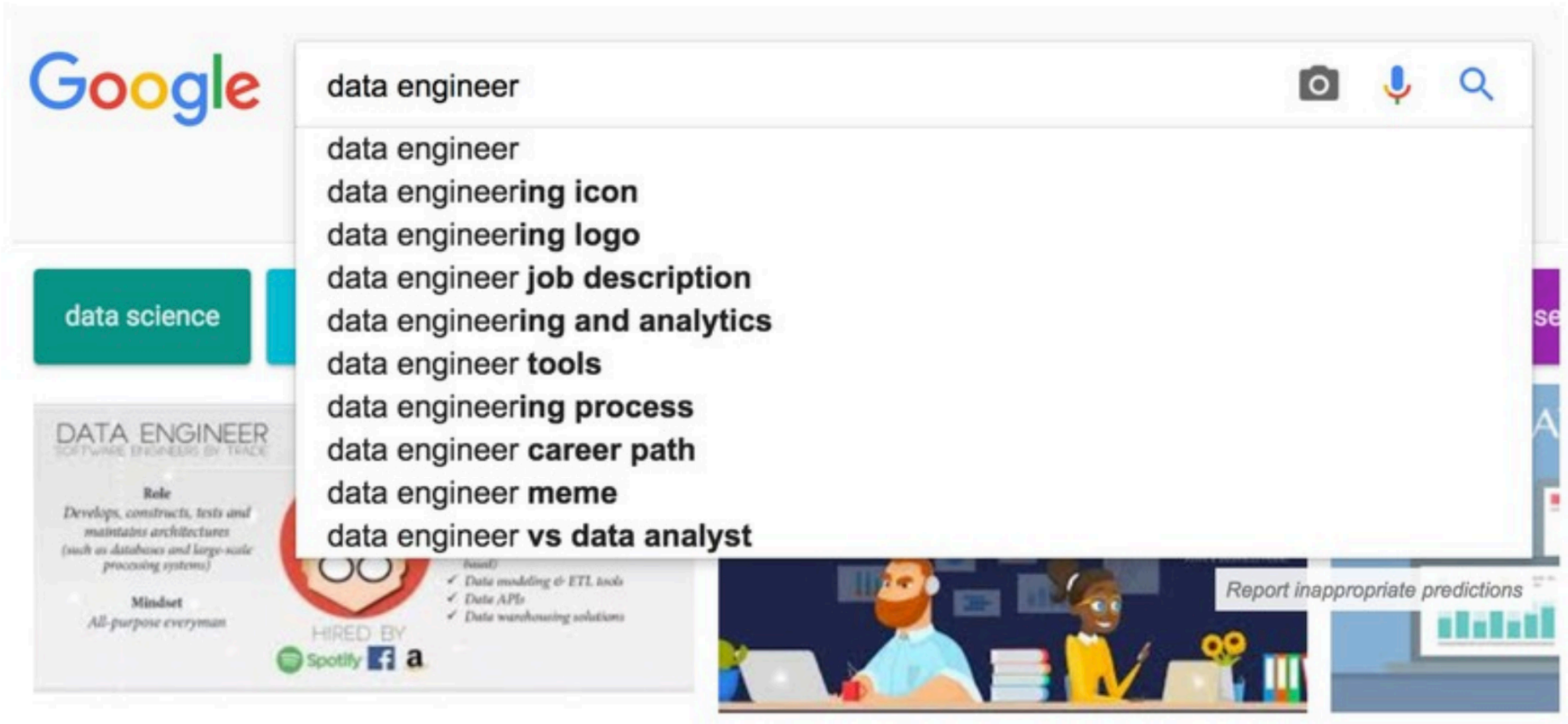
Agenda

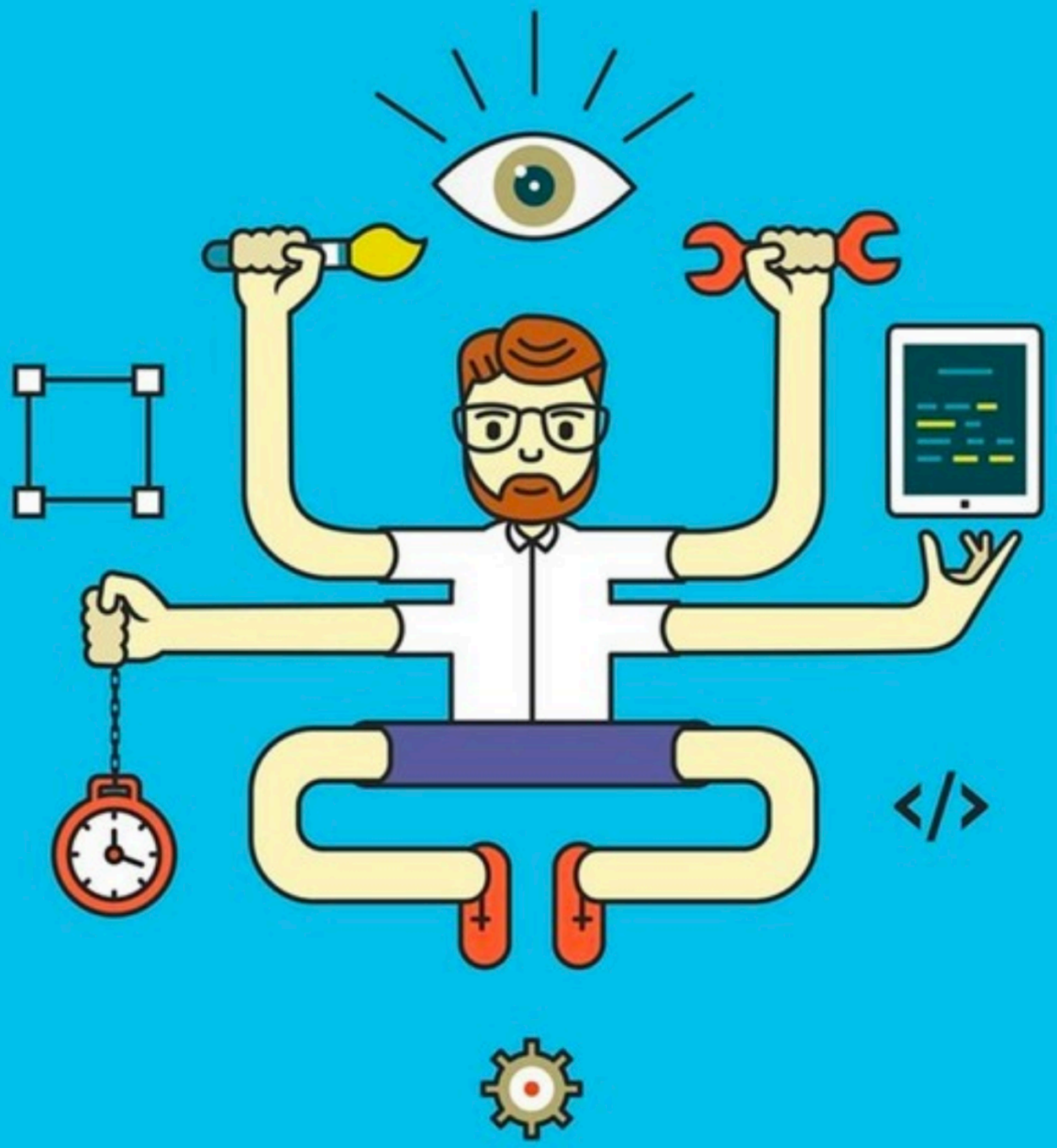
