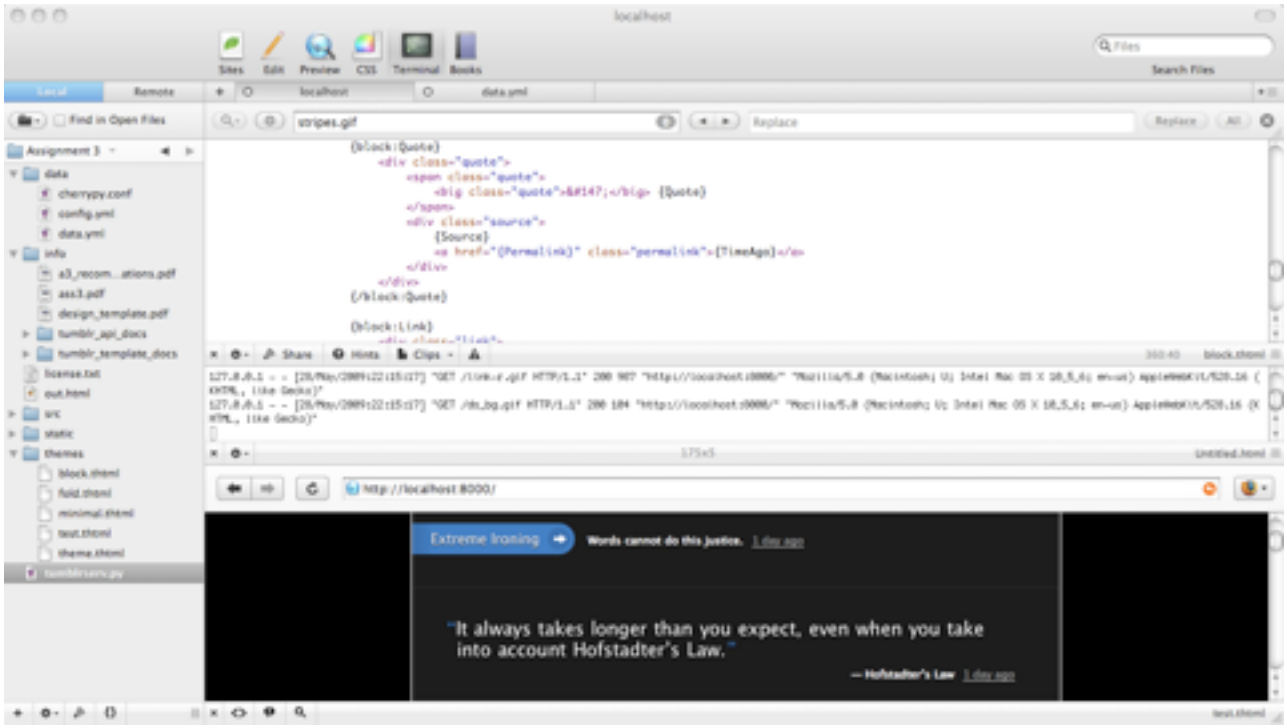
# CSSE1001

28/05/2009

Assignment 3 - TumblrServ - Design Document




## 1. Description

TumblrServ is primarily a tool to help web developers create themes for the popular blogging platform Tumblr (see http://www.tumblr.com). Currently, designers must enter their code into a dialog on a webpage, save it and then attempt to reload the page with the new code.

There are many problems with this approach:

- Images must be hosted on a different server, making testing dependent on the configuration of another server
- Developers often use their own unique development process, Tumblr forces you to use theirs
- Updating the code can take as long as 30 seconds; this is far too long to wait in order to receive feedback
- Developers cannot select the data they wish to use in the test environment
- Offline development is impossible

TumblrServ solves all of these problems by running a small server that listens on the local machine. It parses all theme data and performs operations given data from a flat file to generate a page in the same manner as the parsing engine on the Tumblr servers. This allows developers to immediately see the changes as they work in their preferred development environment. Images are also hosted locally in order to keep complexities to a minimum.

