



# Server-Side Languages

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## Welcome to SSL!

We will learn to build websites with PHP and Python.

Day 1



# Server-Side Languages

## About Me

- Todd Smith
- Course Director for SSL and ASL
- I have three math degrees:
  - Bachelor's, Applied Discrete Mathematics, Auburn University, 2004
  - Master's, Applied Mathematics, UCF, 2007
  - PhD, Mathematics, UCF, 2011
- Programming Experience: Perl, PHP, MySQL, Java for Android, Mathematica
- Work Experience: Web Developer, System Admin and Math Teacher
- [tbsmith@fullsail.com](mailto:tbsmith@fullsail.com)
- 407-679-0100 ext. 7937
- Office Hours:

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# Server-Side Languages

## About SSL

- Why might this class be taught simultaneously with the database class?
- How far will we get in this class?
- Next month is ASL- what will we do there?

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# Server-Side Languages

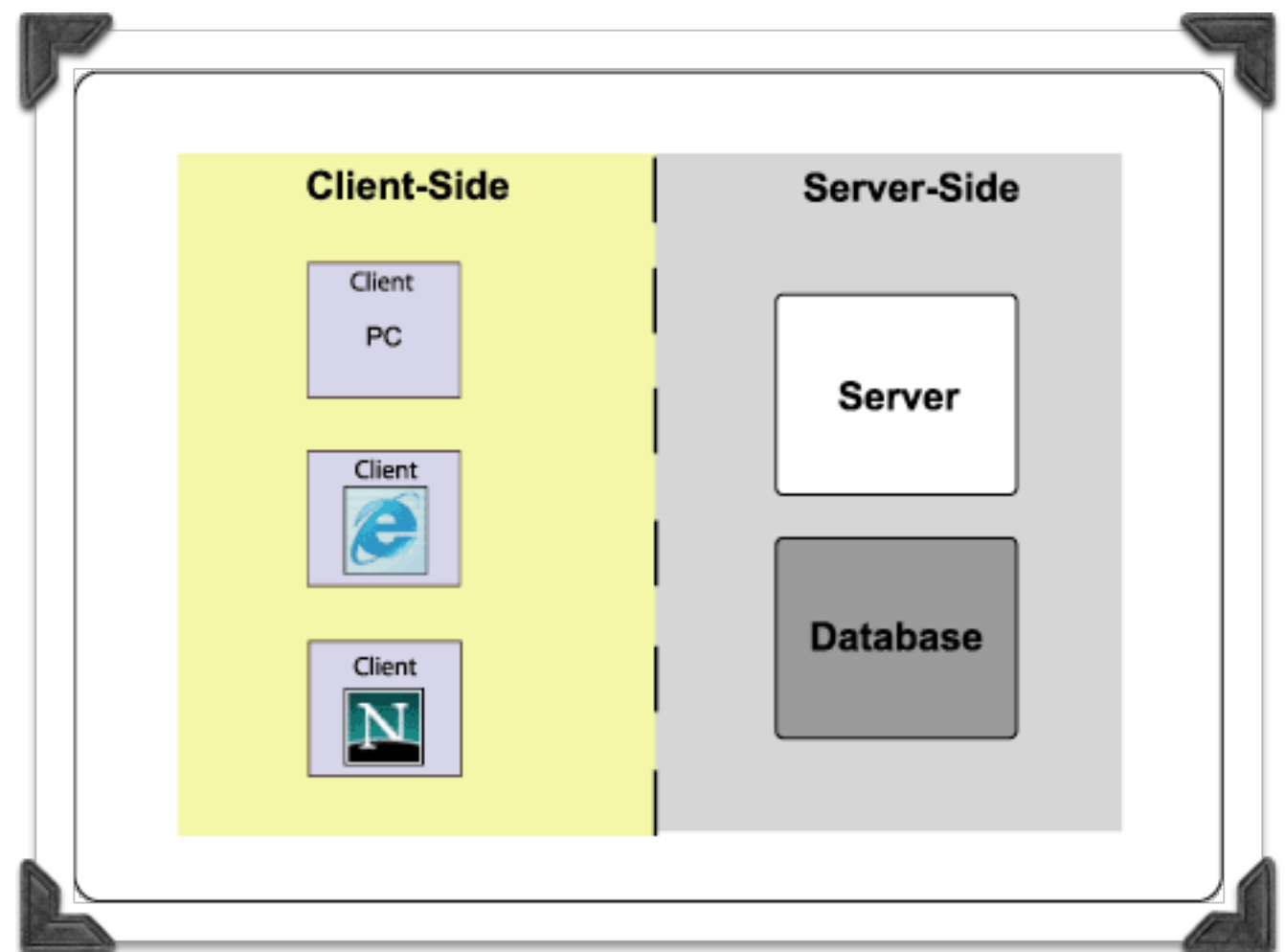
## Server-side vs. Client-side

### Basics

- Client (web browser) sends requests to the server-side script
- Script's code and the data it accesses are all on the server
- The script makes html dynamically to reply to the browser

### Advantages

- Databases remain secure
- Content is customized for the client
- Can take advantage of software on or computing power of the server



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# Server-Side Languages

## Daily Calendar

<u>Day 1</u> 1. Software Installation 2. Server Configuration 3. Git Repository Setup 4. Views	<u>Day 2</u> 1. Controller Classes 2. Pretty URLs		<u>Day 3</u> 1. URL & Form Data 2. Validation 3. Security
<u>Day 4</u> 1. Database Queries 2. Model Classes	<u>Day 5</u> 1. Hashing and Salting 2. Sessions		<u>Day 6</u> 1. Image Manipulation 2. CAPTCHA
<u>Day 7</u> 1. XML 2. JSON	<u>Day 8</u> 1. Student Lectures 2. Start 2-day project	<u>Day 9</u> 1. Present Projects 2. Review for Practical	<u>Day 10</u> Practical Exam



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## Screencast Expectations

10 pts	Far Below	Below	Meets
Knowledge	The student does not seem certain about the topic. 5	The student seems unfamiliar with some aspects of the topic but for the most part is knowledgeable. 15	The student knows what he is talking about and is able to convey his familiarity of the topic. 25
