Flask @ pyladies

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Slides and Code

https://github.com/mitsuhiko/pyladies-flask

Flask

http://flask.pocoo.org/

Step 0 | Install virtualenv

```
$ sudo apt-get install python-virtualenv
$ sudo easy_install virtualenv
```

For Windows: http://bit.ly/easy-install-windows

Step 1 | Create Environment

```
$ virtualenv my-app
$ . my-app/bin/activate

> my-app\Scripts\activate.bat
```

Step 2 | Install Flask

```
$ pip install Flask
```

Step 3 | Hello World

```python
from flask import Flask
app = Flask(__name__)


@app.route('/')
def index():
    return 'Hello World!'


if __name__ == '__main__':
    app.run()
```

Step 4 | Run!

```
$ python hello.py
 * Running on http://127.0.0.1:5000/
```

Pastebin

Step 0 | Overview

- General Purpose Pastebin
- Users can sign in with Facebook
- Authenticated users can delete their entries
- Authenticated users can list their entries
  - *Flask, Flask-OAuth, Flask-SQLAlchemy*

Step 0 | Overview

```
/pastebin                  Project Folder
  /static                    Static Files
    /style.css
  /templates                 Templates
    /layout.html
    /new_paste.html
    /delete_paste.html
    /my_pastes.html
  /pastebin.py               The Application
```

Step 1 | Install Extensions

```
$ pip install Flask-OAuth Flask-SQLAlchemy
```

Step 2 | Imports

```
from datetime import datetime
from flask import Flask, request, url_for, redirect, g, session, \
     abort, render_template
from flask.ext.sqlalchemy import SQLAlchemy
from flask.ext.oauth import OAuth
```

Step 3 | Setup

```
app = Flask(__name__)
app.config.update(
    SQLALCHEMY_DATABASE_URI='sqlite:///pastebin.db',
    SECRET_KEY='development-key'
)
db = SQLAlchemy(app)
oauth = OAuth()
facebook = oauth.remote_app('facebook',
    base_url='https://graph.facebook.com/',
    request_token_url=None,
    access_token_url='/oauth/access_token',
    authorize_url='https://www.facebook.com/dialog/oauth',
    consumer_key='<consumer key here>',
    consumer_secret='<consumer secret here>',
    request_token_params={'scope': 'email'}
)
```

Step 4 | Database Schema

```
class Paste(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    code = db.Column(db.Text)
    pub_date = db.Column(db.DateTime)
    user_id = db.Column(db.Integer, db.ForeignKey('user.id'))

    def __init__(self, user, code):
        self.user = user
        self.code = code
        self.pub_date = datetime.utcnow()

class User(db.Model):
    id = db.Column(db.Integer, primary_key=True)
    display_name = db.Column(db.String(120))
    fb_id = db.Column(db.String(30), unique=True)
    pastes = db.relationship(Paste, lazy='dynamic', backref='user')
```

Step 4_a | Init Database

```
>>> import pastebin
>>> pastebin.db.create_all()
```

Step 5 | Authentication

```
@app.before_request
def check_user_status():
    g.user = None
    if 'user_id' in session:
        g.user = User.query.get(session['user_id'])


@facebook.tokengetter
def get_facebook_oauth_token():
    return session.get('fb_access_token')
```

Step 5 | Authentication

```
@app.route('/login')
def login():
    return facebook.authorize(callback=url_for('facebook_authorized',
        next=request.args.get('next') or request.referrer or None,
        _external=True))


@app.route('/logout')
def logout():
    session.clear()
    return redirect(url_for('new_paste'))
```

Step 5 | Authentication

```
@app.route('/login/authorized')
@facebook.authorized_handler
def facebook_authorized(resp):
    next_url = request.args.get('next') or url_for('new_paste')
    if resp is None:
        return redirect(next_url)
    session['fb_access_token'] = (resp['access_token'], '')
    me = facebook.get('/me')
    user = User.query.filter_by(fb_id=me.data['id']).first()
    if user is None:
        user = User()
        user.fb_id = me.data['id']
        db.session.add(user)
    user.display_name = me.data['name']
    db.session.commit()
    session['user_id'] = user.id
    return redirect(next_url)
```

