

LECTURE 37

FORMS

MCS 275 Spring 2022

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LECTURE 37: FORMS

Course bulletins:

- **Project 4** is due 6pm CDT Friday 29 April.
- Part of Homework 13 will ask for a summary of your Project 4 work thus far (topic choice, etc.). Full credit will be given as long as you answer the question(s) fully.
- Today is the last day to submit requests for a non-SQL project 4 topic.

WORKSNAP TODO LIST

- HTML mockup
- Stylesheet
- Learn a bit about Flask
- Database schema & test data
- Python code to generate worker view HTML from a database query
- Add page to create new work order
- Make buttons on worker view page work

FORMS

Interactive elements in an HTML document (text entry, checkbox, dropdown list, etc.)

Full name: Nickname:

```
<form action="https://example.com/formsub/">
  <label for="full">Full name:</label>
  <input type="text" id="full" name="full">
  <label for="nick">Nickname:</label>
  <input type="text" id="nick" name="nick">
  <input type="submit" value="Submit this form">
</form>
```

[jsfiddle](#) is a nice way to test out form designs (for code that can be public).

INPUTS NAME VS ID

Each form input should have both a `name` and `id` attribute. Usually they are equal, but they have separate roles:

- `name` is what this value is called when submitted to the server.
- `id` is used to match an input with its `<label>`.

TEXTAREA

`<input type="text">` is typically for single-line answers.

Longer text entry (multi-line) should be handled with a `<textarea>` tag.

HTTP REQUEST TYPES

GET - load a resource, the only action we've considered so far.

GET requests are supposed to be *idempotent*, meaning repeating the same request multiple times has the same effect as doing it once.

HTTP REQUEST TYPES

POST - submit data and/or request an action.

POST requests are not expected to be idempotent.

Browsers typically prevent reloading a POST request, for example.

By default, forms use a `GET` request and put form data in the URL.

This is usually a bad idea, and a `POST` request is more appropriate.

Easy change: Add `method="post"` attribute to the `<form>` tag.

WHAT FORM GET REQUEST LOOKS LIKE

Form values become **query parameters**, e.g.

```
https://example.com/formsub/?full=David%20Dumas&nick=deedee
```

Many ascii characters appear verbatim but others^{*} become % escape sequences with two hex digits. Flask decodes these and makes the parameters available as `flask.request.values.get(name)`.

^{*} The precise encoding scheme is specified in [RFC3986](#). Python's built-in `urllib.parse` module has functions that perform this type of encoding/decoding: `urllib.parse.quote` and `urllib.parse.unquote`. When using Flask, you usually won't call these directly.

Form values are made available to the function handling submission through

```
flask.request.values.get(name).
```

Note that a Flask route must explicitly declare that it accepts POST requests:

```
from flask import Flask, request

# ... app setup ...

@app.route('/registernick', methods = ['POST', 'GET'])
def record_fullname_and_nickname():
    print("Received nickname {}".format(
        request.values.get("nick")
    ))
```

FLASK FUNCTIONS

All are in the `flask` module:

- **`redirect(url)`** - *Returning* this object from a route will cause the HTTP server to issue a 302 response code, telling client to load `url` instead.
- **`abort(http_error_code)`** - Immediately stop and return a HTTP error code (usually 400 bad request, 401 not authorized, 403 forbidden, or 404 not found).

ROUTES

- `/worker/<name>/` - (GET) worker's view of orders
- `/wo/new/` - (GET) form for new order
- `/wo/post/` - (POST) form submission destination
- `/wo/<int:woid>/` - (GET) work order status
- `/wo/<int:woid>/assign_to/<name>/` - (GET^{*}) assign work order to user
- `/wo/<int:woid>/unassign/` - (GET^{*}) unassign work order
- `/wo/<int:woid>/complete/` - (GET^{*}) mark work order complete

* These should really be POST but we would need to use javascript or a different button markup to do it.

REFERENCES

- [jsfiddle](#) - Write and test HTML+CSS quickly in browser
- [HTML tutorial from w3schools](#)
- [CSS tutorial from w3schools](#)
- [The Flask tutorial](#)

REVISION HISTORY

- 2022-04-13 Initial publication