Correctness	Most of the presentation is incorrect, or there are many errors. 5	Most of the presentation is correct, but there are small errors. 15	Everything presented is accurate and works without errors. 25
Education	The presentation is probably not useful to students in this class. 5	The presentation may or may not be useful to students in this class. 15	The presentation would be useful to students in this class. 25
Production	The presentation needs work to get up to a professional state. 5	The presentation is mostly professional, but there are some rough edges. 15	The presentation is professional and could be shown to anyone. 25

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# Server-Side Languages

## SSL Rubric

Assignments	Points
Videos	10
Labs	30
Two-Day Project	10
Student Lecture	10
Practical Final	30
Professionalism	10

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# Server-Side Languages

## Rules

- During Lecture and Lab, no FB or anything else.
- Phones should be on silent mode (not vibrate).
- No food or drinks.
- 10 day course, max 8 hours unexcused, 16 excused.
- 15 minutes late = 2 hours
- Contact me if you will miss class.

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# Server-Side Languages

## Turning In Work

- All deadlines are final. No late work.
- Do not commit your videos! Instead, update a screencasts.txt file with a youtube link.
- Make a github.com account.
- Dump your database and website code inside the day# folder and tar it up as yourname-day#.tgz
- Push to <https://github.com/tbsmithFS/SSL1304>

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# Server-Side Languages

## Our Languages of Choice



- php.net
- widely supported
- open source
- more symbols



- python.org
- widely supported
- open source
- more english



# Server-Side Languages

## Basic Website Structure



header

nav

body

footer

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# Server-Side Languages

## Virtual Hosting Setup part I

```
tbsmith — bash — 62x5
~: sudo vi /etc/apache2/httpd.conf
```

```
tbsmith — vim — 62x5

# Virtual hosts
Include /private/etc/apache2/extra/httpd-vhosts.conf
```

```
tbsmith — ba...
~: sudo vi /etc/hosts
```

```
tbsmith — vim — 38x5

127.0.0.1    ssl1304.com
127.0.0.1    www.ssl1304.com
127.0.0.1    php.ssl1304.com
127.0.0.1    python.ssl1304.com
```

