https://github.com/katie-simmons/productionizing-ml-models

Productionizing machine learning models with flask & cookiecutter

Hello!

I am **Katie Simmons**

The GitHub repo for this talk is here:
https://github.com/katie-simmons/productionizing-ml-models

Flask

- Python web framework
- Create REST API
- Predict endpoint POSTed JSON, returns JSON w/prediction

COOKIECUTTER

- Python command line utility
- Generate project boilerplate
- Jinja2 templating

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Pre-cookiecutter: Getting ML Models into Production

Develop

Data Scientist experiments to create a machine learning model 👍

Train

Data Scientist trains and tunes the machine learning model 👍

Product -ionize

Data Scientist creates a new application from scratch over a few days to a week 😱

Deploy

Data Scientist manually deploys, troubleshooting over a day or two 😬

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Post-cookiecutter: Getting ML Models into Production

Develop

Data Scientist experiments to create a machine learning model 👍

Train

Data Scientist trains and tunes the machine learning model 👍

Product -ionize

Data Scientist uses cookiecutter, drops in some code from their Jupyter notebook and tests locally 👍

Deploy

DevOps Engineer confirms configuration and Data Scientist smoke tests prediction 👍

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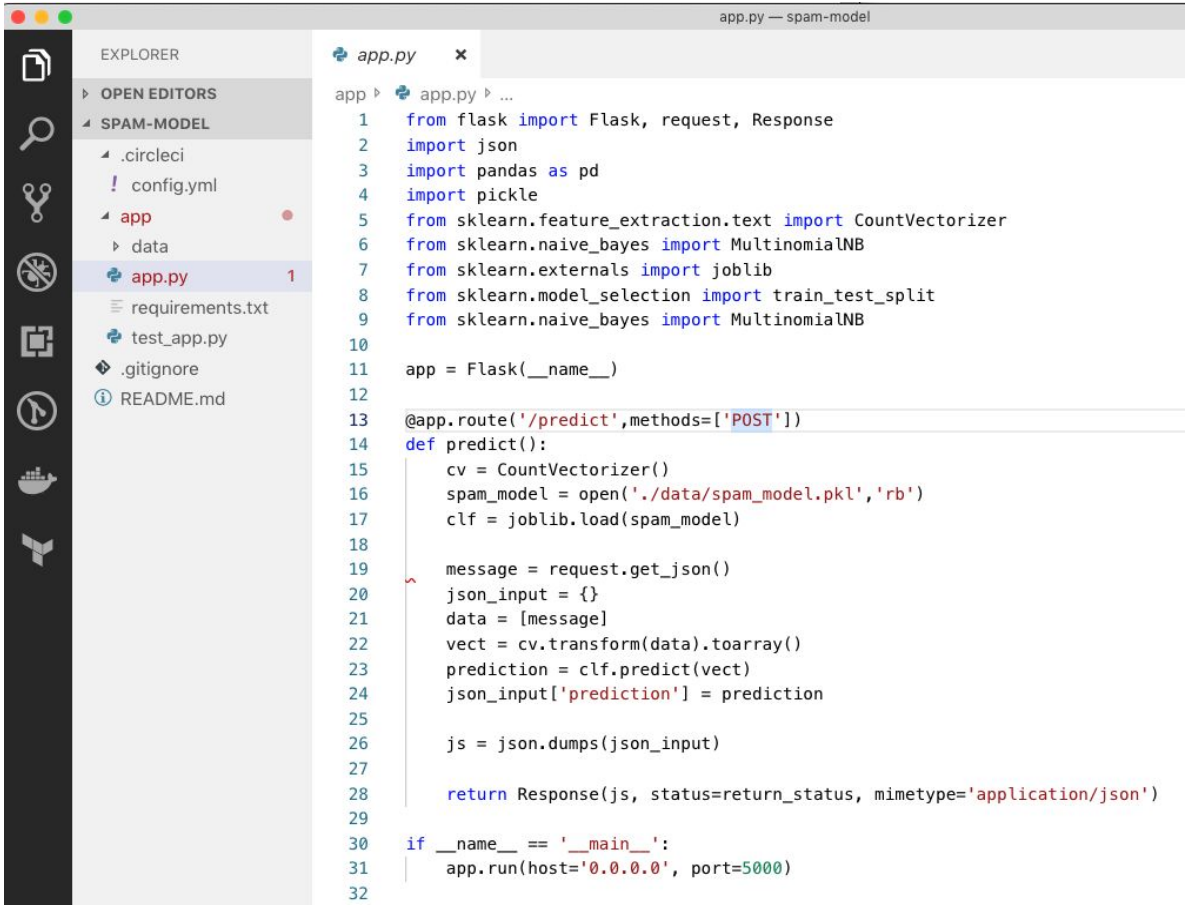
Flask app



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Cookiecutter project

cookiecutter gh:katie-simmons/productionizing-ml-models

EXPLORER

OPEN EDITORS

PRODUCTIONIZING-ML-MODE...

- .vscode
- {{cookiecutter.project_slu...
  - .circleci
  - app
    - data
    - app.py
    - requirements.txt
    - test_app.py
  - .gitignore
  - Dockerfile
  - README.md
- .gitignore
- cookiecutter.json
- README.md

app.py

{{cookiecutter.project_slug}} ▸ app ▸ app.py ▸ ...

