Will PyScript replace Django?

What PyScript is and is not

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Get this slides at
slides.com/cheukting_ho/pyscript-django
Have you heard of PyScript?
Cheuk Ting Ho
So what is PyScript?
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- a framework
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- a framework
- run Python applications in the browser
- not to replace JavaScript, but rather, you can use with it
- thanks to Pyodide and WASM
- many popular packages of Python available
This is how to use PyScript
<html>
  <head>
    <link rel="stylesheet" href="https://pyscript.net/latest/pyscript.css"/>
    <script defer src="https://pyscript.net/latest/pyscript.js"></script>
  </head>
  <body>
    <h1>Let's plot random numbers</h1>
    <div id="plot"></div>
    <py-config type="json">
      {
        "packages": ["numpy", "matplotlib"]
      }
    </py-config>
    <py-script output="plot">
      import matplotlib.pyplot as plt
      import numpy as np
      x = np.random.randn(1000)
      y = np.random.randn(1000)
      fig, ax = plt.subplots()
      ax.scatter(x, y)
      fig
    </py-script>
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<pre><code>&lt;py-config type="json">
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}
&lt;/py-config&gt;
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    fig
&lt;/py-script&gt;
</code></pre>
</body>
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Let's plot random numbers.

```python
import matplotlib.pyplot as plt
import numpy as np

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fig, ax = plt.subplots()
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Let's plot random numbers

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fig
```
Or you can download and host it yourself

Just like other JS CDN
The `<py-config>` tag
The `<py-config>` tag

toml format (default)

```plaintext
<py-config type="toml"REFERREDTO:1>
  packages = ["numpy", "matplotlib"]
  paths = ["./data.py"]
</py-config>
```
The `<py-config>` tag

**toml format (default)**

```xml
<py-config type="toml">
    packages = ["numpy", "matplotlib"]
    paths = ["./data.py"]
</py-config>
```

**json format**

```json
<py-config type="json">
    {
        "packages": ["numpy", "matplotlib"],
        "paths": ["./data.py"]
    }
</py-config>
```
The `<py-config>` tag

toml format
  (default)

```xml
<py-config type="toml">
  packages = ["numpy", "matplotlib"]
  paths = ["./data.py"]
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```

json format

```xml
<py-config type="json">
  {
    "packages": ["numpy", "matplotlib"],
    "paths": ["./data.py"]
  }
</py-config>
```

load in config source

```xml
<py-config type="json" src="./custom.json"></py-config>
```
The `<py-config>` tag

It is useful for ...
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- plug in packages (local wheel or hosted)
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- plug in packages (local wheel or hosted)
- load in local modules (fetch)
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- change runtime settings (e.g. setting runtime source)
The `<py-config>` tag

It is useful for ...

- plug in packages (local wheel or hosted)
- load in local modules (fetch)
- change runtime settings (e.g. setting runtime source)
- adding meta data (e.g. description, author_name, license)
The `<py-repl>` tag

Interactive Python interface (like jupyter notebook)
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Interactive Python interface (like jupyter notebook)
Why is it useful?

a.k.a why do it on frontend
Sometime we need to use frontend because...
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- Computation is heavy
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- Don't want to provide a playground (crypto mining)
Sometime we need to use frontend because...

- Computation is heavy
- Don't want to provide a playground (crypto mining)
- Data too sensitive to leave user's own machine
So, will PyScript replace Django?
No,
but we can make some amazing stuff if we use them together🙌
Here is an example

Using PyScript with Django

https://github.com/Cheukting/django-knn-recommender
Other examples

Running Django with Pyscript - Frontend as a Backend?!

https://absurd-django.vercel.app/

by Patrick Arminio
More PyScript examples...

- Interactive plot
  https://cheuk.dev/assets/html/interactive_network_graph.html

- Using Follim for map plotting
  https://pyscript.net/examples/folium.html

- Interactive plot with d3 (We can now `import d3`)
  https://cheuk.dev/assets/html/ice-cream-d3.html

PyScript Tutorial [WIP]:
https://github.com/anaconda/pyscript-tutorial
Q & A

- Can you pull in a python script?
  - Yes now you can with [[fetch]]
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  - Yes now you can with [[fetch]]

- What is the Python version we are using?
  - Choose your version with the `src` var at [[runtimes]]
Q & A

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  - Yes now you can with 

- What is the Python version we are using?
  - Choose your version with the `src` var at

- Why can't you use `<script tag="python">`
  - Because `<script>` is not a custom tag and it is defined by the browser which none of them is supporting Python yet

- Why don't you just use Pyodide?
  - It's like we use Keras to simplify using TensorFlow, PyScript make it easier to using Python on the browser
Q & A
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- Can you pin a package version at `<py-config>`?
  - Right now you cannot, but you can host the wheel yourself (see example here)

- What is the difference between PyScirpt and Brython?
  - PyScript is interpreting Python to WASM instead of JS and has many popular packages available
  - You can also pick which Python WASM backend to use

- Any plan to support BeeWare?
  - I would love to personally, we will see