Step 6 | View Functions

```
@app.route('/', methods=['GET', 'POST'])
def new_paste():
    if request.method == 'POST' and request.form['code']:
        paste = Paste(g.user, request.form['code'])
        db.session.add(paste)
        db.session.commit()
        return redirect(url_for('show_paste', paste_id=paste.id))
    return render_template('new_paste.html')


@app.route('/<int:paste_id>')
def show_paste(paste_id):
    paste = Paste.query.get_or_404(paste_id)
    return render_template('show_paste.html', paste=paste)
```

Step 6 | View Functions

```
@app.route('/<int:paste_id>/delete', methods=['GET', 'POST'])
def delete_paste(paste_id):
    paste = Paste.query.get_or_404(paste_id)
    if g.user is None or g.user != paste.user:
        abort(401)
    if request.method == 'POST':
        if 'yes' in request.form:
            db.session.delete(paste)
            db.session.commit()
            return redirect(url_for('new_paste'))
        else:
            return redirect(url_for('show_paste', paste_id=paste.id))
    return render_template('delete_paste.html', paste=paste)
```

Step 6 | View Functions

```
@app.route('/my-pastes')
def my_pastes():
    if g.user is None:
        return redirect(url_for('login', next=request.url))
    pastes = Paste.query.filter_by(user=g.user).all()
    return render_template('my_pastes.html', pastes=pastes)
```

Step 7 | Templates

```
<!doctype html>
<title>{% block title %}{% endblock %} | Flask Pastebin</title>
<link rel=stylesheet type=text/css href="{{ url_for('static',
    filename='style.css') }}">
<div class=page>
  <h1>Flask Pastebin</h1>
  <ul class=nav>
    <li><a href="{{ url_for('new_paste') }}">New Paste</a>
    {% if g.user %}
    <li><a href="{{ url_for('my_pastes') }}">My Pastes</a>
    <li><a href="{{ url_for('logout') }}">Sign out ({{ g.user.display_name }})</a>
    {% else %}
    <li><a href="{{ url_for('login') }}">Sign in with Facebook</a>
    {% endif %}
  </ul>
  {% block body %}{% endblock %}
</div>
```

layout.html

Step 7 | Templates

```
{% extends "layout.html" %}
{% block title %}New Paste{% endblock %}
{% block body %}
  <h2>New Paste</h2>
  <form action="" method=post>
    <div class=code><textarea name=code cols=60 rows=18></textarea></div>
    <p><input type=submit value="New Paste">
  </form>
{% endblock %}
```

new_paste.html

Step 7 | Templates

```
{% extends "layout.html" %}
{% block title %}Delete Paste #{{ paste.id }}{% endblock %}
{% block body %}
  <h2>Delete Paste #{{ paste.id }}</h2>
  <form action="" method=post>
    <p>Are you sure you want to delete the paste?  You cannot undo this.
    <p>
      <input type=submit name=yes value=Yes>
      <input type=submit name=no value=No>
  </form>
{% endblock %}
```

delete_paste.html

Step 7 | Templates

```
{% extends "layout.html" %}
{% block title %}My Pastes{% endblock %}
{% block body %}
  <h2>My Pastes</h2>
  <ul>
  {% for paste in pastes %}
    <li><a href="{{ url_for('show_paste', paste_id=paste.id)
         }}">#{{ paste.id }}</a>
      from {{ paste.pub_date.strftime('%Y-%m-%d @ %H:%M') }}
  {% endfor %}
  </ul>
{% endblock %}
```

