



Server-Side Languages

Todd Smith
tbsmith@fullsail.com

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

tbsmith@fullsail.com | 407-679-0100 ext. 7937

Office Hours: <http://goo.gl/RBfas>

- Education:
 - Bachelor's, Applied Discrete Mathematics, Auburn University, 2004
 - Master's, Applied Mathematics, UCF, 2007
 - PhD, Mathematics, UCF, 2011
- Programming Experience: Perl, PHP, Java for Android, Mathematica, Python, JQuery
- Work Experience: Web Developer, System Admin and Math Teacher

Day 1



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?

Day I



Server-Side Languages

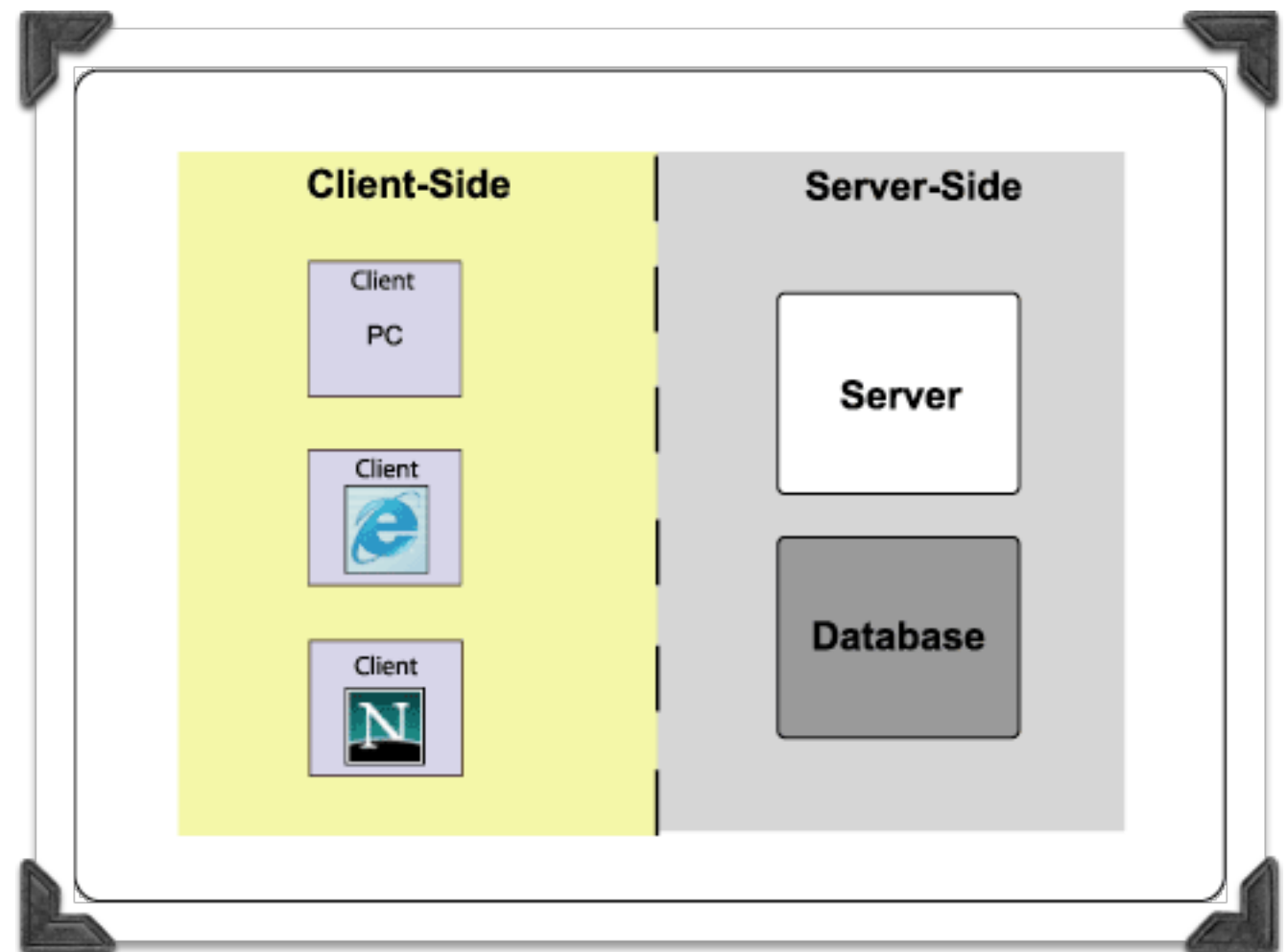
Server-side vs. Client-side

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



Day I



Server-Side Languages

Daily Calendar

| | | | | | |
|---|--|---|--|--|--|
| <u>Day 1</u> 1. Server Configuration 2. Git Repository Setup 3. Includes 4. Views | | <u>Day 2</u> 1. Controller Classes 2. Pretty URLs | | <u>Day 3</u> 1. URL & Form Data 2. Validation | |
| <u>Day 4</u> 1. Database Queries 2. Model Classes | | <u>Day 5</u> 1. Hashing and Salting 2. PHP Sessions | | <u>Day 6</u> 1. JSON 2. Services | |
| <u>Day 7</u> 1. CodeIgniter 2. Django 3. Start 2-day projects | | <u>Day 8</u> 1. Work on projects | | <u>Day 9</u> 1. Present Projects 2. Review for Practical | |
| <u>Day 10</u> Practical Exam | | | | | |



