

Web Apps Basics

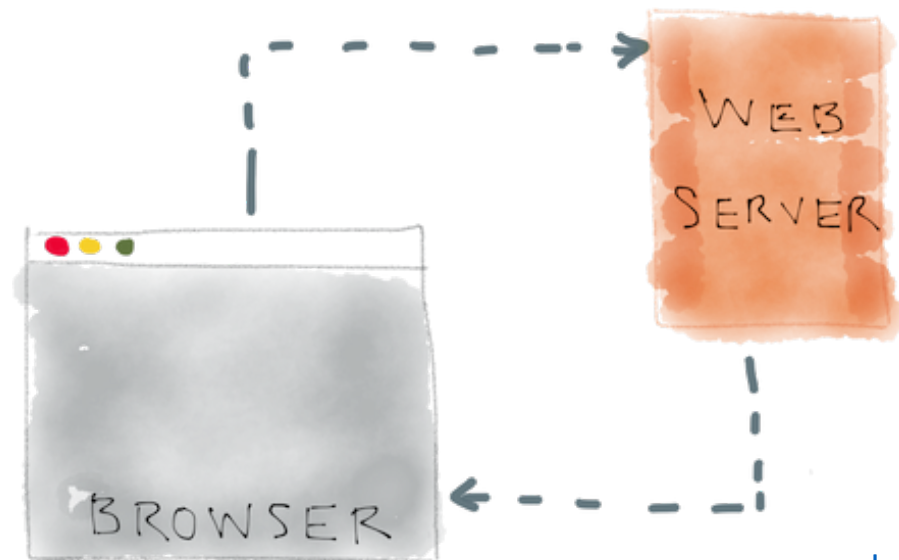
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Client-side vs. Server-side Programming

- **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.

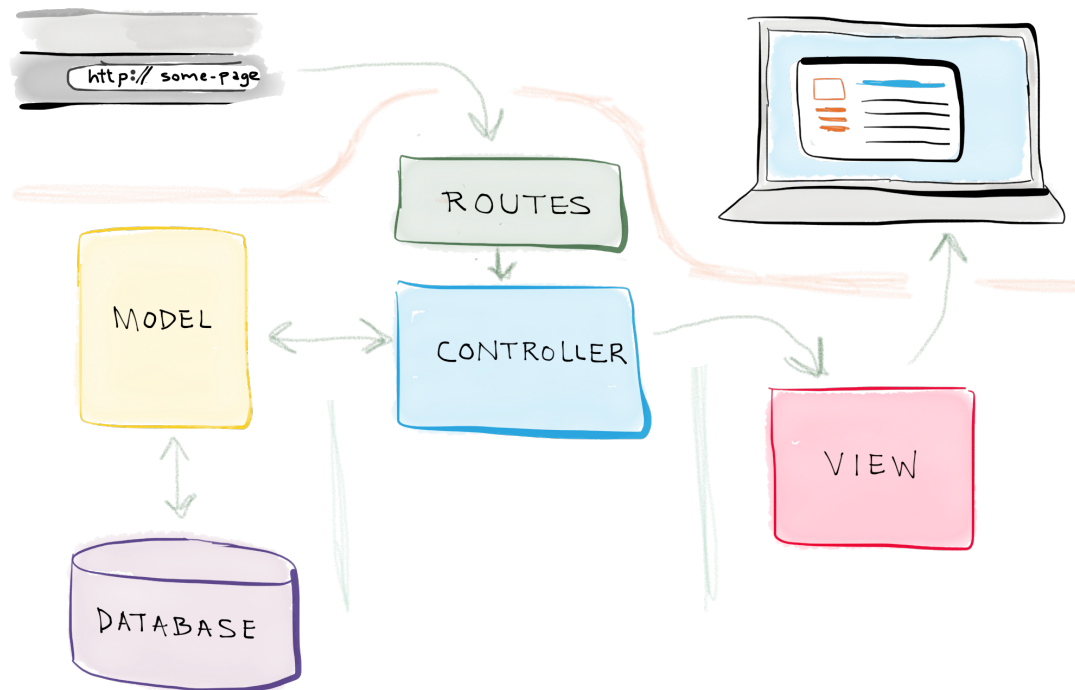


An Example

<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



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

Name	× Headers Preview Response Timing
 misy350-johndoe.s3-website-...	▼ General Request URL: http://misy350-johndoe.s3-website-us-east-1.amazonaws.com/ Request Method: GET Status Code:  200 OK Remote Address: 52.216.227.186:80 Referrer Policy: no-referrer-when-downgrade
 bootstrap.min.css	
 font-awesome.min.css	
 css?family=Montserrat:400,700	
 css?family=Lato:400,700,400...	
 freelancer.css	

