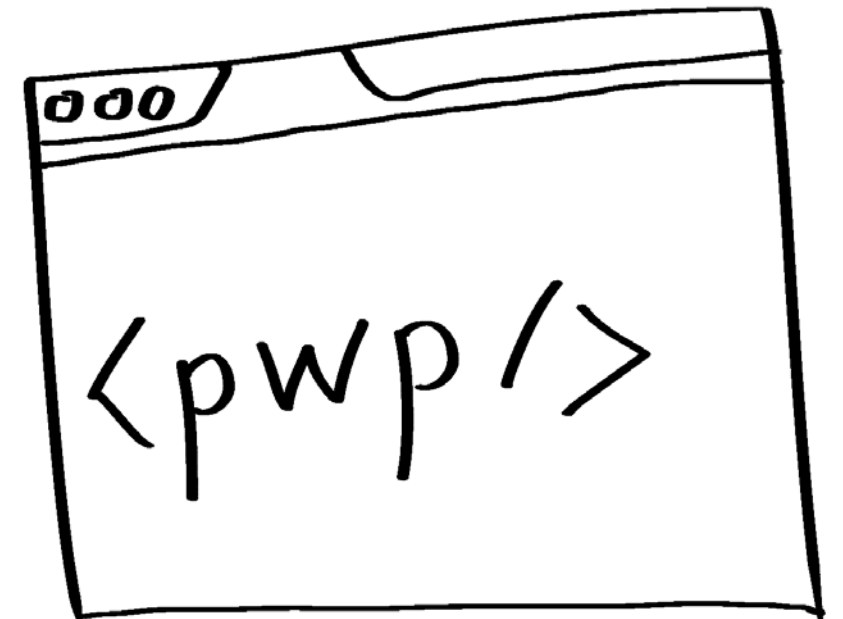


# Practical Course: Web Programing

Human-Centered Ubiquitous Media  
Prof. Dr. Albrecht Schmidt, Thomas Kosch

Summer Term 2018



# Agenda

- Organization of this course
- Principles and introduction of the web
- Discussion Exercise 1

# Organization

- **Dozent:** Prof. Dr. Albrecht Schmidt
- **Kontakt:** ✉ |✉ [pwp@um.ifi.lmu.de](mailto:pwp@um.ifi.lmu.de)
- **Semesterwochenstunden:** 4
- **ECTS-Credits:** 6
- **Modul:** Master P5.0.2 oder P5.0.4: Gruppenpraktikum zu fortgeschrittenen Themen der Informatik I oder Informatik II  
Nach Rücksprache mit dem Prüfungsausschuss auch Anerkennung für P2, P3 oder P6 (Vertiefende Themen für Master) möglich  
Bachelor P17, P18: Vertiefende Themen der Medieninformatik I oder II

Supervisor: Thomas Kosch

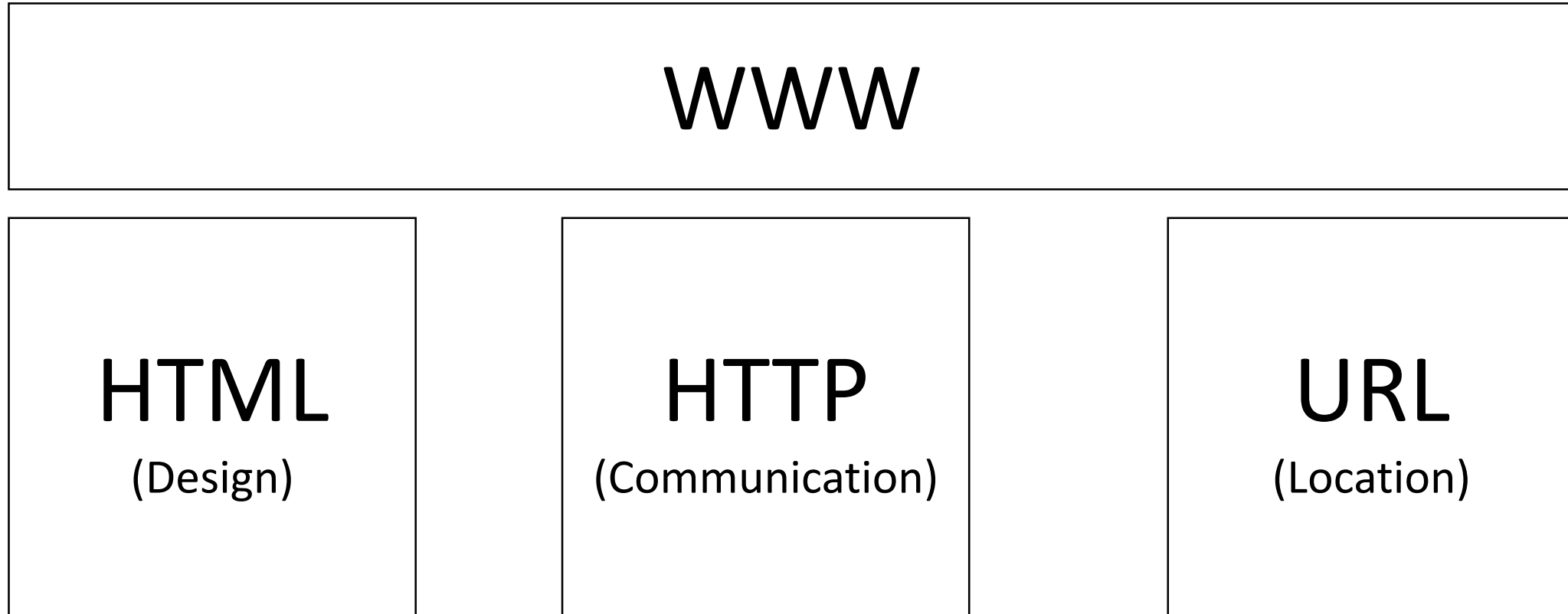
If you have any questions, write a mail, pass by the office, or ask in the Slack channel: <https://mimuc.slack.com/messages/pwp-ss18/>