Server-Side Languages

Screencasts

2% of your grade

Due on days 3, 6, and 9.

They should demonstrate something you did that was cool and related to server-side development.

Day 1



Server-Side Languages

SSL Rubric - <http://goo.gl/F0BFo>

| Assignments | Points |
|---------------------|--------|
| Labs 1-7 and videos | 30 |
| Two-day project | 30 |
| Practical final | 30 |
| Professionalism | 10 |

Day 1



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.

Day 1



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/SSL1306>

Day 1



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

Day 1



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>
```

Day 1



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').

Day 1



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: _
```

Day I



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: _
```

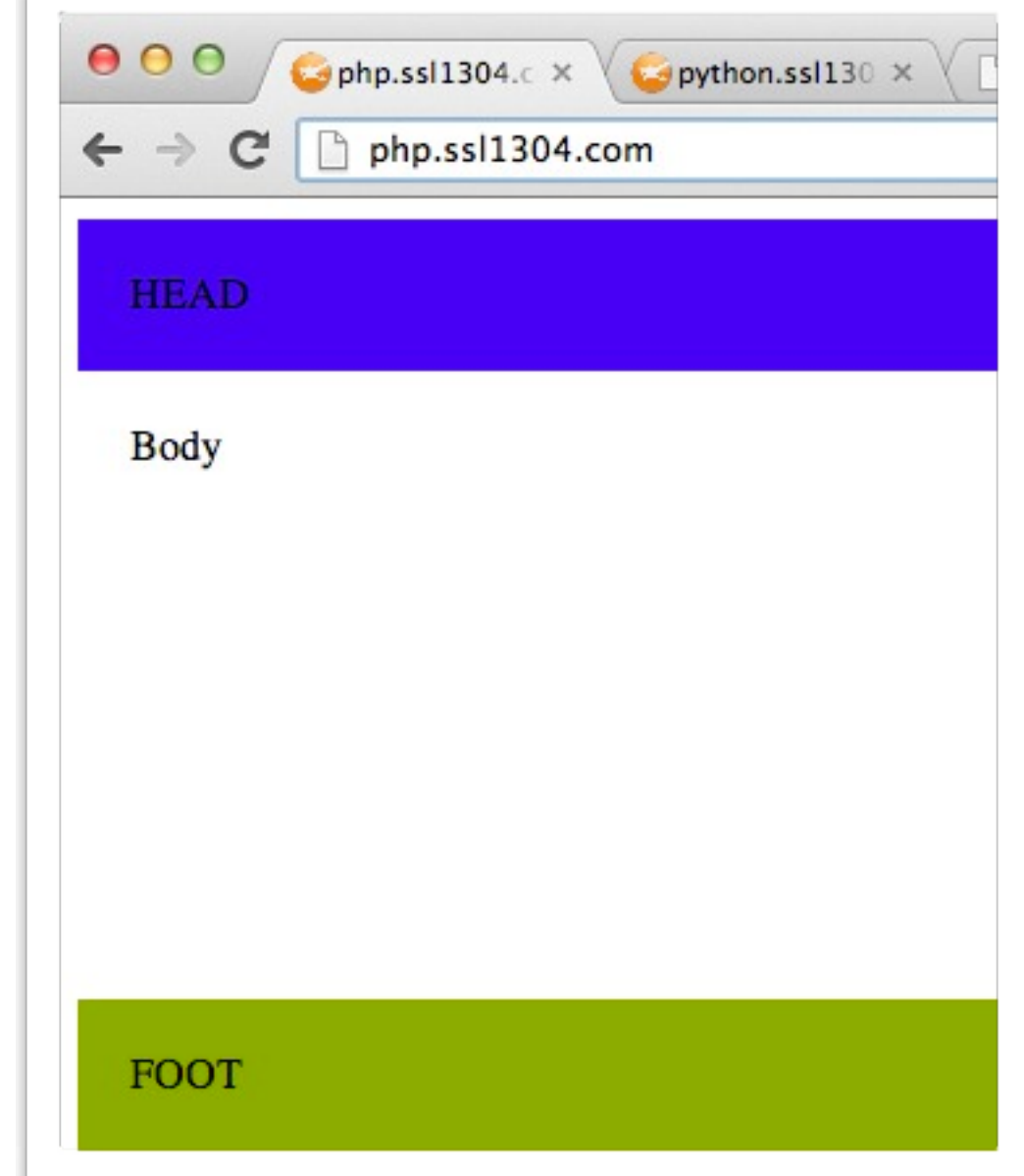
Day I



Server-Side Languages

Virtual Hosting Test

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



Day 1



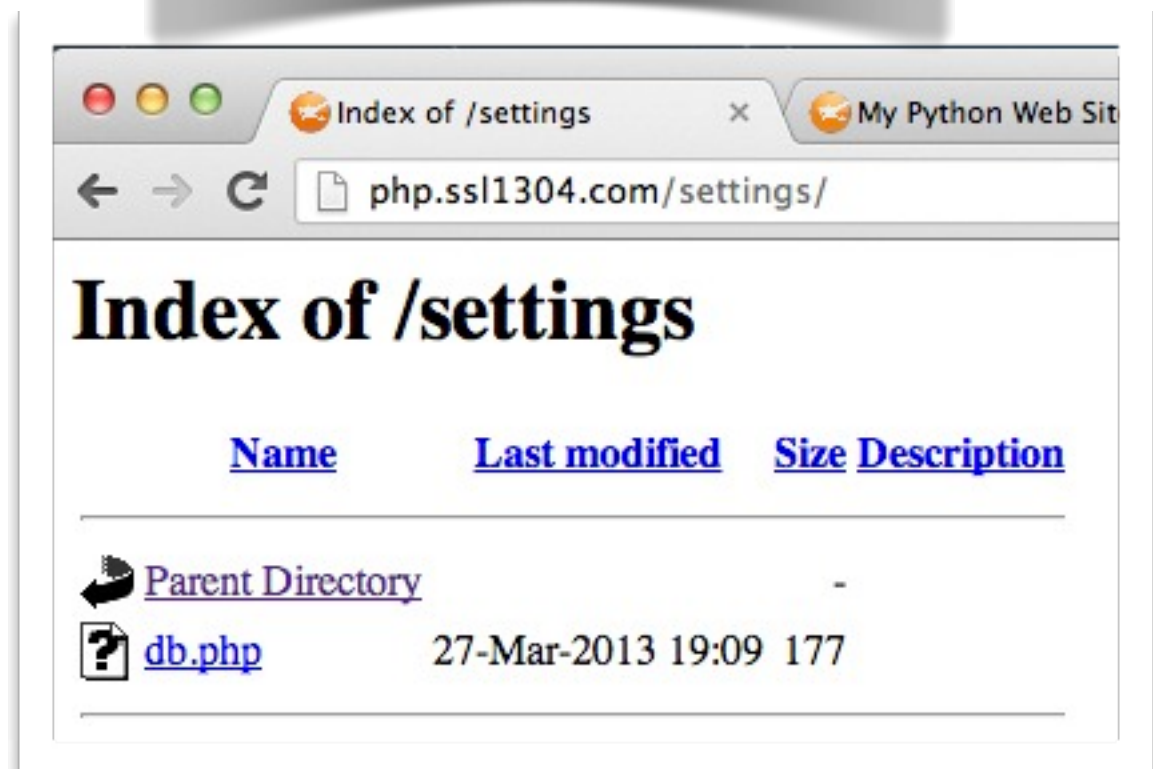
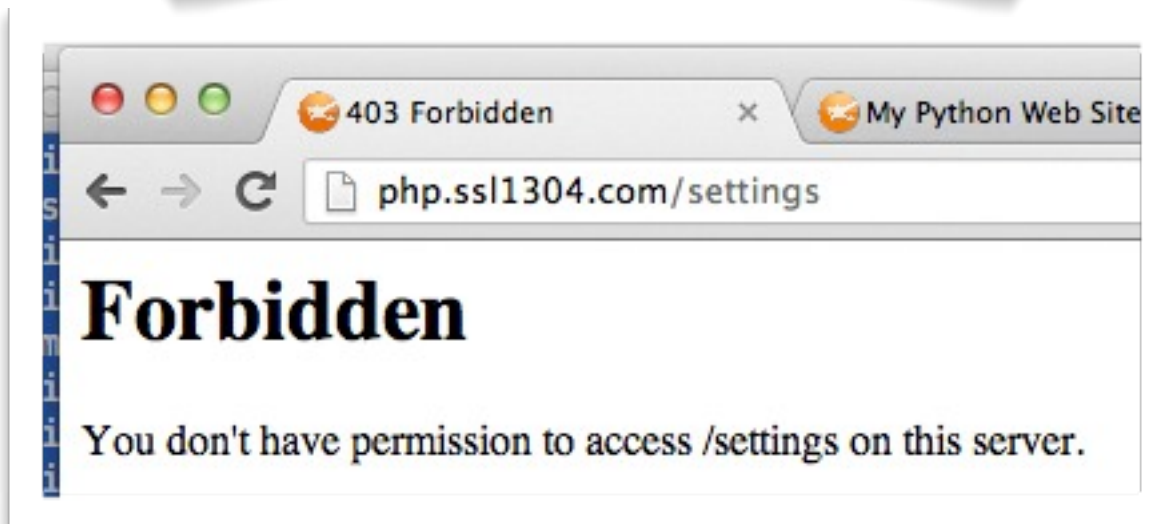
Server-Side Languages