1 Extend

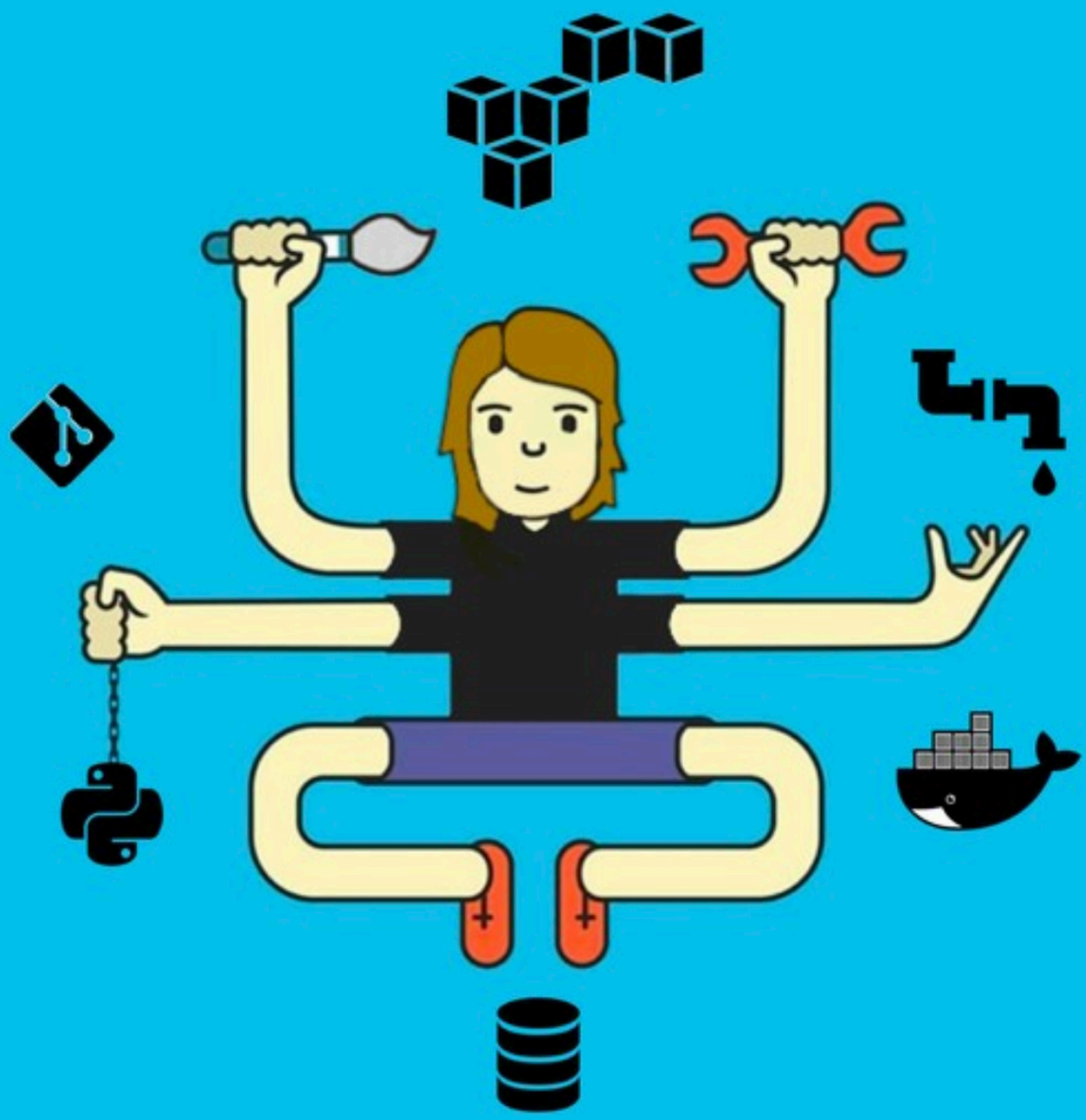
2 Save

3 Schedule

