Web Apps Basics

Harry J. Wang, Ph.D.

University of Delaware

Fall 2017

Client-side vs. Server-side Programming

- Client-side programming: technologies are used to build web pages and applications that are run on the client (i.e., in the browser on the user's device).
- Server-side programming: the applications that respond to requests from client-side web applications.

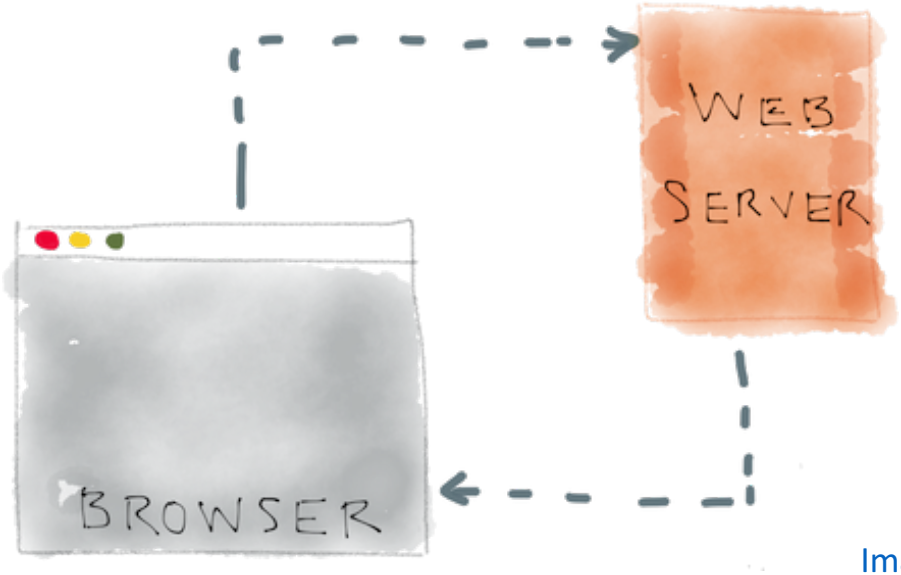


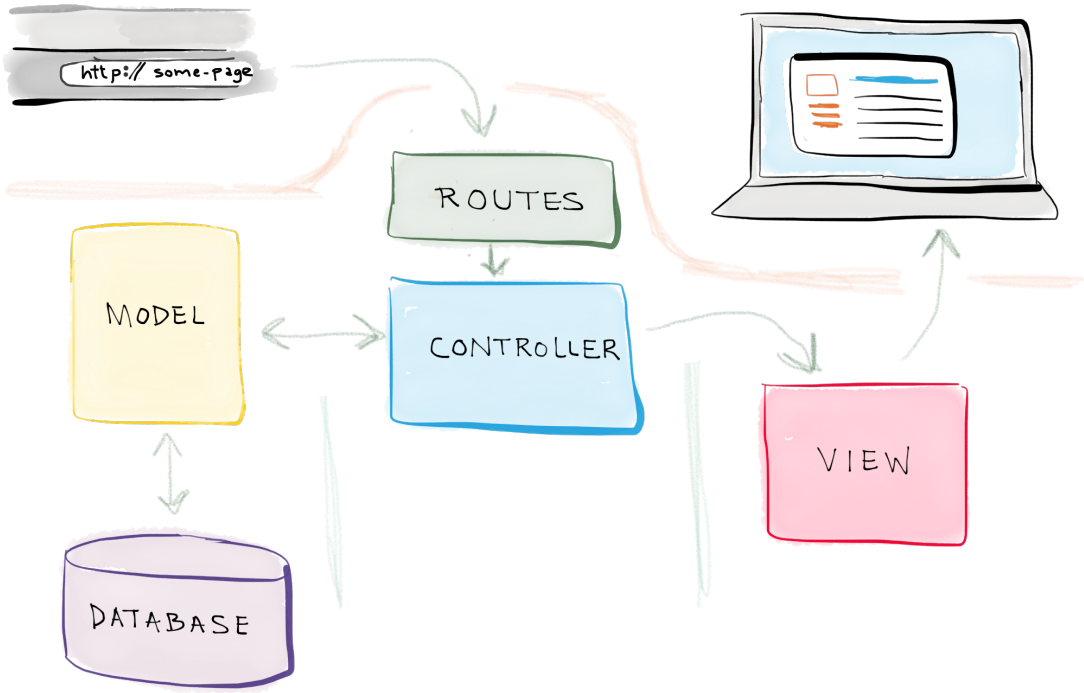
Image Credit

An Example

http://misy350-johndoe.s3-website-us-east-1.amazonaws.com

Model-View-Controller (MVC) in Web Apps

1. A user requests to view a page by entering a URL in a browser.
2. The Controller receives that request and asks..
3. The Model to retrieve all necessary data and send them back to the controller, which passes the data to…
4. The View, which uses that data to render the final webpage presented to the the user in the browser



Source

WWW, HTML, and HTTP

- 1989, Sir **Tim Berners-Lee** of CERN (the European Organization for Nuclear Research) began to develop a technology for sharing information via hyperlinked text documents.