Day I





# Server-Side Languages

## Virtual Hosting Setup part 2

/etc/apache2/extra/httpd-vhosts.conf

```
settings — vim — 75x23
#WSGIPythonPath /Users/tbsmith/Sites/nirdga.me

<VirtualHost *:80>
    DocumentRoot "/Users/tbsmith/Sites/defaultWebsite"
</VirtualHost>

<VirtualHost *:80>
    DocumentRoot "/Users/tbsmith/Sites/php.ssl1304.com"
    ServerName php.ssl1304.com
    ErrorLog "/var/log/apache2/ssl1304-php-error_log"
    CustomLog "/var/log/apache2/ssl1304-php-access_log" common
</VirtualHost>

<VirtualHost *:80>
    DocumentRoot "/Users/tbsmith/Sites/python.ssl1304.com"
    DirectoryIndex index.py
    AddHandler cgi-script .py
    ServerName python.ssl1304.com
    ErrorLog "/var/log/apache2/ssl1304-python-error_log"
    CustomLog "/var/log/apache2/ssl1304-python-access_log" common
</VirtualHost>
```

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# Server-Side Languages

## Starting the scripts

PHP:

```
html can be here

<?php
phpinfo();

?>

and here
```

Python:

```
#!/usr/bin/python

import cgi

cgi.test()
```

Day I



# Server-Side Languages

## Includes/Imports

PHP:

```
include("settings/db.php");
```

Python:

```
import settings.db
```

Make sure an empty file called `__init__.py` is in your settings directory. (Those are two underscores before and after 'init').

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# Server-Side Languages

## Set up your PHP website

```
php.ssl1304.com — bash — 71x35
~/Sites/php.ssl1304.com: ls -alsr *
8 -rwxr-xr-x  1 tbsmith  staff   127 Mar 25 16:02 index.php
8 -rw-r--r--  1 tbsmith  staff  1150 Mar 25 15:29 favicon.ico

views:
total 24
8 -rw-r--r--  1 tbsmith  staff   193 Mar 25 16:03 header.php
8 -rw-r--r--  1 tbsmith  staff    47 Mar 24 18:39 footer.php
8 -rw-r--r--  1 tbsmith  staff    28 Mar 24 18:39 body.php
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:02 ..
0 drwxr-xr-x  5 tbsmith  staff   170 Mar 25 16:03 .

settings:
total 16
8 -rwxr-xr-x  1 tbsmith  staff   166 Mar 25 15:33 db.php
8 -rw-r--r--  1 tbsmith  staff    14 Mar 25 15:34 .htaccess
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:02 ..
0 drwxr-xr-x  4 tbsmith  staff   136 Mar 25 15:34 .

models:
total 0
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:02 ..
0 drwxr-xr-x  2 tbsmith  staff    68 Mar 24 19:23 .

css:
total 8
8 -rw-r--r--  1 tbsmith  staff   185 Mar 24 18:39 style.css
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:02 ..
0 drwxr-xr-x  3 tbsmith  staff   102 Mar 24 18:39 .

controllers:
total 0
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:02 ..
0 drwxr-xr-x  2 tbsmith  staff    68 Mar 24 19:23 .
~/Sites/php.ssl1304.com: _
```

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# Server-Side Languages

## Set up your Python website

```
python.ssl1304.com — bash — 71x41
~/Sites/python.ssl1304.com: ls -lasr *
8 -rwxr-xr-x  1 tbsmith  staff   100 Mar 25 16:30 index.py
8 -rw-r--r--  1 tbsmith  staff  1150 Mar 25 15:29 favicon.ico

views:
total 48
8 -rw-r--r--  1 tbsmith  staff   270 Mar 24 18:39 header.pyc
8 -rw-r--r--  1 tbsmith  staff   221 Mar 25 16:03 header.py
8 -rw-r--r--  1 tbsmith  staff   156 Mar 24 18:39 footer.pyc
8 -rw-r--r--  1 tbsmith  staff    82 Mar 24 18:39 footer.py
8 -rw-r--r--  1 tbsmith  staff   132 Mar 24 18:39 body.pyc
8 -rw-r--r--  1 tbsmith  staff    60 Mar 24 18:39 body.py
0 -rw-r--r--  1 tbsmith  staff     0 Mar 24 18:39 __init__.py
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:30 ..
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:03 .

settings:
total 16
8 -rwxr-xr-x  1 tbsmith  staff   145 Mar 25 16:30 db.py
8 -rw-r--r--  1 tbsmith  staff    14 Mar 25 16:30 .htaccess
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:30 ..
0 drwxr-xr-x  4 tbsmith  staff   136 Mar 25 16:30 .

models:
total 0
0 -rw-r--r--  1 tbsmith  staff     0 Mar 24 18:39 __init__.py
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:30 ..
0 drwxr-xr-x  3 tbsmith  staff   102 Mar 24 18:39 .

css:
total 8
8 -rw-r--r--  1 tbsmith  staff   185 Mar 24 18:39 style.css
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:30 ..
0 drwxr-xr-x  3 tbsmith  staff   102 Mar 24 18:39 .

controllers:
total 0
0 -rw-r--r--  1 tbsmith  staff     0 Mar 24 18:39 __init__.py
0 drwxr-xr-x  9 tbsmith  staff   306 Mar 25 16:30 ..
0 drwxr-xr-x  3 tbsmith  staff   102 Mar 24 18:39 .
~/Sites/python.ssl1304.com: _
```