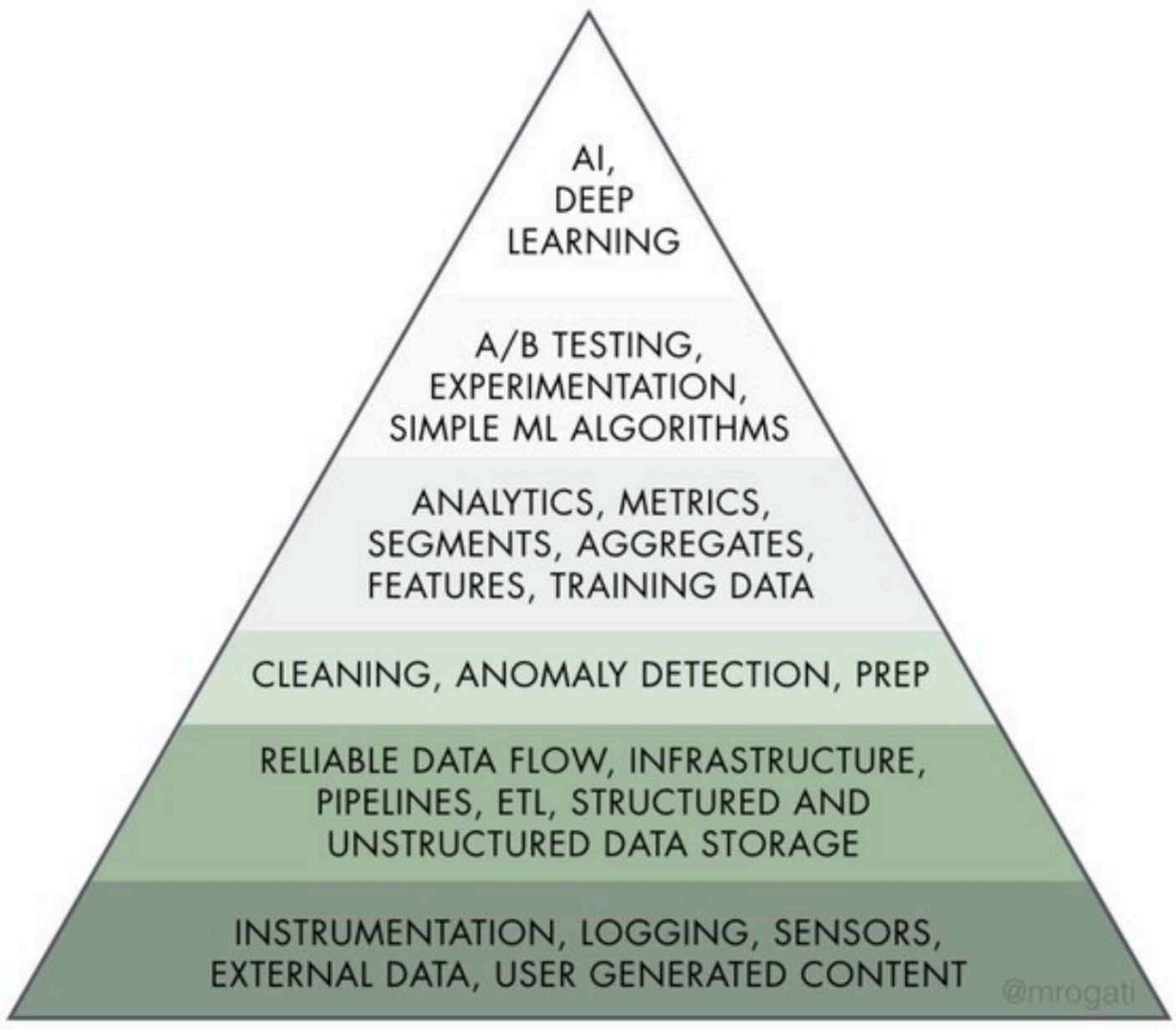
Data Engineering







Data Hierarchy of Needs