POST Request

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

CONTACT ME

★

Name

Email Address

Message

Send

× Headers Preview Response Cookies Timing

▼ General

Request URL: https://formspre.io/your@email.co
m

Request Method: POST

Status Code: ● 200

Remote Address: [2400:cb00:2048:1::6819:a424]:4
43

Referrer Policy: no-referrer-when-downgrade

▼ Form Data

view source

view URL encoded

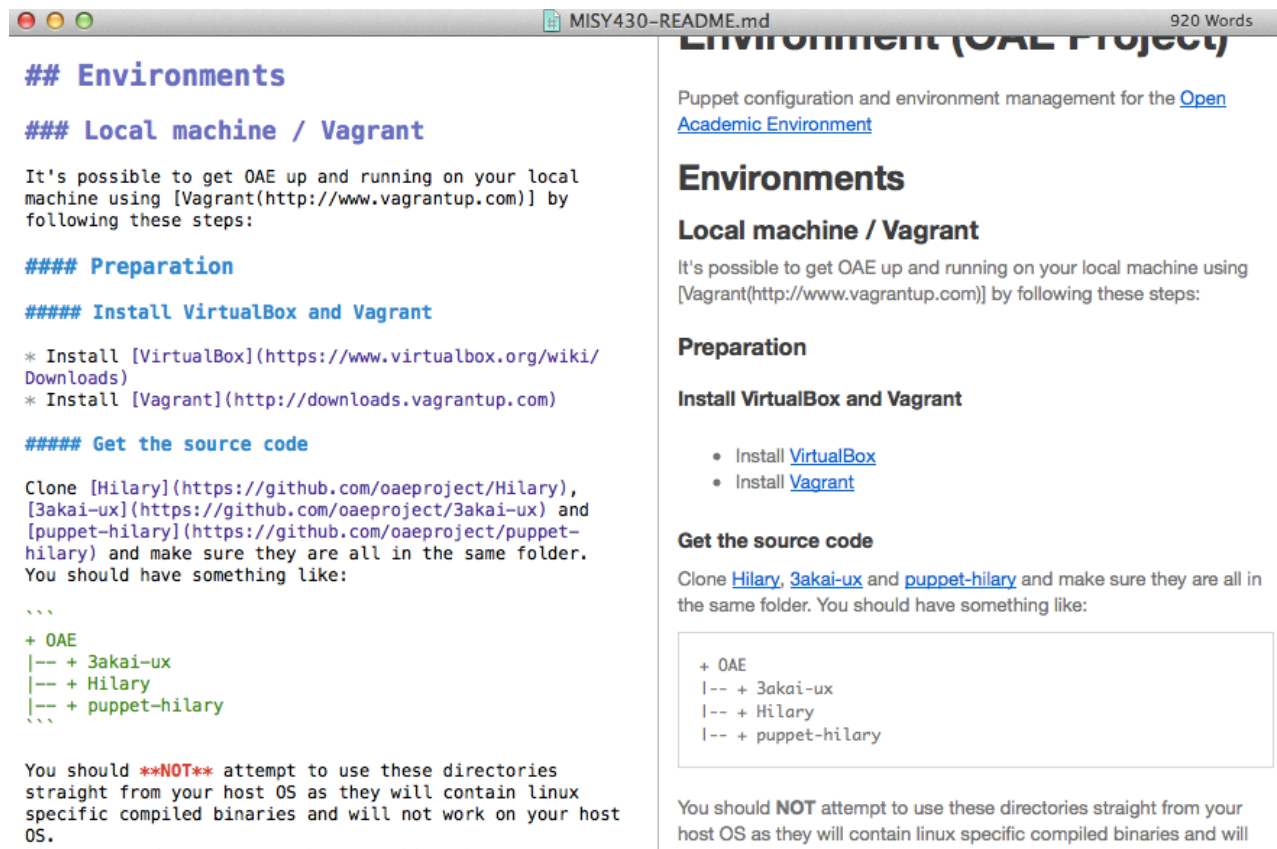
name: Harry Wang

_replyto: hjwang@udel.edu

message: Hello

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>)



The image shows a side-by-side comparison of a README file, illustrating the difference between the raw Markdown source and the rendered HTML output.

Left Panel (Raw Markdown Source): The title is "MISY430-README.md" with a word count of "920 Words". The content is written in Markdown syntax, using hash symbols (#) for section headers. It includes sections for "Environments", "Local machine / Vagrant", "Preparation", and "Install VirtualBox and Vagrant". It also contains a list of installation steps and a directory tree structure.

Right Panel (Rendered HTML Output): The title is "Environment (OAE Project)". The content is the rendered HTML version of the Markdown source, where the hash symbols are converted into proper HTML heading tags (h2, h3, h4, h5). The list of installation steps is rendered as a bulleted list, and the directory tree structure is rendered as a pre-formatted code block.

Raw Markdown Source (Left Panel):

```
## Environments

### Local machine / Vagrant

It's possible to get OAE up and running on your local machine using [Vagrant](http://www.vagrantup.com)] by following these steps:

#### Preparation

##### Install VirtualBox and Vagrant

* Install [VirtualBox](https://www.virtualbox.org/wiki/Downloads)
* Install [Vagrant](http://downloads.vagrantup.com)

##### Get the source code

Clone [Hilary](https://github.com/oaeproject/Hilary), [3akai-ux](https://github.com/oaeproject/3akai-ux) and [puppet-hilary](https://github.com/oaeproject/puppet-hilary) and make sure they are all in the same folder. You should have something like:

...
+ OAE
|-- + 3akai-ux
|-- + Hilary
|-- + puppet-hilary
...
```

Rendered HTML Output (Right Panel):

Environment (OAE Project)

Puppet configuration and environment management for the [Open Academic Environment](#)

Environments

Local machine / Vagrant

It's possible to get OAE up and running on your local machine using [Vagrant](http://www.vagrantup.com)] by following these steps:

Preparation

Install VirtualBox and Vagrant

- Install [VirtualBox](#)
- Install [Vagrant](#)

Get the source code

Clone [Hilary](#), [3akai-ux](#) and [puppet-hilary](#) and make sure they are all in the same folder. You should have something like:

```
+ OAE
|-- + 3akai-ux
|-- + Hilary
|-- + puppet-hilary
```

You should **NOT** attempt to use these directories straight from your host OS as they will contain linux specific compiled binaries and will not work on your host OS.

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

10

11 • </htm>

12 •

Tag must be paired, missing: [</html>], open tag match failed [<html lang="en">] on line 2.



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>
 - Markdown 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?