Lisbon School of Economics & Management
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LISBOA
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Flask

web development, one drop at a time

Flask

- Flask is a microframework for Python
- is a lightweight WSGI web application framework
- began as a simple wrapper around Werkzeug and Jinja
- Created by Armin Ronacher
- BSD licensed
- https://palletsprojects.com/p/flask/

Werkzeug

- utility library for Python
- toolkit for Web Server Gateway Interface (WSGI) applications,
- licensed under a BSD License. Werkzeug
- can realize software objects for request, response, and utility functions.
- Python 2.7 and 3.5 and late
- https://palletsprojects.com/p/werkzeug/

Jinja

- is a template engine for the Python
- is licensed under a BSD License.
- similar to the Django web framework
- it handles templates in a sandbox.
- https://palletsprojects.com/p/jinja/
- https://github.com/pallets/jinja

Flask Application (ex01)

```
from flask import Flask
app = Flask(__name__)
@app.route('/')
def hello_world():
    return 'Hello, World!’
if __name__ == "__main__":
    app.run()
```

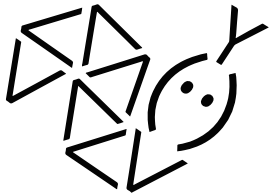
Flask Application

- Save in a folder flask_app.py
- Call:

  python flask_app.py
- In the browser:

  localhost:5000

Alternatives



pythonanywhere

bitnami

RED HAT® OPENSHIFT

WikiWikiWeb.de

HEROKU

Routing

- Use the route() decorator to bind a function to a URL.

```
@app.route('/')
def index():
    return 'Index Page'

@app.route('/hello')
def hello():
    return 'Hello, World'
```

Routing (ex02)

```
from flask import Flask
app = Flask(__name__)
@app.route('/')
def hello_world():
    return 'Hello, World (in index paage)'
@app.route('/hello')
def hello():
    return 'Hello, World (in hello page)'
if __name__ == "__main__":
    app.run()
```

Static Files

- Dynamic web applications also need static files.
- E.g.CSS and JavaScript
- Create a folder called in the package or next to the module

/static

url_for('static', filename='style.css')

Rendering Templates

- Flask configures the Jinja2 template engine automatically
- To render a template use the render_template() method
- Example:

    /flask_app.py

    /templates

        /hello.html

Rendering Templates

/flask_app.py

/templates

/hello.html

```
from flask import render_template

@app.route('/hello/')
@app.route('/hello/<name>')
def hello(name=None):
    return render_template('hello.html', name=name)
```

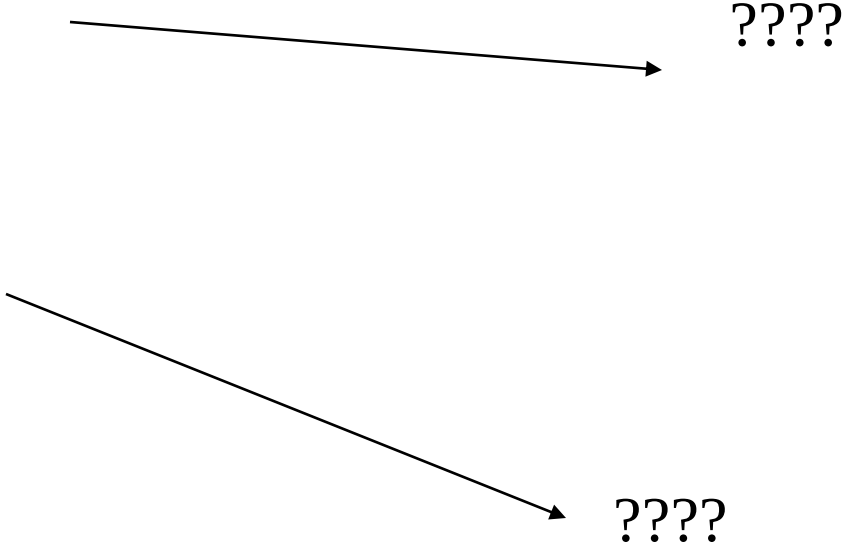
```
<!doctype html>
<title>Hello from Flask</title>
{% if name %}
  <h1>Hello {{ name }}!</h1>
{% else %}
  <h1>Hello, World!</h1>
{% endif %}
```

Rendering Templates (ex03)

/flask_app.py

/templates

/form.html

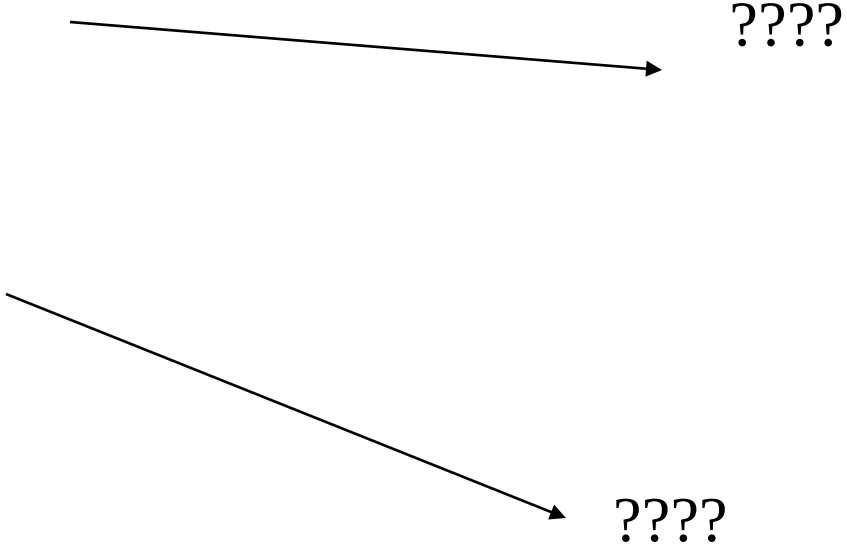


Rendering Templates (ex03)