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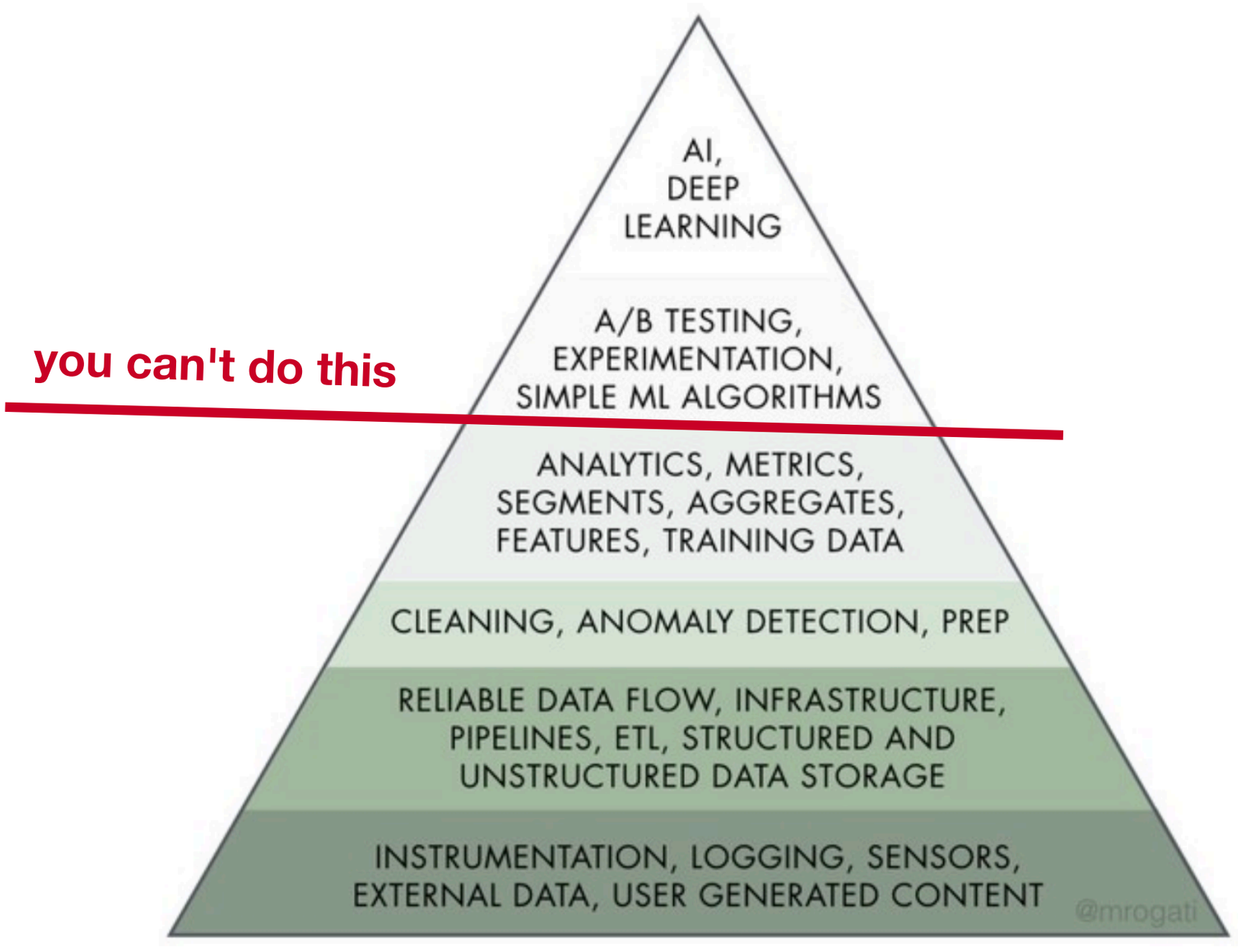