You, a few seconds ago | 1 author (You)

```python
from flask import Flask, request, Response
import json
import pandas as pd
import pickle

app = Flask(__name__)

@app.route('/predict',methods=['POST'])      You, 14 hours ago • Incl
def predict():
    {{cookiecutter.project_slug}} = open('./data/{{cookiecutter.proje
    clf = joblib.load({{cookiecutter.project_slug}})

    message = request.get_json()
    json_input = {}
    data = [message]
    prediction = CHANGE
    json_input['prediction'] = prediction

    js = json.dumps(json_input)

    return Response(js, status=return_status, mimetype='application/j

if __name__ == '__main__':
    app.run(host='0.0.0.0', port=5000)

```

cookiecutter.json

{} cookiecutter.json ▸ ...

You, a day ago | 1 author (You)

```json
{
    "author": "Your name",
    "email": "your-name@gmail.com",
    "github_username": "Your github username",
    "project_name": "Required unless you want your project to be name
    "repo_name": "{{ cookiecutter.project_name.lower().replace(' ', '
    "project_slug": "{{ cookiecutter.project_name.lower().replace(' '
    "project_short_description": "A short description of the project"
    "release_date": "{% now 'local' %}",
    "version": "1.0.0",
    "_extensions": ["jinja2_time.TimeExtension"]
}

```

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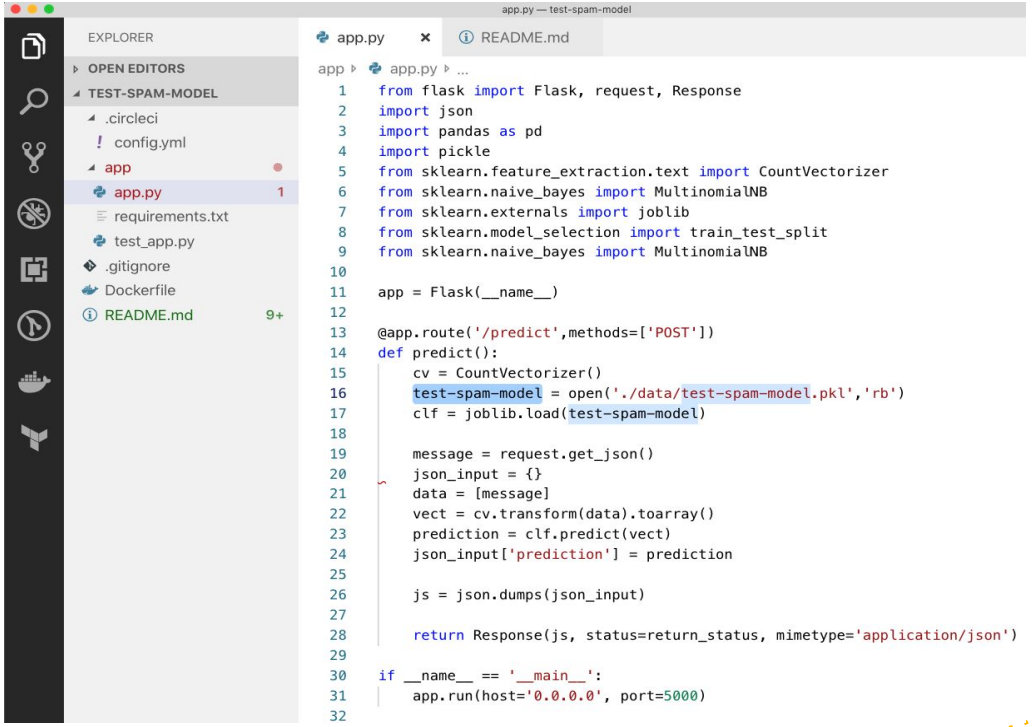
Cookiecutter result = Flask app



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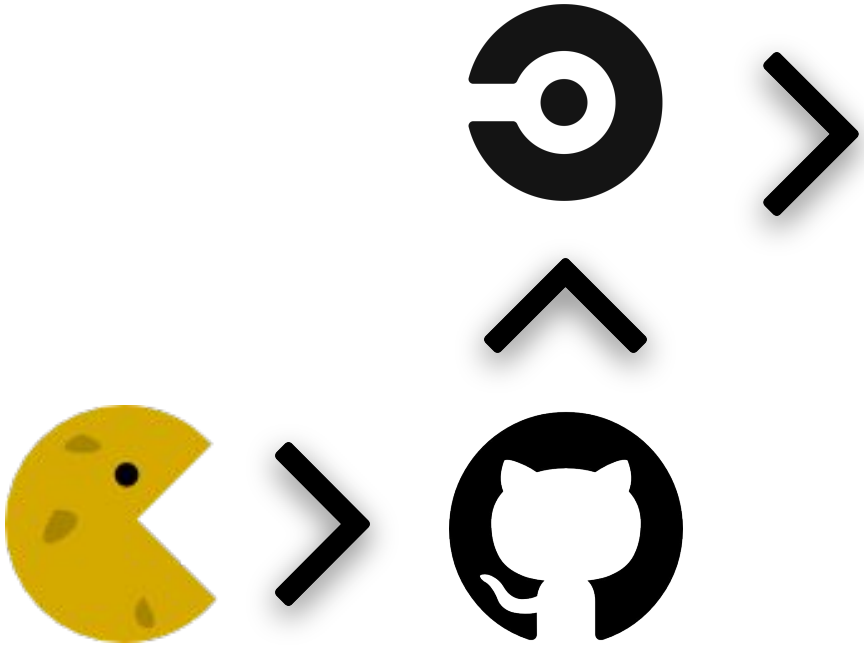
Into production



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Thanks!

Any questions?

You can find me at katie-simmons or @katiecodes11 or katie@katie.codes

You can find cookiecutter here:
https://cookiecutter.readthedocs.io/en/latest/readme.html