Backend Engineering with Flask

BRYAN YAN

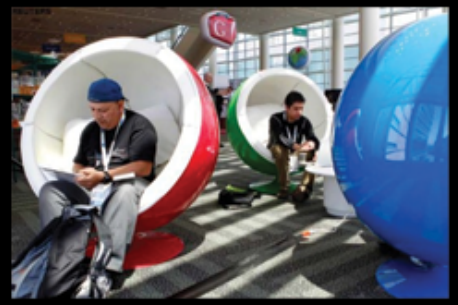
So what is backend engineering anyways?


BACK END DEVELOPER

WEB DEVELOPERS

WHAT MY FRIENDS THINK I DO

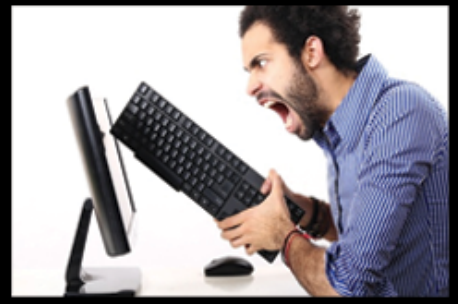
WHAT MY MOM THINKS I DO



WHAT SOCIETY THINKS I DO

WHAT OUR CLIENTS THINK WE DO

WHAT I THINK I DO



WHAT WE REALLY DO

zach nicodemous

But really … Backend Engineering

Idea: Building **dynamic web applications** powered by data

Aspects of Backend Engineering

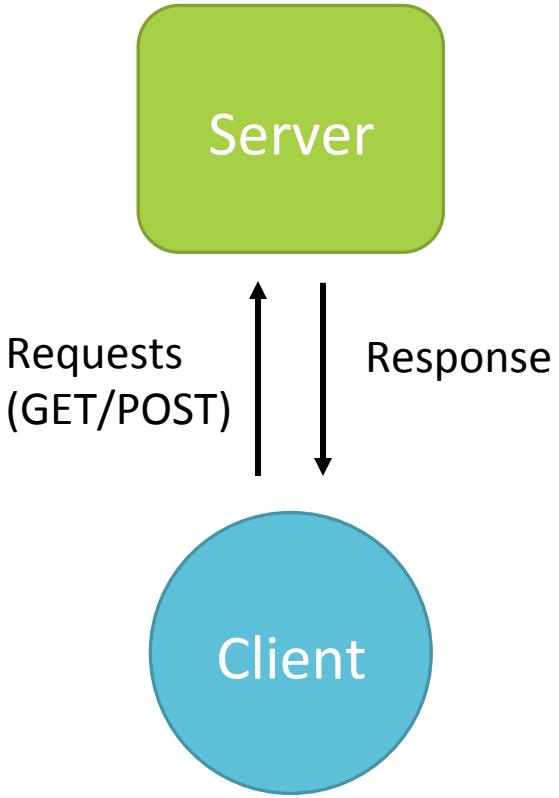
- Databases (SQL, NoSQL)
- User Authentication
- URL Routing
- Security (CSRF, XSS, SQL Injection)
- APIs
- Analytics
- Business Logic

CRUD

- Pretty much all web applications can be summarized by the acronym CRUD:
  - Create
  - Read
  - Update
  - Delete
- The most basic functions of a web application

Basic Web Concepts

- Various HTTP methods to make requests to a web server. Most important ones:
  - **GET** – Requests data from resource. Query arguments sent in URL
  - **POST** – Submits data to resource. Query arguments sent in body of HTTP (more secure)
  - Never use GET requests when dealing with sensitive data
- Client-Server Model: client makes requests, server provides content
- We're going to build a simple **web server** for a blog application



HTML Forms

- Where backend meets frontend
- HTML Forms can submit data via GET and POST requests
- HTML GET form

```
<form action="sample_get_form.asp" method="get">
  Name: <input type="text" name="name"><br>
  <input type="submit" value="Submit">
</form>
```

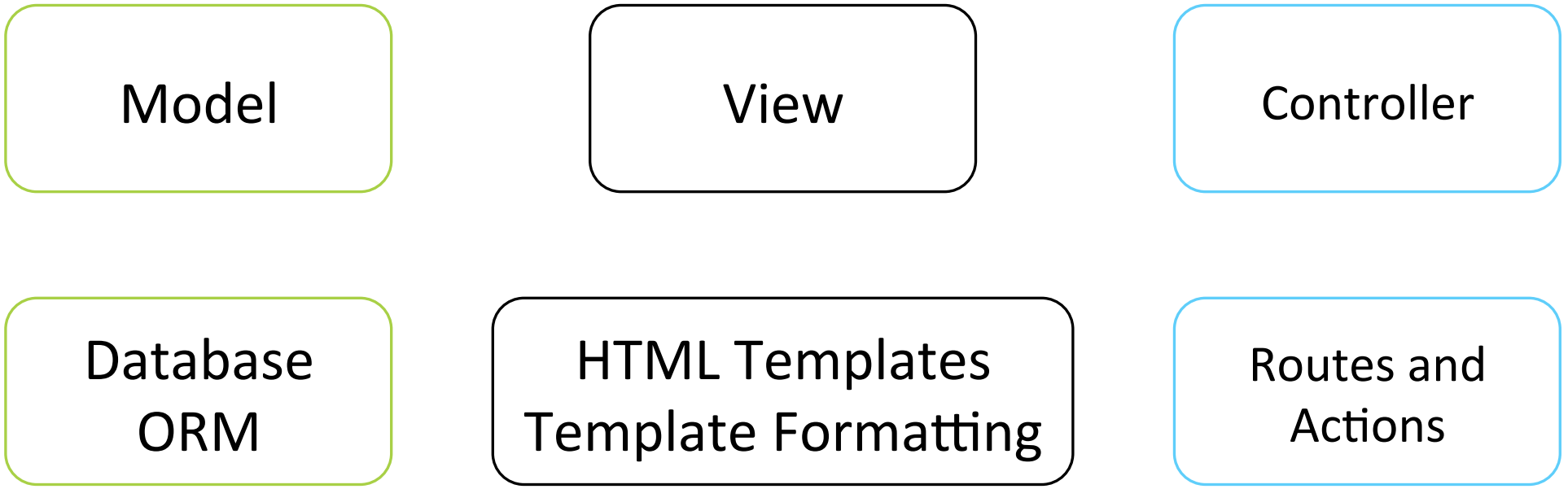
- HTML POST form

```
<form action="sample_post_form.html" method="post">
  Password: <input type="text" name="password"><br>
  <input type="submit" value="Submit">
</form>
```

What is Flask?

- Easy-to-use, Python-based **web framework**
- Pinterest API, Twilio APIs, Linked-in “internal stack”, Obama 2012
- Makes your life easier when building web applications by providing various features:
  - URL Routing
  - Database manipulation (using ORM)
  - Security against Cross-site request forgery (CSRF) and other attacks
  - Session storage and retrieval

Structure of a Flask App



Time to Flask!

What's Next?

- Check out other web frameworks:
  - Python-based: Django, Tornado
  - Others: Ruby on Rails, Node.js
- Learn about asynchronous frameworks
- Explore SQL Alternatives: NoSQL and Key-Value Stores
  - MongoDB, Cassandra, Redis
- Learn about Long Polling using Javascript (AJAX, WebSockets)