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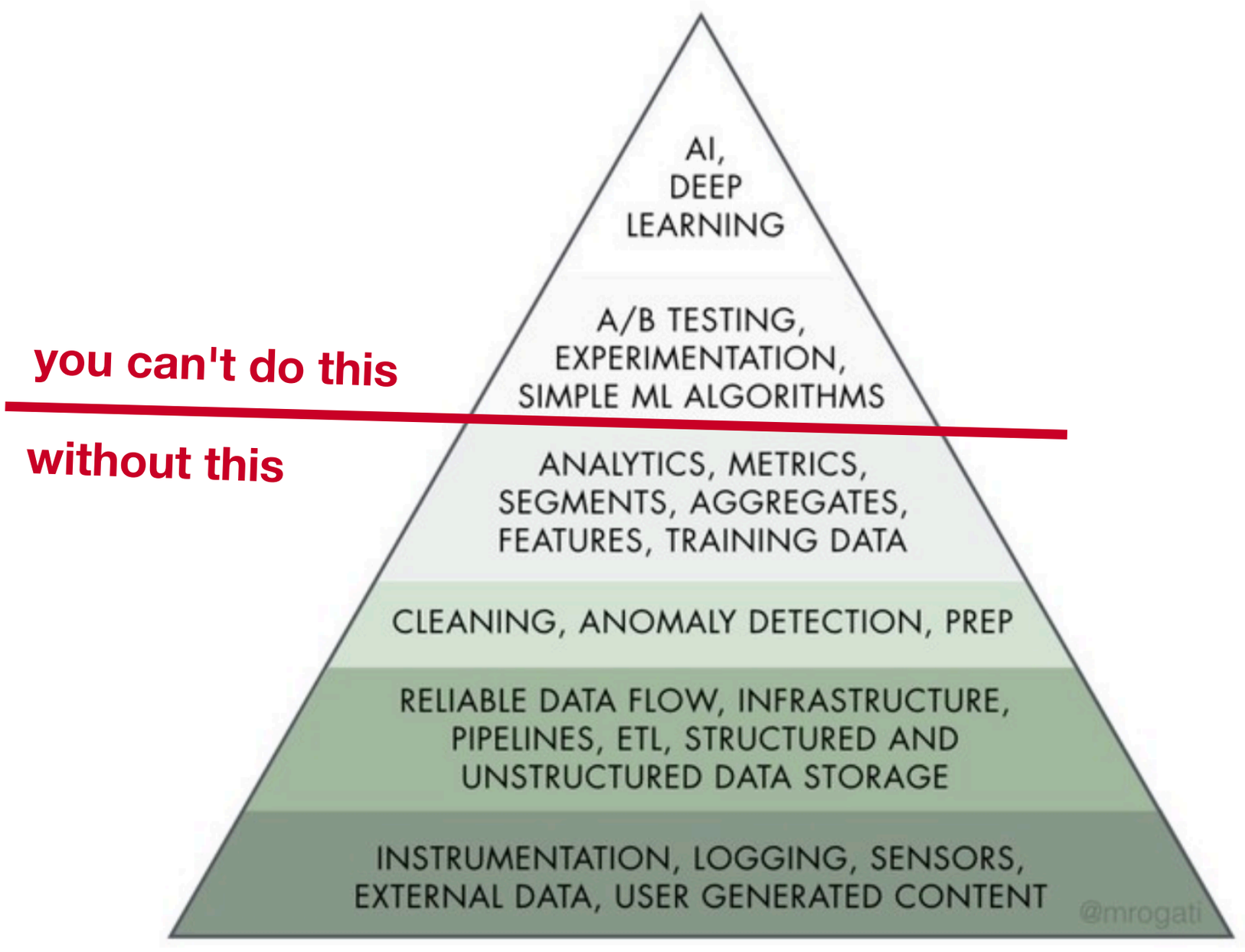