my_pastes.html

Step 8 | CSS

```
body           { margin: 0; padding: 0; }
body, input    { font-size: 16px; font-family: 'Helvetica Neue', sans-serif; }
.page          { margin: 50px auto; width: 740px; }
h1             { margin: 0; font-weight: normal; color: #c00; }
a              { color: black; }
a:hover        { color: #c00; }
.nav           { margin: 0 0 20px 0; list-style: none; padding: 0; }
.nav li        { display: inline; }
.nav li + li:before { content: " // "; }
h2             { font-weight: normal; margin: 0; }
dl             { overflow: auto; font-size: 14px; }
dl dt          { font-weight: bold; width: 90px; float: left;
                 clear: left; }
dl dd          { float: left; margin: 0; padding: 0; }
pre, textarea { font-family: 'Consolas', monospace; font-size: 14px;
                 background: #eee; padding: 0; margin: 0; }
textarea       { border: none; width: 720px; }
.code, .flash { background: #eee; margin: 10px -30px; padding: 10px 30px; }
```

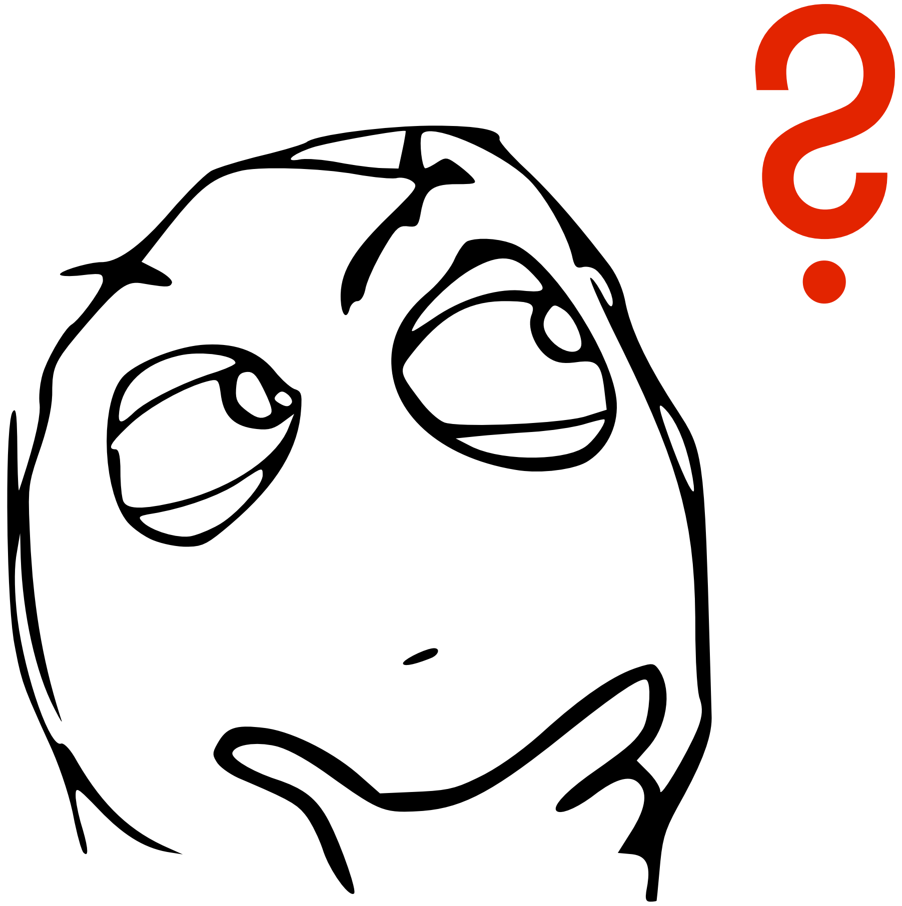
Step 9 | Flashing

```
{% for message in get_flashed_messages() %}
  <p class=flash>{{ message }}
{% endfor %}
```

Step 9 | Flashing

```
from flask import flash

@app.route('/logout')
def logout():
    session.clear()
    flash('You were logged out')
    return redirect(url_for('new_paste'))
```



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