## 2. User Interface/Usage

TumblrServ has no graphical user interface. It is a command line application that is controlled by the switches passed to the application. It must be run from a specific directory structure:

*tumblrserv/*

tumblrserv.py

# CSSE1001
05/09/2009
Assignment 3 - Design Document

*data/*
*src/*
*static/*
*themes/*

The following table lists the currently available command line switches.

| Switch | Description |
|---|---|
| --theme <theme> | Tells the server to look for a theme named <theme>.thml in the themes folder and start a server using it. |
| --pull-data <username> | Attempts to pull data from the tumblr page associated with <username> |
| --publish | Uses credentials taken from the configuration file to upload the theme to a tumblr page. Can be used in conjunction with the theme switch |
| --do-nothing | Render the page as-is with no modifications or parsing |

The server will run on a port specified in the CherryPy configuration file located in *config/*. Other configuration is done in config.yml; the options available are listed in the following tables.

| Parent option | Configuration Option | Type | Description |
|---|---|---|---|
| - | publishing_info | parent | Contains publishing credentials |
| publishing_info | url | string | The url |
| publishing_info | username | string | The username used to upload new theme data |
| publishing_info | password | string | The password used to upload new theme data |
| - | defaults | parent | contains default-related information |
| defaults | theme_name | string | The name of the default theme file (no extension) |
| defaults | data_name | string | Data file name |
| defaults | rss_url | string | A url to the RSS feed for the tumblr page |
| defaults | autoreload | parent | Contains options related to the autoreload feature |
| autoreload | enabled | yes/no | Whether or not the autoreload feature is enabled |
| autoreload | interval | integer | The number of seconds between reloads |

| Parent option | Configuration Option | Type | Description |
|---|---|---|---|
| - | optimisations | parent | Contains optimisation related configuration options |
| optimisations | do_nothing | yes/no | Whether or not the pages should be parsed |
| optimisations | display_embeds | yes/no | Whether or note embedded items should be displayed in posts |
| optimisations | display_images | yes/no | Whether or not images should be displayed in posts |

An example configuration:

```
publishing_info:
    url: http://example.tumblr.com
    username: example@example.com
    password: example_password

defaults:
    theme_name: theme
    data_name: data  # the extension will be automatically appended
    rss_url: http://example.tumblr.com/rss
    autoreload:
        enabled: no
        interval: 5

optimisations:
    do_nothing: no
    display_embeds: yes
    display_images: yes
```

TumblrServ follows the principles of Don't Repeat Yourself (DRY) and Convention Before Configuration (CBC), meaning that it will attempt to guess a configuration if none is supplied.

After the server has started, the developer simply needs to point their browser at http://localhost:8000 (the port number could potentially be different) and they will see their theme.

## 3. Design

The basic functionality of TumblrServ can be broken down into a procedural list:

1. Parse command line switches
2. Load configuration files
3. Load local data or retrieve data from remote location
4. Parse configuration and data into useable format
5. Assign data to classes
6. Load theme data
7. Adjust theme data slightly to increase compatibility
8. Parse theme data and insert transformed data
9. Generate HTML page and serve via HTTP

# CSSE1001
05/09/2009
Assignment 3 - Design Document

Tumblr posts are always given classes inside the web interface, so it makes sense to abstract this data into a heirachy of classes. TumblrServ implements the following classes to do this:

- Post
  - RegularPost
  - PhotoPost
  - QuotePost
  - LinkPost
  - ConversationPost
  - AudioPost
  - VideoPost

These classes are needed because each post type has a specific way of displaying itself and to attempt to parse all of these types in one function would almost definitely make the code unwieldy and difficult to understand. The majority of the work is done by the Post class with specific parsing done in the subclasses

4. **Supporting Modules**

TumblrServ uses Yaml to store all of its configuration data and uses the PyYaml module to parse the data into sets of dictionaries and lists. Similarly, PyJSON is used to extract data from the Tumblr servers. For the webserver component it uses CherryPy, a well known Python server framework. In order to simplify the upload process, TumblrServ uses the ClientForm HTML form spider library.