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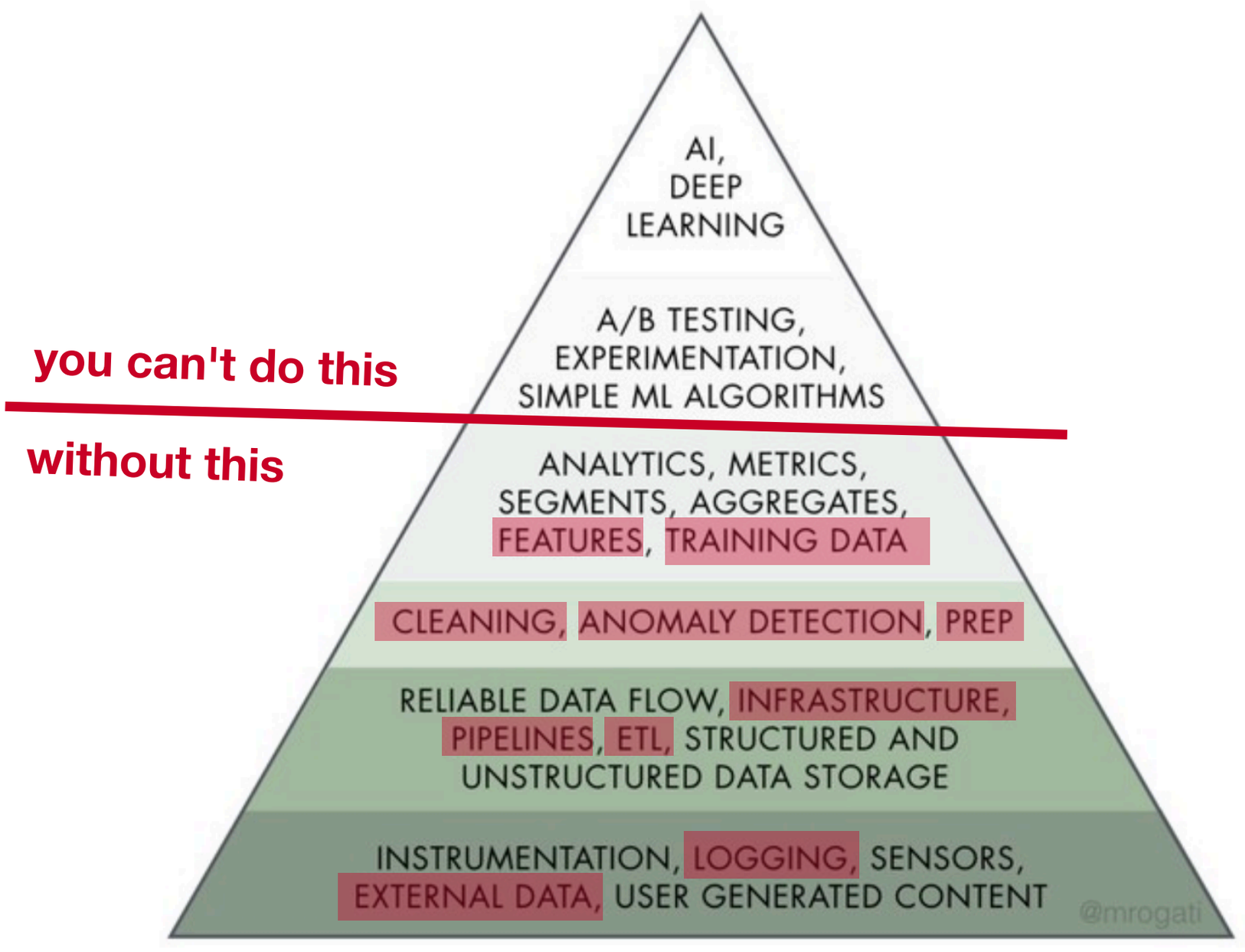