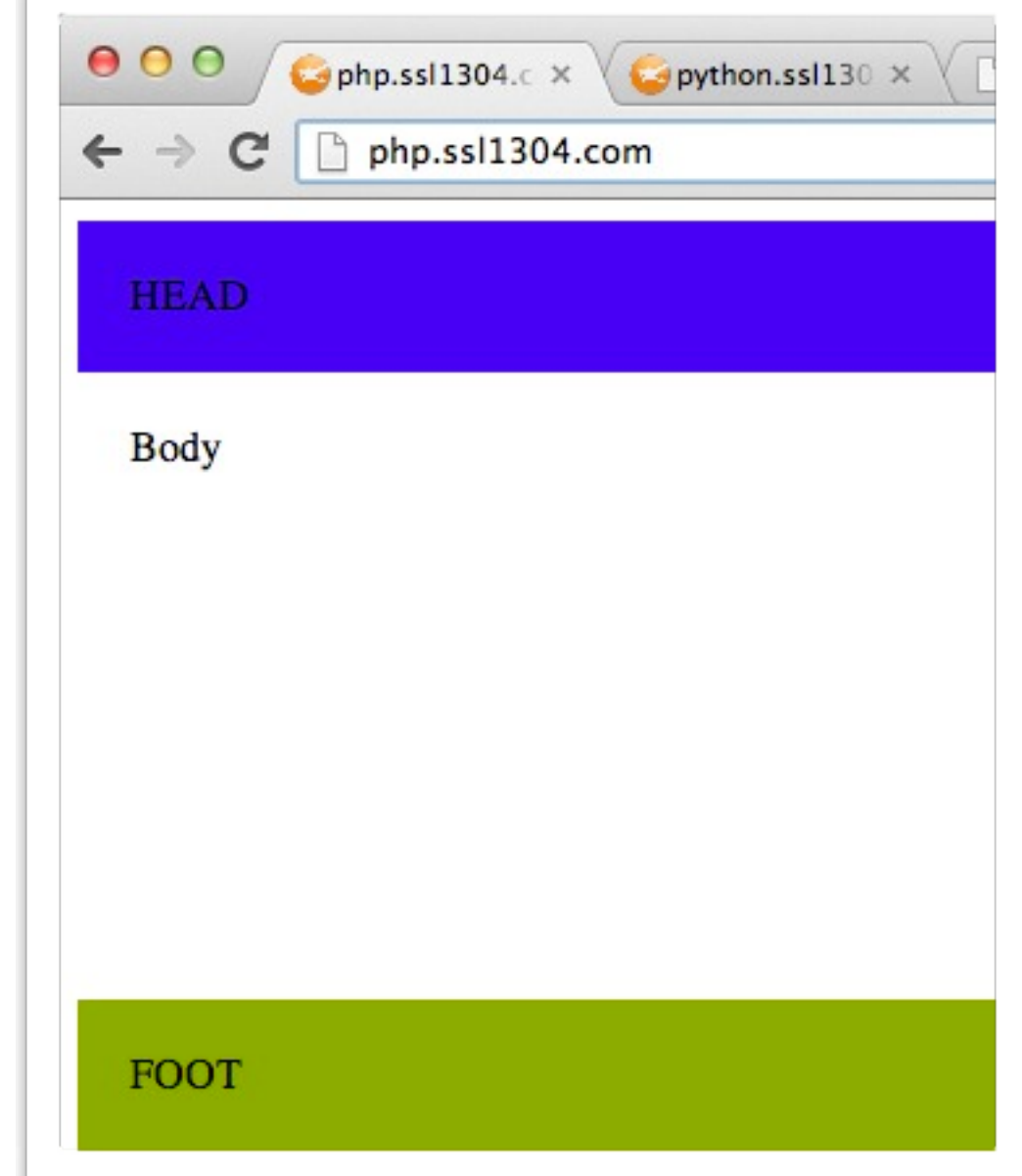
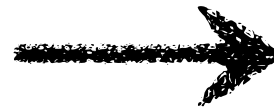
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# Server-Side Languages

