

WebPy

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Problem Description

- My consumer
 - Professional web developer, also does web development as a hobby.
- His problem
 - Web development requires the splicing together of HTML, CSS, JavaScript/JQuery, Python.
 - Need to pass information to and from the server by creating and parsing JSON in http responses and requests.

My Solution

- A Python library that provides the functionality of the other languages.
 - Provides a platform that allows my consumer to code only in his favorite language.
 - Make communication between the client and the server easier.
 - Code written using this library is translated from Python to the other languages.

Cognitive Dimensions

- Closeness of mapping
 - "Should I reinvent web development?" "No."
- Diffuseness/Terseness
 - Abstract away all of the data structure communication between the client and the server.
- Consistency
 - Make my tool "feel" like Python.

HTML/CSS to Python

- HTML: DOM Hierarchy
 - Represent with Python class hierarchy
- HTML: Tag names and attributes
 - Represent with Python class names and attributes
- CSS: Key/value pairs for each selector
 - Represent with a Python dictionary (hash-map) for each selector

HTML Use Case

```
<html>
<head>
  <title>An Example Website</title>
</head>
<body>
  <h4 id=header1>A List:</h4>
  <ul>
    <li>Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
  </ul>
</body>
</html>
```

```
from WebPy import Html
class My_Site(Html):
  class head:
    class title: text='An Example Website'
  class body:
    class h4: id='header1' text='A List'
    class ul:
      class li: text='Coffee'
      class li: text='Tea'
      class li: text='Milk'
```

CSS Use Case

```
body {  
width:80%;  
margin-left:9%;  
}
```

```
.some_css_class {  
float: left;  
width: 33%;  
}
```

```
#some_id {  
color:red;  
}
```

```
from WebPy import CSS  
style = CSS()  
style += {'body': {  
    'width':'80%',  
    'margin-left':'9%',  
}}
```

```
style += {'.some_css_class': {  
    'float':'left',  
    'width':'33%',  
}}
```

```
style += {'#some_id': {  
    'color':'red',  
}}
```

JavaScript to Python

- JavaScript is a general purpose language
 - So is Python
- Web stuff: Browser calls, URL redirects, etc.
 - Make a batch of similar methods in Python
- JQuery selector system
 - Django selector system

JavaScript Use Case

```
var now = new Date();  
if(now.getHours() >= 12) {  
    var good_day = ('p[name="msg"]');  
    good_day.text('Good Afternoon!');  
}
```

```
""  
from datetime import date  
now = date()  
if now.hour >= 12:  
    good_day = My_Site.p.filter(name="msg")  
    good_day.text('Good Afternoon!')  
""
```

The Story of an Integer

(JavaScript) `client_int = client_int + 1;`

(JavaScript) [Send the value of `client_int` to server using an http request];

(Python) `server_int = [Parsed http request]`

(Python) `server_int = server_int * 5`

(Python) [Send computation results to client using an http response]

(JavaScript) `client_result = [Parsed http response];`

(Python): `"client_int = client_int+1"`

(Python): `server_int = "client_int"`

(Python): `"client_result" = server_int * 5`