ELMER'S
Washable, No Run
School Glue
#1 Teacher Brand
Safe, Non-Toxic
AP
7.625 FL OZ (225 mL)


SPALDING
OFFICIAL GAME BALL
NBA

1

Extend

01-model.ipynb

Q&A

Jupyter to Hydrogen

Jupyter to Hydrogen

.ipynb

- ✅ exploratory analysis
- ✅ visualizing ideas
- ✅ prototyping

- ❌ messy
- ❌ bad at versioning
- ❌ not ideal for production

Jupyter to Hydrogen

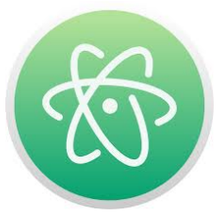
.ipynb

.py

Hydrogen

Hydrogen is an interactive coding environment that supports Python, R, JavaScript and other Jupyter kernels.

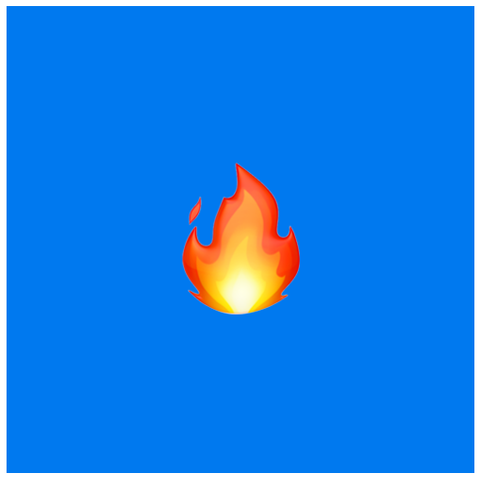
Checkout our Documentation and Medium blog post to see what you can do with Hydrogen.



https://atom.io/packages/hydrogen

02-model.py

Q&A




input
output

README.md

Python Fire 

Python Fire is a library for automatically generating command line interfaces (CLIs) from absolutely any Python object.

- Python Fire is a simple way to create a CLI in Python. [1]
- Python Fire is a helpful tool for developing and debugging Python code. [2]
- Python Fire helps with exploring existing code or turning other people's code into a CLI. [3]
- Python Fire makes transitioning between Bash and Python easier. [4]
- Python Fire makes using a Python REPL easier by setting up the REPL with the modules and variables you'll need already imported and created. [5]

Installation

To install Python Fire with pip, run: `pip install fire`

To install Python Fire with conda, run: `conda install fire -c conda-forge`

To install Python Fire from source, first clone the repository and then run: `python setup.py install`

Basic Usage

You can call `Fire` on any Python object:
functions, classes, modules, objects, dictionaries, lists, tuples, etc. They all work!

03-predict.py

04-fire.py

```
🔥 python 04-fire.py “LeBron James”
```

Q&A

2

Save

05-database.py

```
🔥 python 05-database.py “LeBron James”
```

Monitor


Rollbar

Waiting for data from your Python app...

This page will update once we receive an error from your app.

Don't want to start with Python? Choose a different SDK.