## Virtual Hosting Test

```
tbsmith — bash — 41x6
~: apachectl configtest
Syntax OK
~: sudo apachectl restart
Password:
~:
```



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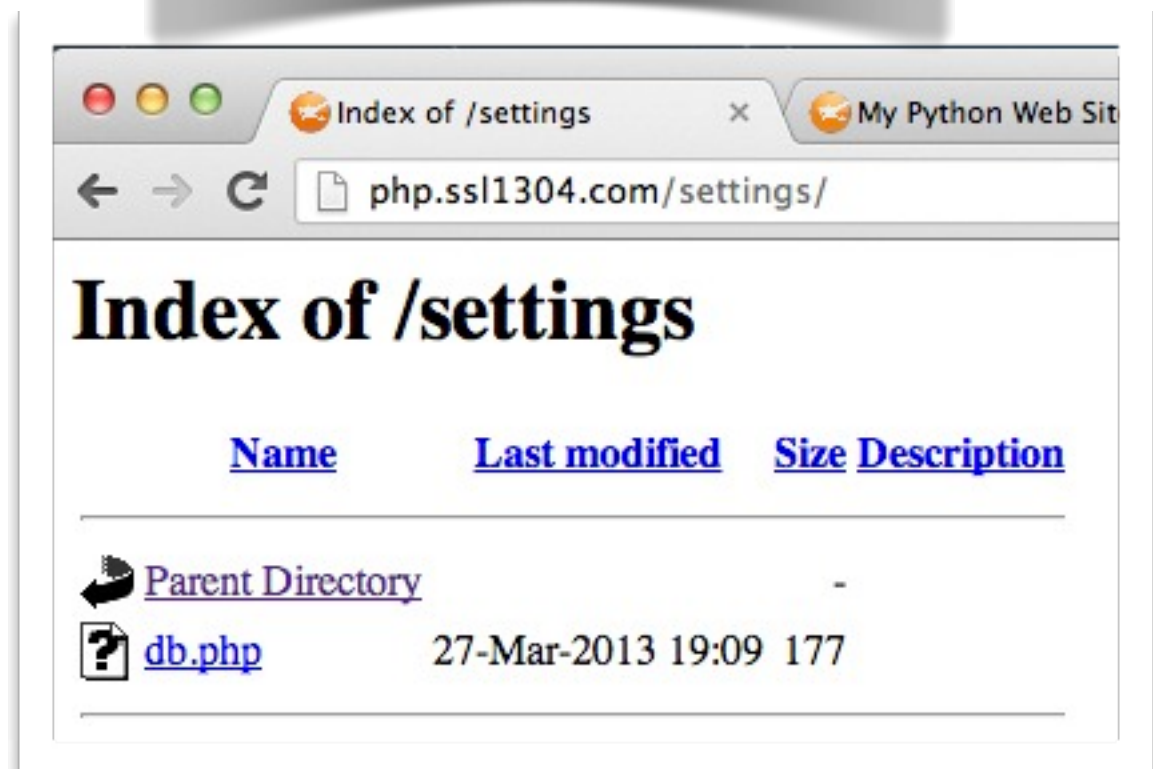
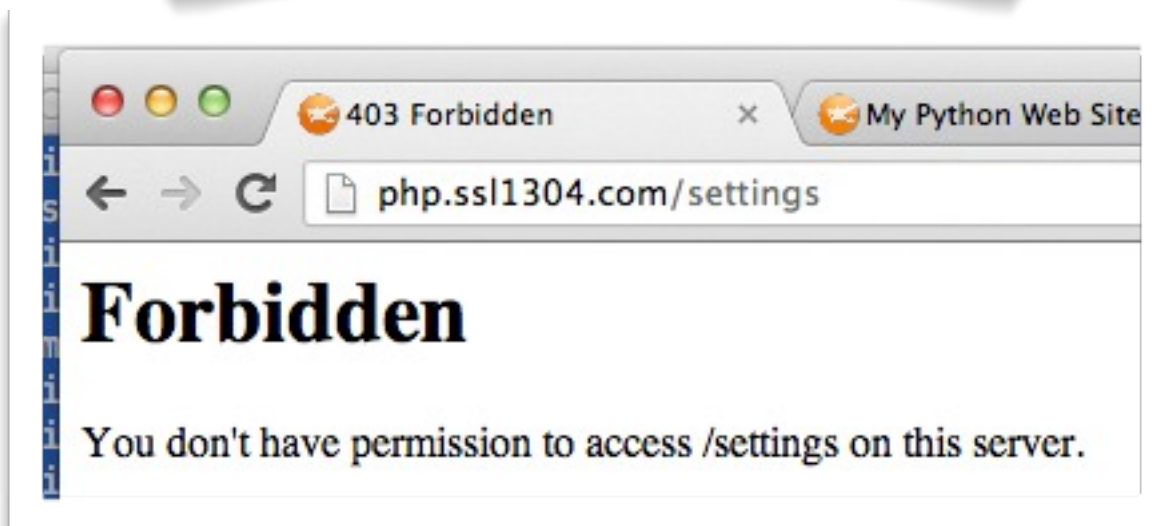
# Server-Side Languages