- Berners-Lee called his invention the **HyperText Markup Language (HTML)**. He also wrote communication protocols to form the backbone of his new information system, which he called the **World Wide Web**.
- In particular, he wrote the **Hypertext Transfer Protocol (HTTP)**—a communications protocol used to send information over the web.
- The URL (Uniform Resource Locator) specifies the address (i.e., location) of the web page displayed in the browser window. Each web page on the Internet is associated with a unique URL. URLs usually begin with http://.

HTTPS

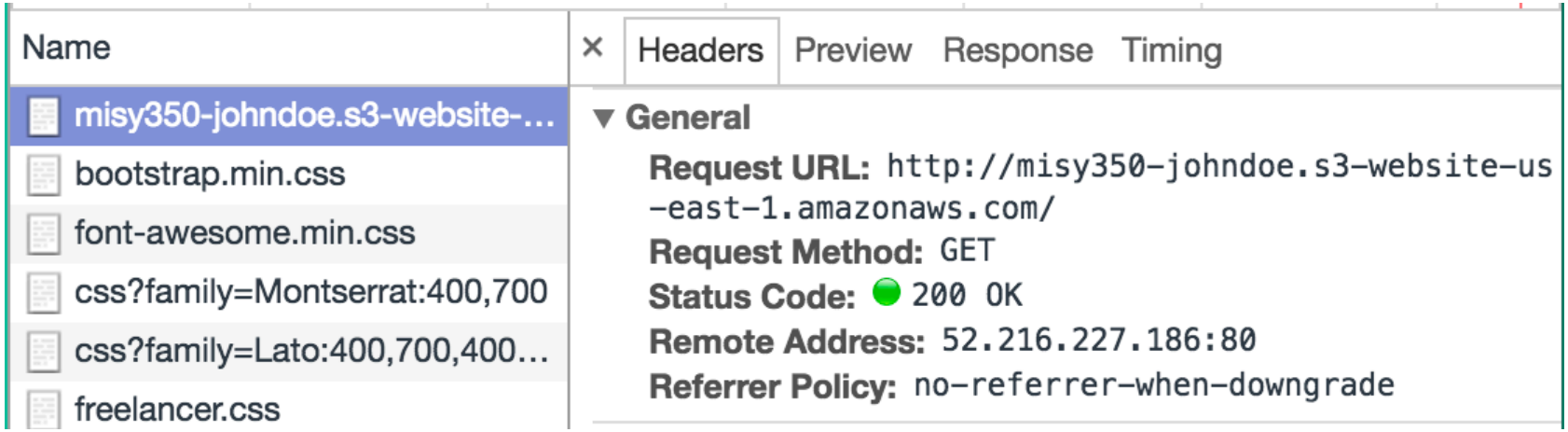
- Netscape Communications created HTTPS in 1994.
- URLs of websites that handle private information, such as credit card numbers, often begin with https://, the abbreviation for Hypertext Transfer Protocol Secure (HTTPS).
- HTTPS is the standard for transferring encrypted data on the web. It combines HTTP with the Secure Sockets Layer (SSL) and the more recent Transport Layer Security (TLS) cryptographic schemes for securing communications and identification information over the web.