Installation

To send errors to Rollbar from your Python application you should use the pyrollbar SDK. Install pyrollbar with pip:

```
pip install rollbar
```

COPY

Send a Message

You'll need your project's server-side access token to initialize the pyrollbar SDK. Sending a message to the Rollbar server is as simple as:

```
import rollbar

rollbar.init('49e86c1178e346899c2f29e3744420a9')
rollbar.report_message('Rollbar is configured correctly')
```

COPY

A few seconds after you execute this code, the message should appear on your project's "Items" page.

remove password

Search

- Repositories 244
- Code 50M+
- **Commits 508K**
- Issues 280K
- Packages 1
- Marketplace 0
- Topics 0
- Wikis 34K
- Users 0

Advanced search Cheat sheet

Showing 445,215 available commit results

Sort: **Recently committed**

removed password ···

Verified c64833c

reharr4 committed to reharr4/blamazon 2 hours ago

Onmibus updates (#7) ···

Verified b1b80c9

stevector committed to stevector/internet-button-playground 4 hours ago ✔

Merge pull request #534 in EDD/edd-django from ~WCMORRELL/edd:feature... ···

8aa8978

wmorrell committed to JBEI/edd 7 hours ago

File restructuring ···

8735106

caitlin authored and **PilotBob** committed to CassandraWerewolf/CassandraWeb 7 hours ago

removed password

removed password from bamazonCustomer.js

master

reharr4 committed 2 hours ago Verified 1 parent 7e38084 commit c64833c915cc0f604cb0eeab

Showing 1 changed file with **2 additions** and **2 deletions**.

4 bamazonCustomer.js

```
@@ -9,7 +9,7 @@ var connection = mysql.createConnection({
9  9          // username
10 10         user: "root",
11 11         // password
12    -       password: "L!sb0n13",
   12 +       password: "",
13 13         database: "bamazon_db"
14 14     });
15 15
@@ -94,4 +94,4 @@ connection.connect(function (err) {
94 94     //         })
95 95     //     })
96 96     // }
97    - connection.end();
   97 + connection.end();
```


PSSST...!


Secrets

python-dotenv |

Reads the key,value pair from `.env` file and adds them to environment variable. It is great for managing app settings during development and in production using 12-factor principles.

> Do one thing, do it well!

Installation

```
pip install -U python-dotenv
```

06-rollbar.py

Q&A

3

Schedule


Apache
Airflow

Apache Airflow

Airflow is a platform created by the community to programmatically author, schedule and monitor workflows.

Install

Templating with Jinja

Airflow leverages the power of Jinja Templating and provides the pipeline author with a set of built-in parameters and macros. Airflow also provides hooks for the pipeline author to define their own parameters, macros and templates.

This tutorial barely scratches the surface of what you can do with templating in Airflow, but the goal of this section is to let you know this feature exists, get you familiar with double curly brackets, and point to the most common template variable: `{{ ds }}` (today's "date stamp").

airflow/example_dags/tutorial.py [source]

```
templated_command = dedent(
    """
{% for i in range(5) %}
    echo "{{ ds }}"
    echo "{{ macros.ds_add(ds, 7)}}"
{% endfor %}
"""
)

t3 = BashOperator(
    task_id='templated',
    depends_on_past=False,
    bash_command=templated_command,
)
```

Notice that the `templated_command` contains code logic in `{% %}` blocks, references parameters like `{{ ds` function as in `{{ macros.ds_add(ds, 7)}}`.

Version: 2.3.0

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Running the Script
Command Line Metadata Validation
Pipeline Example

```
# Airflow needs a home. `~/airflow` is the default, but you can put it
# somewhere else if you prefer (optional)
export AIRFLOW_HOME=~/airflow

# Install Airflow using the constraints file
AIRFLOW_VERSION=2.3.0
PYTHON_VERSION="$(python --version | cut -d " " -f 2 | cut -d "." -f 1-2)"
# For example: 3.7
CONSTRAINT_URL="https://raw.githubusercontent.com/apache/airflow/constraints-${AIRFLOW_VERSION}/
constraints-${PYTHON_VERSION}.txt"
# For example: https://raw.githubusercontent.com/apache/airflow/constraints-2.3.0/
constraints-3.7.txt
pip install "apache-airflow==${AIRFLOW_VERSION}" --constraint "${CONSTRAINT_URL}"

# The Standalone command will initialise the database, make a user,
# and start all components for you.
airflow standalone

# Visit localhost:8080 in the browser and use the admin account details
# shown on the terminal to login.
# Enable the example_bash_operator dag in the home page
```

airflow/dags/basketball.py

- 💨 `airflow tasks test basketball fetch <date>`

```
# start the web server

airflow webserver -p 8080
```

```
# start the scheduler (new window)

export AIRFLOW_HOME=`pwd`/airflow
airflow scheduler
```

Homework

💻 **add t3 to save predictions to the db!**

Q&A

That's all Folks!