/flask_app.py

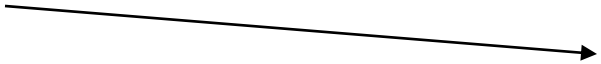
/templates

/form.html



Rendering Templates (ex03)

/flask_app.py



/templates

/form.html

Rendering Templates (ex03)

flask_app.py File

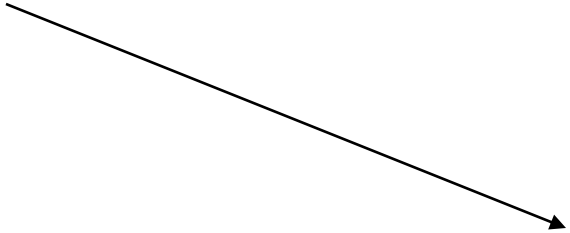
```
from flask import Flask, render_template
app = Flask(__name__)
@app.route('/')
def render_static():
    return render_template('form.html')
@app.route('/hello')
def hello():
    return 'Hello, World (in hello page)'
if __name__ == "__main__":
    app.run()
```

Rendering Templates (ex03)

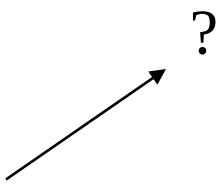
/flask_app.py

/templates

    /form.html



Rendering Templates (ex03)



form.html
File

```
<html>
  <body>
    <form action = "/save/" method = "POST">
      <p>author <input type = "text" name = "Author" /></p>
      <p>phrase <input type = "text" name = "Phrase" /></p>
      <p><input type = "submit" value = "submit" /></p>
    </form>
  </body>
</html>
```

Rendering Templates (ex03)

form.html
File

```
<html>
  <body>
    <form action = "/save/" method = "POST">
      <p>author <input type = "text" name = "Author" /></p>
      <p>phrase <input type = "text" name = "Phrase" /></p>
      <p><input type = "submit" value = "submit" /></p>
    </form>
  </body>
</html>
```

HTTP Methods

- Web applications use different HTTP methods when accessing URLs.
- By default, a route only answers to GET requests.
- use the methods argument of the route() decorator to handle different HTTP methods.

HTTP Methods

```
from flask import request


@app.route('/login', methods=['GET', 'POST'])
def login():
    if request.method == 'POST':
        return do_the_login()
    else:
        return show_the_login_form()
```

Rendering Templates (ex04)

```
from flask import Flask, render_template, request
app = Flask(__name__)
@app.route('/')
def render_static():
    return render_template('form.html')
@app.route('/save/', methods=['GET', 'POST'])
def hello():
    return 'Hello!!!'
if __name__ == "__main__":
    app.run()
```

New flask_app.py File

Save Data (ex05)

flask_app.py File

```
from flask import Flask, render_template, request
app = Flask(__name__)
@app.route('/')
def render_static():
        return render_template('form.html')
@app.route('/save/', methods=['GET', 'POST'])
def index():
        data = request.form['Author']+" - "+request.form['Phrase']
        fo= open("test1.txt", "a+")
        fo.write(data+"\n")
        fo.close()
        return "thank you"
if __name__ == '__main__’:
        app.run(debug = True)
```

Tiny App (ex06)

/flask_app.py

/templates

    /form.html

    /index.html

Tiny App (ex06)

```
from flask import Flask, request, render_template
app = Flask(__name__)
@app.route('/save/', methods=['GET', 'POST'])
def write():
        data = request.form['Author']+" - "+request.form['Phrase']
        fo= open("test1.txt", "a+")
        fo.write(data+"\n")
        fo.close()
        return render_template('index.html')
@app.route('/read/')
def read():
        fo= open("test1.txt", "r")
        data1=fo.read()
        fo.close()
        return data1
@app.route('/')
def render_static():
    return render_template('form.html')
if __name__ == '__main__':
    app.run(debug = True)
```

flask_app.py File

Tiny App (ex06)

form.html
File

```
<html>
  <body>
    <form action = "/save/" method = "POST">
      <p>author <input type = "text" name = "Author" /></p>
      <p>phrase <input type = "text" name = "Phrase" /></p>
      <p><input type = "submit" value = "submit" /></p>
    </form>
  </body>
</html>
```

Tiny App (ex06)

index.html
File

```
<html>
  <body>
      menu
      <p><a href="/read/">list data</a></p>
      <a href="../">form</a>
  </body>
</html>
```

- https://github.com/masterfloss/python-web