Domain Name

- See this URL: http://lerner.udel.edu/
- http://lerner.udel.edu is the server's fully qualified domain name - the name of the web-server computer on which the resource resides, also referred to as the host.
- The domain name http://lerner.udel.edu is translated into an IP (Internet Protocol) address.
- An Internet Domain Name System (DNS) server maintains a database of hostnames and their corresponding IP addresses and performs the translations automatically.

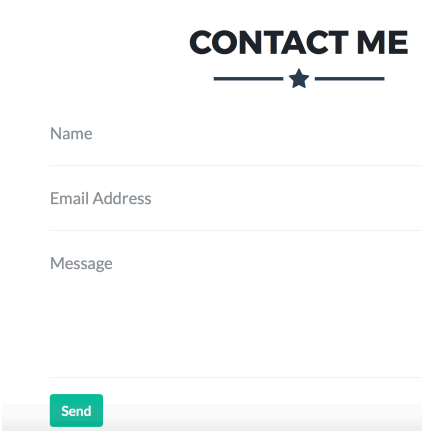
GET Request

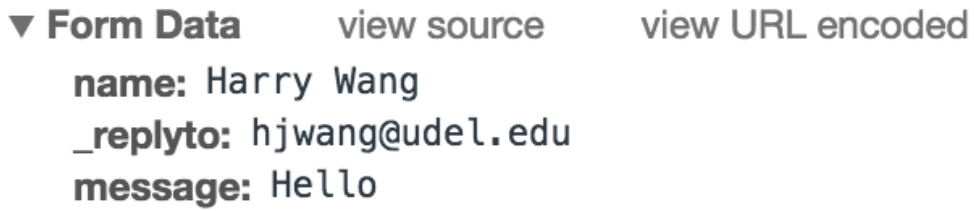
- From the client computer, the web browser sends an HTTP request to the server to retrieve some resources, which is called a GET method.
- A GET request also provides the path name of the resource.
- A numeric code is returned by the server to indicate the status of the request, e.g., 200 OK indicates success, 404 indicates Not found