.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

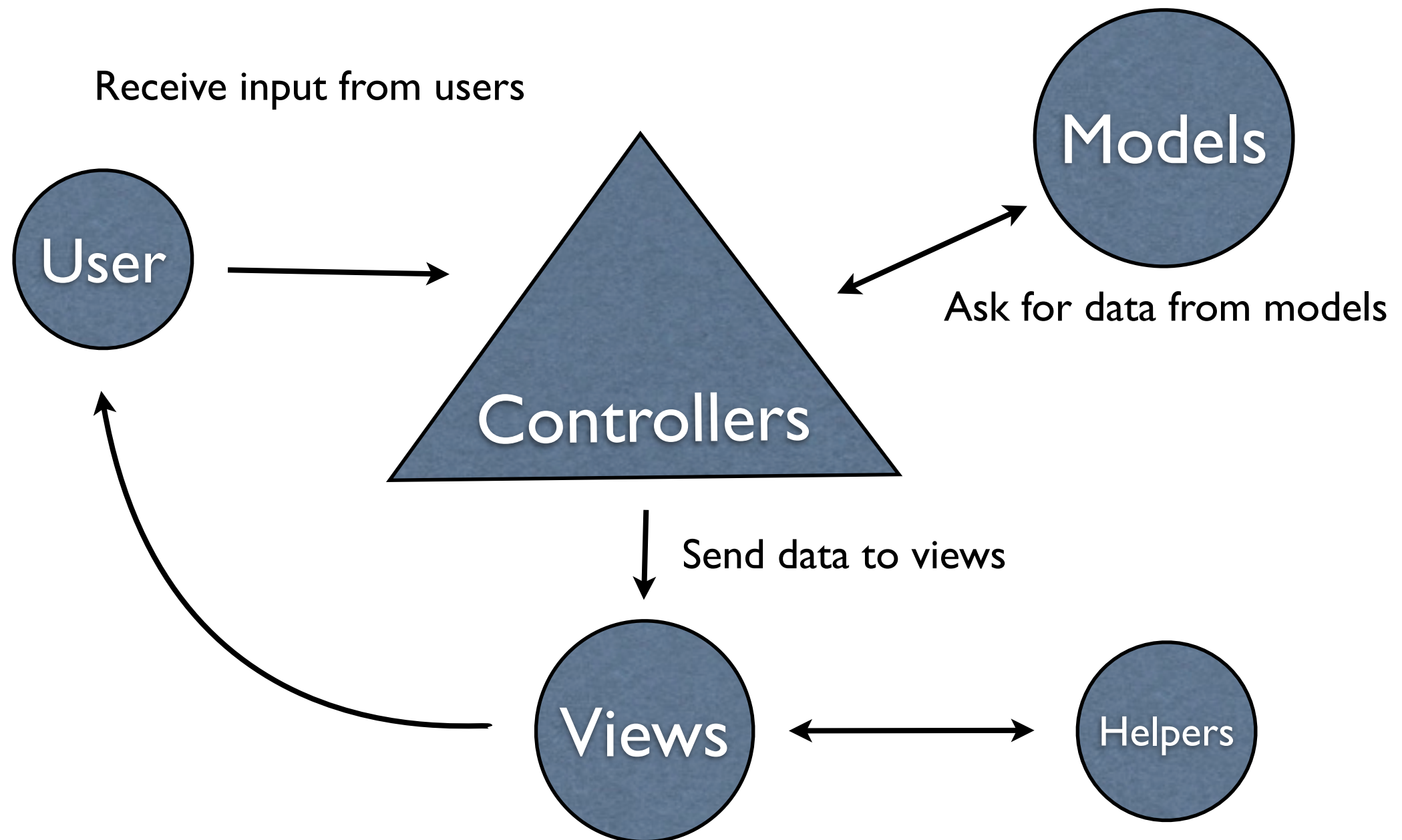
If htaccess files are enabled on the server then they will be looked for in every directory. Therefore, your website will be slower.

```
<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>
```



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);

?>
```

Day 1



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>
```

Day I



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)
```

Day 1



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

Day I