Server-Side Languages

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Welcome to SSL!

We will learn to build websites with PHP and Python.

Day 1

About Me

Todd Smith

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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

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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?

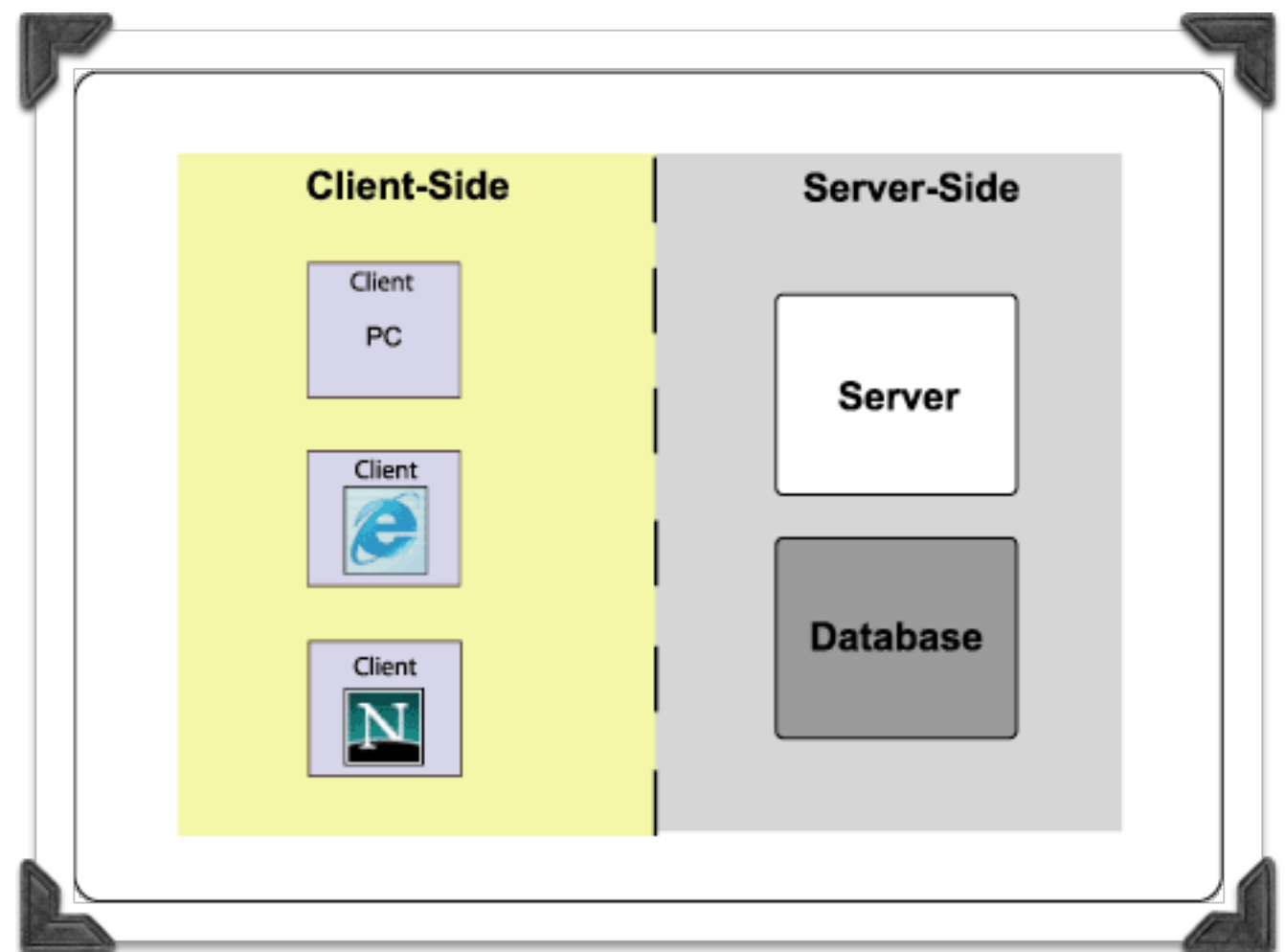Day 1

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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

Day 1

Server-Side Languages

Daily Calendar

Day 1	Day 2	Day 3
1. Server Configuration 2. Git Repository Setup 3. Includes 4. Views	1. Controller Classes 2. Pretty URLs	1. URL & Form Data 2. Validation

Day 4	Day 5	Day 6
1. Database Queries 2. Model Classes	1. Hashing and Salting 2. PHP Sessions	1. JSON 2. Services

Day 7	Day 8	Day 9	Day 10
1. CodeIgniter 2. Django 3. Start 2-day projects	1. Work on projects	1. Present Projects 2. Review for Practical	Practical Exam

Day 1

Screencasts

4% of your grade (like one lab)

You must make at least one.