## .htaccess files

An htaccess file will manage which users can get content from within a directory.

Deny from All

Allow from All







# Server-Side Languages

## Apache config file directives

If htaccess files are enabled on the server then they will be looked for in every directory. Therefore, your website will be slower.

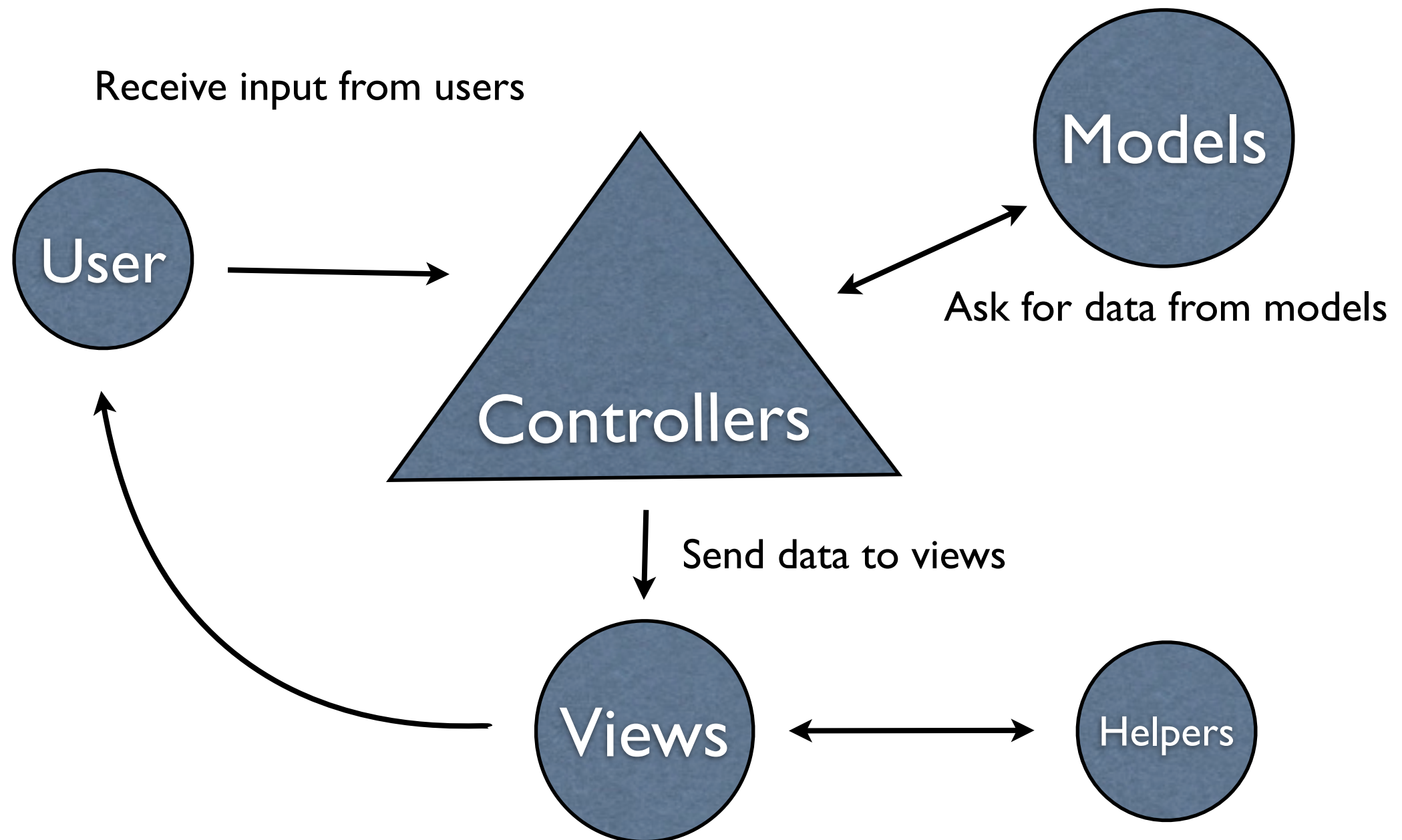
```
<VirtualHost *:80>
    DocumentRoot "/Users/tbsmith/Sites/php.ssl1304.com"
    ServerName php.ssl1304.com
    <Directory /Users/tbsmith/Sites/php.ssl1304.com/settings>
        Require all denied
    </Directory>
    ErrorLog "/var/log/apache2/ssl1304-php-error_log"
    CustomLog "/var/log/apache2/ssl1304-php-access_log" common
</VirtualHost>
```

