Web Frameworks

What is a web framework?

First, a bit about HTTP Requests

Example HTTP request

GET /directory/file.html HTTP/1.1

Accept: text/html

Accept-Charset: iso-8859-5, unicode-1-1

Accept-Encoding   : gzip, deflate, br

Accept-Language   : en-US,en;q=0.5

Host: www.example.com

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.9; rv:44.0) Gecko/20100101 Firefox/44.0

Example HTTP Response

Content-Type: text/html

```
<html>
<head>
<title>Hello World</title>
</head>
<body>
<p>Hello, World!</p>
</body>
</html>
```

Example HTTP Response

Content-Type: application/json

[{"name": "Thing 1", "color": "red"},
{"name": "Thing 2", "color": "blue"},
{"name": "Thing 3", "color": "yellow"}]

What is a web framework?

- **Server side**
  pre-written HTTP request handler code, connection to server-side resources

- **Client side**
  pre-written paging/data handling for single-request web apps

Web Frameworks help if

- you need many pages w/same content (templating)
- you need to render multiple types of pages and move data across them (routing)

Client-side
- you want desktop-like responsiveness

Server-side
- you need to connect to a DB in real time
- you need to access server-side resources that aren't public
- you need to move data across requests, e.g., submit forms
- you need authentication and authorization

Frameworks also enable MVC

Separation of concerns

Model – data model, business rules

View – user interface

Controller – code that works with the model and any submitted data to render views

Example Frameworks

- **Server side:**
  Django, Flask (python), Rails (ruby), Laravel (PHP),

- **Client side:**
  Backbone, Ember, Angular, React

Building Without a Framework

- Modern web apps are often built without a server-side framework.

- Single-page web apps are often built without any framework.

- Use AJAX to pull in data