They should demonstrate something you learned in class. Make your video instructive and useful for students in the next SSL class.

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Server-Side Languages

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

Assignments	Points
Labs 1-7 and videos	32
Two-day project	28
Practical final	30
Professionalism	10

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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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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/SSL1308

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Server-Side Languages

Our Languages of Choice

php	python
•php.net	•python.org
•widely supported	•widely supported
•open source	•open source
•more symbols	•more english

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Basic Website Structure

header

nav

body

footer

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Server-Side Languages

Virtual Hosting Setup part 1

```
tbsmith — bash — 62×5
~: sudo vi /etc/apache2/httpd.conf
```

```
tbsmith — vim — 62×5
# Virtual hosts
Include /private/etc/apache2/extra/httpd-vhosts.conf
```

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

```
tbsmith — vim — 38×5
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
```

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Server-Side Languages

Virtual Hosting Setup part 2

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

```
#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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Starting the scripts

PHP:

```
html can be here

<?php

phpinfo();

?>

and here
```

Python:

```
#!/usr/bin/python

import cgi

cgi.test()
```

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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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Set up your PHP website

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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: _
```
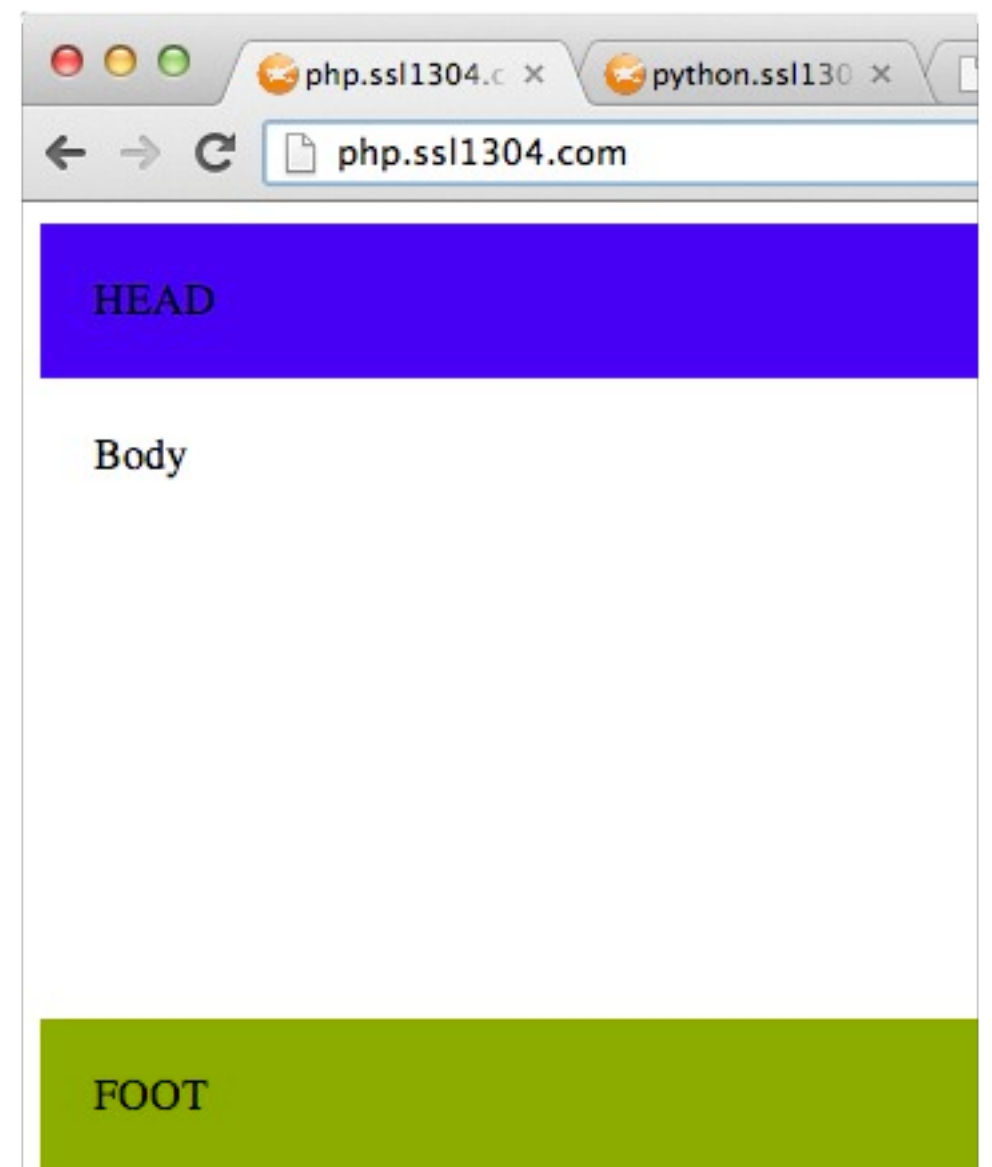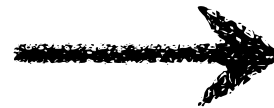
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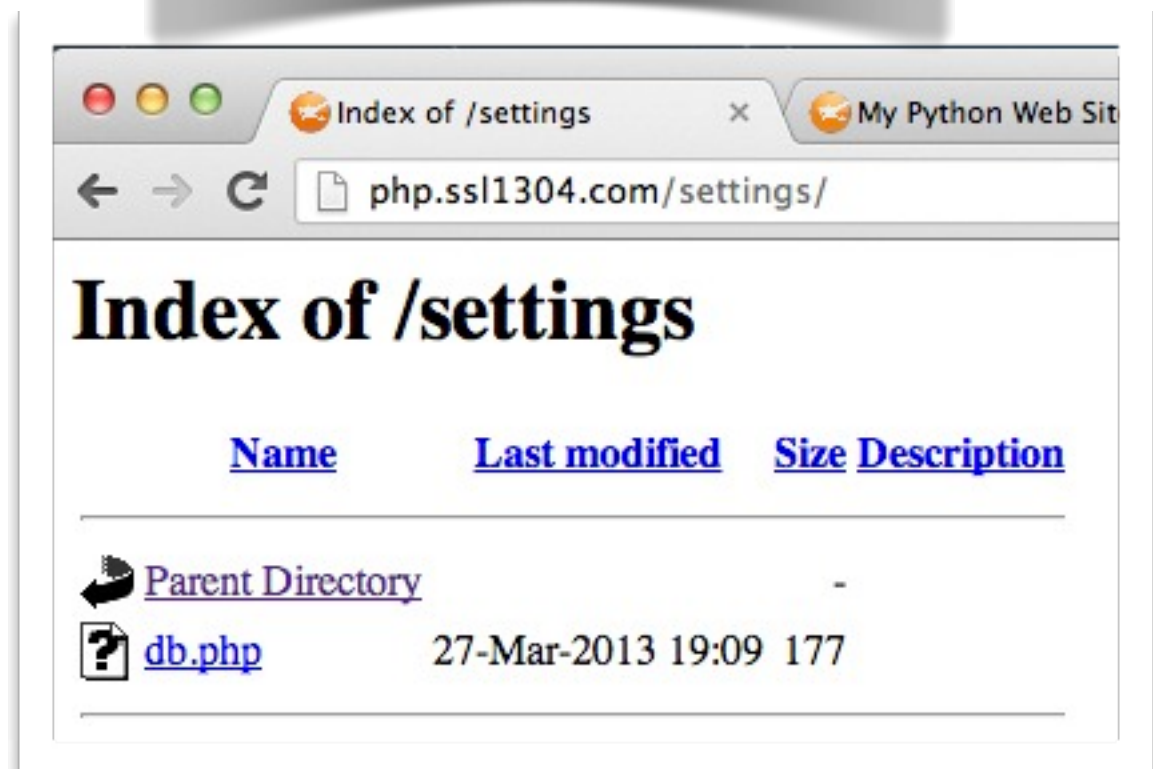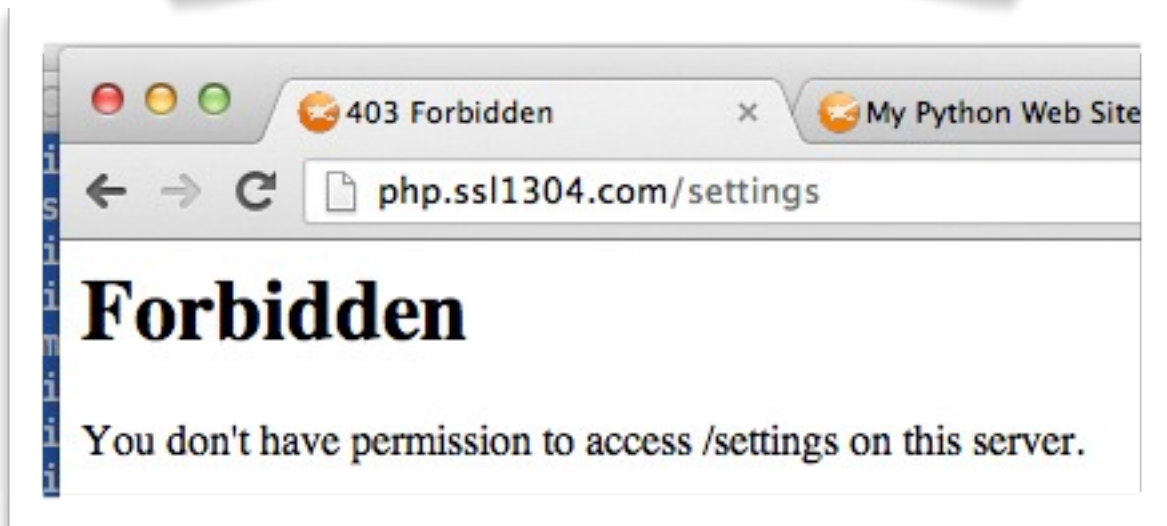# Server-Side Languages