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# Server-Side Languages

## MVC



Day 2



# Server-Side Languages

## Using a model and views: index.php

```
<?php

include("settings/db.php");
include("models/view.php");

$view = new View();

$view->printHeader();

$data = array(
    'site_title' => "My PHP website title",
    'logo_title' => "My PHP logo",
    'main_body_text' => "Main body text for PHP site",
    'copyright_info' => "Full Sail University 2013",
);

$view->getView("header", $data);
$view->getView("body", $data);
$view->getView("footer", $data);

?>
```

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# Server-Side Languages

## Using a model and views: models/view.php

```
<?php

class View {

    function printHeader() {
        header('Content-type: text/html');
    }

    function getView($file = '', $data = '') {

        $fullPath = "/Users/tbsmith/Sites/php.ssl1304.com/views/$file.php";

        if (preg_match("/\w/", $file) && file_exists($fullPath)) {

            include($fullPath);

        }

    }

}

?>
```

views/body.php

```
<div id=body>
    Body is <?php echo $data{'main_body_text'} ?>
</div>
```

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# Server-Side Languages

## Using a model and views: index.py

```
#! /usr/bin/python

import settings.db

from models.view import View

view_model = View()

view_model.print_header()

data = {"site_title" : "My Python Web Site",
        "logo_title" : "My Web Site Logo",
        "body_text" : "This is my main body text",
        "copyright_info" : "Full Sail University 2013" }

view_model.get_view("header", data)
view_model.get_view("body", data)
view_model.get_view("footer", data)
```

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# Server-Side Languages

## Using a model and views: models/view.py

```
#!/usr/bin/python

from os.path import isfile
from string import Template

class View:

    def __init__(self):
        self.base_path = "/Users/tbsmith/Sites/python.ssl1304.com/views/"

    def print_header(self):
        print "Content-type: text/html\n\n"

    def get_view(self, file, data={}):

        full_path_to_view = self.base_path + str(file) + ".py"

        if isfile(full_path_to_view):

            # open file for reading
            file_handle = open(full_path_to_view, 'r')

            # loop through each line in the file
            for line in file_handle:

                print Template(line).substitute(data)
```

views/body.py

```
<div id=body>
    My body text is $body_text.
</div>
```



# Server-Side Languages

## Lab I: Make two simple websites

- One will use PHP
- One will use Python
- Include a settings directory protected by an apache config file directive
- Include favicon.ico
- Include a css folder with a different style for each site
- Include the 'view' model
- Put HTML in the views directory
- Make a screencast tour of your code

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