POST Request

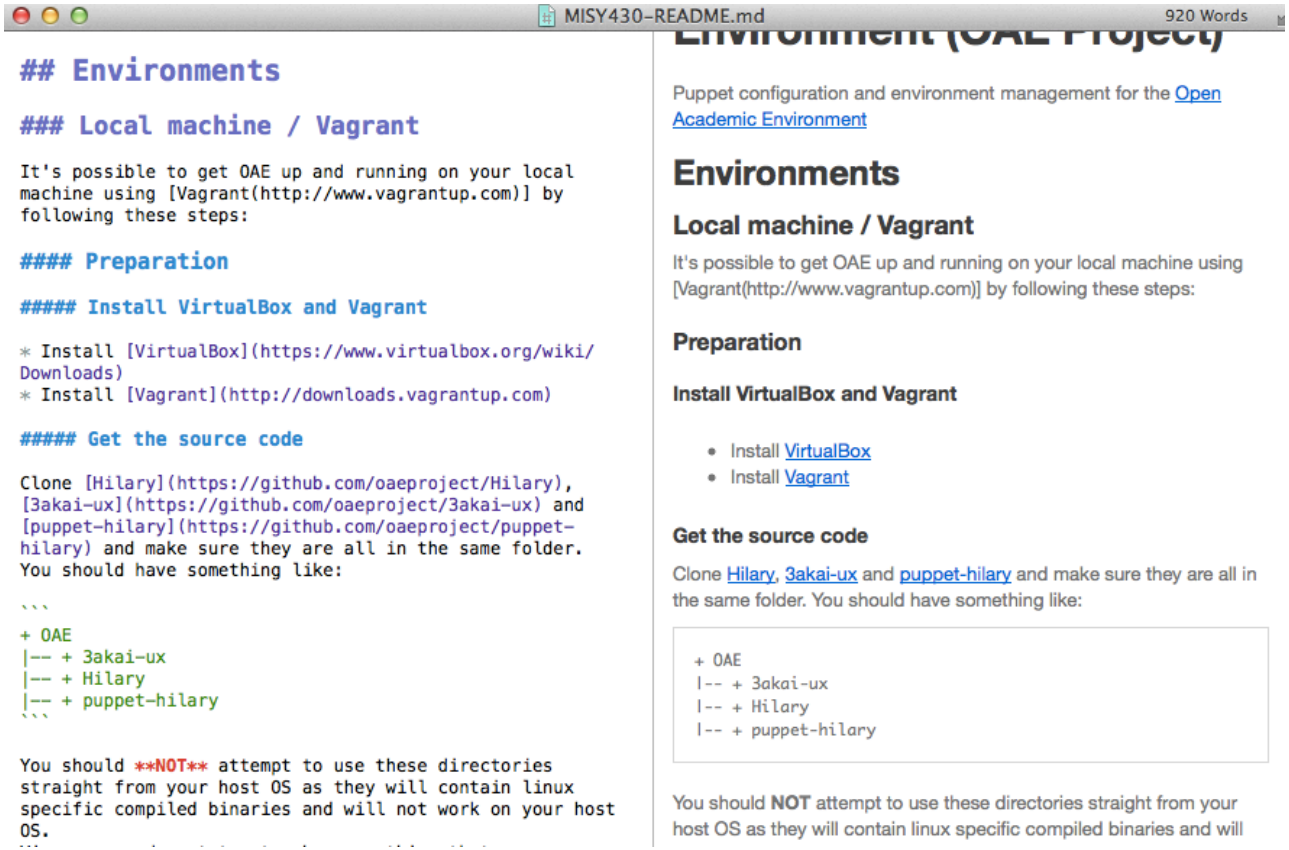
- A POST request sends form data as part of the HTTP message.





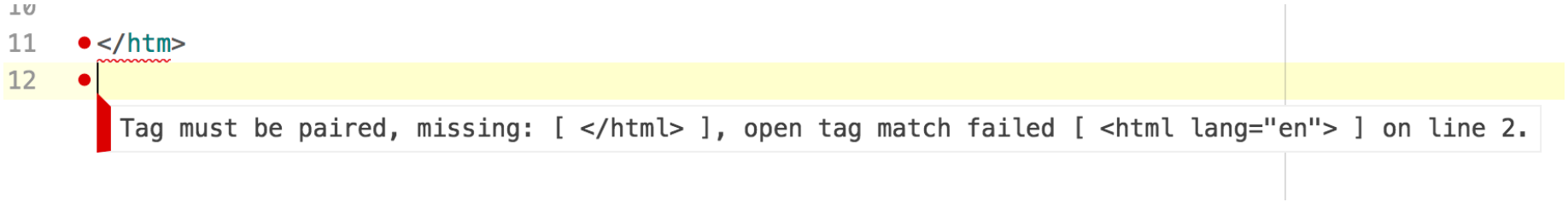
Markdown

- Markdown is a lightweight markup language for HTML
- Used by many sites including Github to create messages, issues, comments, etc. (learn more at https://guides.github.com/features/mastering-markdown)



Linting

- Linting is the process of running a program that will analyze code for potential errors.
- We need to do linting for HTML, CSS, JS, and Python



Atom Editor

- Working with files: start Atom using Terminal
- Theme management
- Package management
  - Project manager: https://atom.io/packages/project-manager
  - HTML linter: https://atom.io/packages/linter-htmlhint
  - CSS linter: https://atom.io/packages/linter-csslint
  - JS linter: https://atom.io/packages/linter-jshint
  - PEP8 linter: https://atom.io/packages/linter-pep8
  - Markddown Preview: https://atom.io/packages/markdown-preview

ATOM Exercises

- Run Atom from Terminal
- Install packages
- Change themes
- Create a HTML page and try linting
- Create a markdown page

Questions?