Virtual Hosting Test

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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

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Server-Side Languages
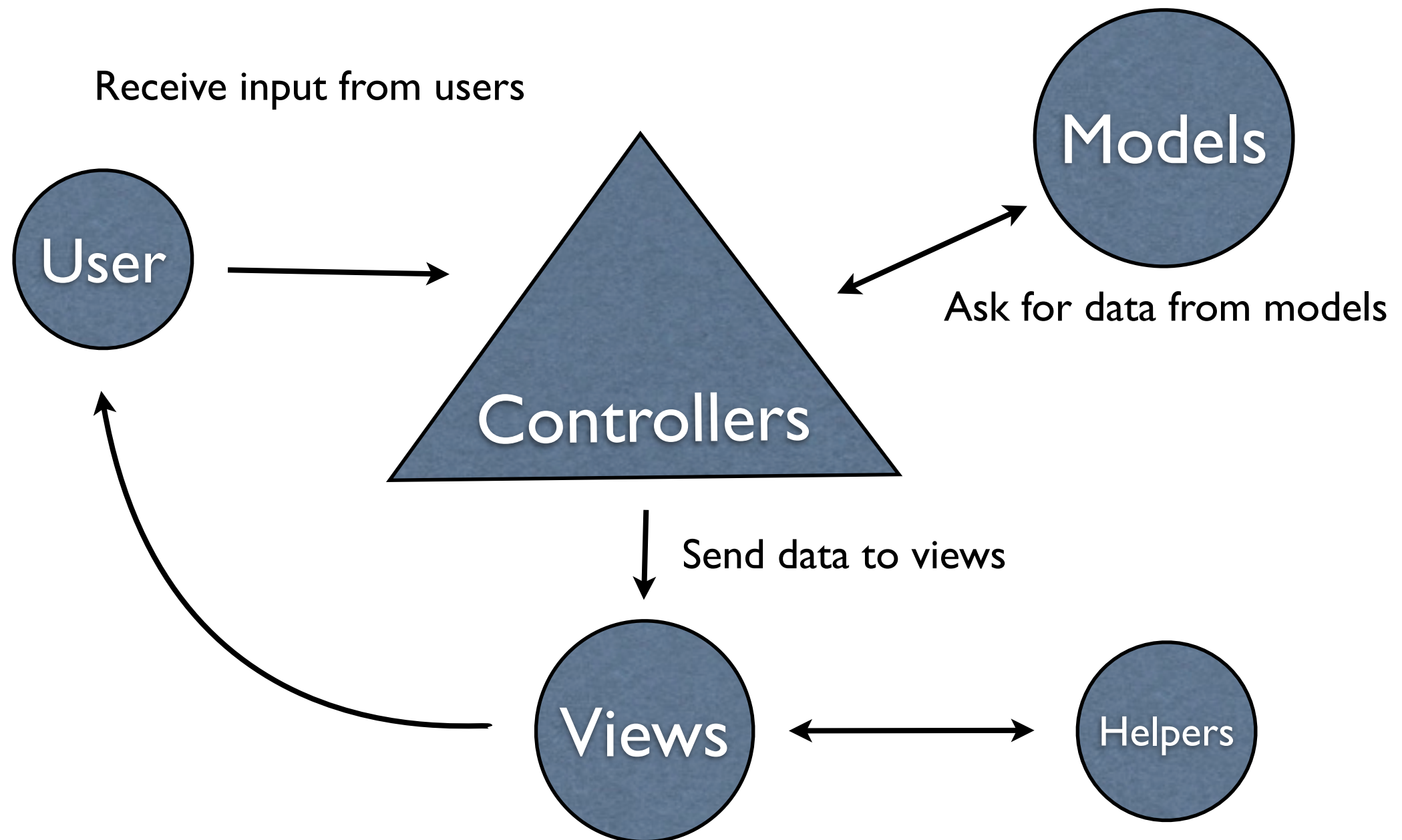
Apache config file directives

If htaccess files are enabled on the server
then they will 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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MVC

Receive input from users

User → Controllers

Models

Ask for data from models

Send data to views

Views ↔ Helpers

Day 2

Server-Side Languages

Using a model and views: index.php

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

```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

```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

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

```python
#!/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

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

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Lab 1: 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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