Bottle

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Mines Linux Users Group

HTTP Crash Course

- GET – Your typical “downloads from a web page” HTTP request
  - Has no support for sending data to the server other than the URL requested
- POST – Your typical “form submission” HTTP request
  - Sends multipart form data along with the request
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- PUT – Ask to put a file at a location
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  - Not supported in older browsers
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Decorators

Decorators are a pretty way to wrap functions using functions that return functions.

Both the following are equivalent:

```
@logging
def foo(bar, baz):
    return bar + baz - 42


# equivalent to...
def foo(bar, baz):
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foo = logging(foo)
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Bottle: Really Simple Web Framework

- Provides routing and convenient access to data
- Built in HTTP server, or use any WSGI-compatible web server
- Very lightweight, only a couple thousand lines of code

A *Hello, World!* App

```
from bottle import route, run, template

@route('/hello/<name>')
def hello(name):
    return '<h1>Hello {name}!</h1>'.format(name)

run(host='localhost', port=8080)
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Where should I use Bottle?

What Bottle Is

- Bottle is a *micro-framework*
- Bottle is only a library
- Bottle really small and fast

What Bottle Is Not

- Bottle is not a MVC framework
- Bottle will not generate files for you
- *No magic included!* :)

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Routing

Routing is how you let Bottle know which URLs map to which functions. Bottle uses decorators to specify this.

```
@route('/hello/<name>')
def hello(name):
    return '<h1>Hello {name}!</h1>'.format(name)
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You can specify multiple routes per function, even using default arguments.

```
@route('/')
@route('/page/<pagename>')
def wiki_page(pagename='FrontPage'):
    # ... load page from database and return it
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More Routing

URLs match more specific routes before more generalized.

```
@route('/page/<pagename>')
def wiki_page(pagename='FrontPage'):
    # ... load up a wiki page

@route('/<username>/<pagename>')
def user_page(username, pagename):
    # ... load up a user's personal page
```

So `/page/WikiPage` will use `wiki_page`, but `/jrosenth/home` will use `user_page`.

Routing Modifiers

You can modify parameters to only match certain types.

- `:int` – Only match integers
- `:float` – Only match real numbers
- `:path` – Match path to end of URL (including slashes)
- `:re` – Match a regular expression

```
@route('/user/<uid:int>')
def user_by_id(uid):
    # ... load up a user by id

@route('/user/<username:re:[a-z]+>')
def user_by_name(username):
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Routing Methods

The `route` decorator accepts all HTTP methods by default, you can use any of the alternate decorators to accept specific methods.

```
@get('/login')
def login_page():
    # ... display the login form

@post('/login')
def login_user():
    # ... process the submitted form
```

Error Routes

The `error` decorator matches certain HTTP errors.

```
@error(403)
def error403(error):
    return "You're not allowed in here."

@error(404)
def error404(error):
    return "It's not my fault."

@error(500)
def error500(error):
    return "I made a mistake."
```

Abort! Abort!

Need to cause an error? **abort** is your amigo.

```
@route('/pages/<pagename>')
def load_page(pagename):
    if pagename not in pages:
        abort(404, "This page does not exist")
    # ...
```

Redirect

Perhaps you wanted to redirect them instead?

```
@route('/pages/<pagename>')
def load_page(pagename):
    if pagename not in pages:
        redirect('/newpage')
    # ...
```

Serving up a static directory

```
from bottle import route, static_file

@route('/static/<filename:path>')
def serve_static(filename):
    return static_file(filename, root='./static')
```

Accessing POST data

The `request` object gives you access to information about the request, including a dictionary contating form data called `forms`.

```
@post('/login')
def login_user():
    username = request.forms.get('username')
    password = request.forms.get('password')
    if login_ok(username, password):
        return 'Congrats! You broke in!'
    else:
        return 'Better luck next time.'
```

Mmm! Cookies!

```
@route('/introduce/<name>')
def introduce(name):
    response.set_cookie('name', name)
    return 'Nice to meet you!'

@route('/welcomeback')
def welcomeback():
    name = request.cookies.get('name', 'Stranger')
    return 'Welcome back, {}!'.format(name)
```

So what can you `return`?

- Returning a string will simply show the string for you
- You can return a dictionary and it will dump JSON for you
- Returning file objects (or anything with `.read()`) will show the file contents for you
- You can even return an iterable or `yield` in your function and it will continually pull and show

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Templates

Bottle includes a templating engine called `SimpleTemplate`. You can use it like this:

```
@route('/hello')
@route('/hello/<name>')
@view('hello_template')
def hello(name='World'):
    return dict(name=name)
```

Templates

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@route('/hello/<name>')
@view('hello_template')
def hello(name='World'):
    return dict(name=name)
```

views/hello_template.tpl

```
%if name == 'World':
    <h1>Hello {{name}}!</h1>
    <p>This is a test.</p>
%else:
    <h1>Hello {{name.title()}}!</h1>
    <p>How are you?</p>
%end
```

Applications and Sub-applications

```
@route('/')
def home():
    # ...

# make another bottle app
blog = Bottle()

@blog.route('/')
def blog_home():
    # ...

# /blog accesses all in the blog app
# you can use any WSGI-compatible app here
default_app().mount('/blog', blog)
```

Deploying your application

Bottle has many ways to deploy, here's the two most common:

1. Using WSGI, simply create an `app.wsgi` file that imports your bottle app as `application`
2. Using CGI (compatible with nearly any web server), just put `run(server='cgi')` in your CGI script

Questions?

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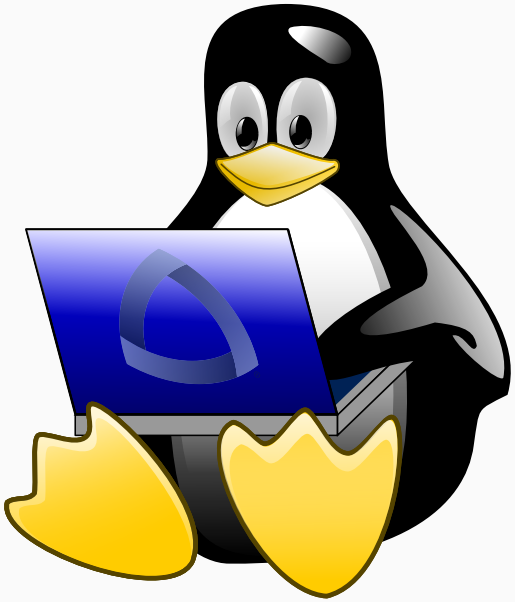

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