# Semester Plan

Date	Topic
16.04.18	Introduction to web programming
23.04.18	No session
30.04.18	Presentation results + NodeJS API
07.05.18	Introduction to databases (Mongo, MySQL)
14.05.18	Javascript libraries + CSS

# A (coarse) Architecture of the World Wide Web



# Hypertext Markup Language (HTML)

HTML: This is what your browser sees!

```
<html>
  <body>

    <h1>Hello Web Programing Course :)</h1>

    <h2>This is a simple HTML example!</h2>

    <p>In this course, you will learn the principles behind
the web and develop your own web application!</p>

  </body>
</html>
```

This is what you see!

**Hello Web Programing Course :)**

**This is a simple HTML example!**

In this course, you will learn the principles behind the web and develop your own web application!

**Example:** `curl -i -H "Accept: application/xml" http://ubicomp.net`

Visit a webpage, right click and press “View page source”

# Other Web Technologies

## PHP

```
<!DOCTYPE html>
<html>
<body>

<h1>My first PHP page</h1>

<?php
echo "Hello World!";
?>

</body>
</html>
```

## Javascript

```
<script>
  alert( 'Hello, world!' );
</script>
```

## CSS

```
.center {
  text-align: center;
  color: red;
}
```

# Hypertext Transfer Protocol (HTTP)

**Example GET Request:** `curl -I http://ubicomp.net`

## **Response:**

HTTP/1.1 200 OK

Date: Sun, 15 Apr 2018 12:44:56 GMT

Server: Apache

Last-Modified: Wed, 01 Nov 2017 16:33:19 GMT

ETag: "702-55cee6de9e9fe"

Accept-Ranges: bytes

Content-Length: 1794

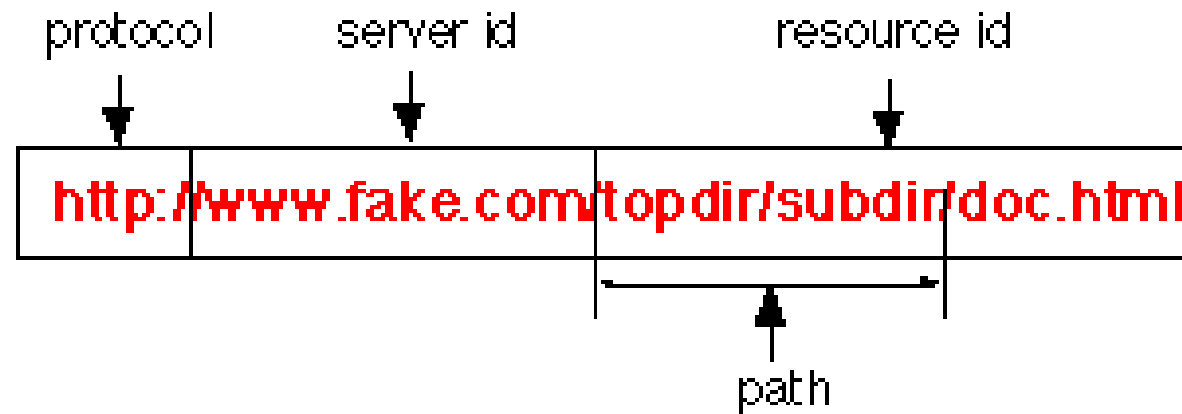
Vary: Accept-Encoding

Content-Type: text/html



# Uniform Resource Locator (URL)

- A simple web address



What is a Webserver?  
What Webserver do you already know?

# Webserver Technologies

## **Apache:**

- Handles static content
- Separate threading
- Old and complex

## **Nginx:**

- Handles static content
- No separate threading
- Handles requests fast
- Lightweight and resource-friendly

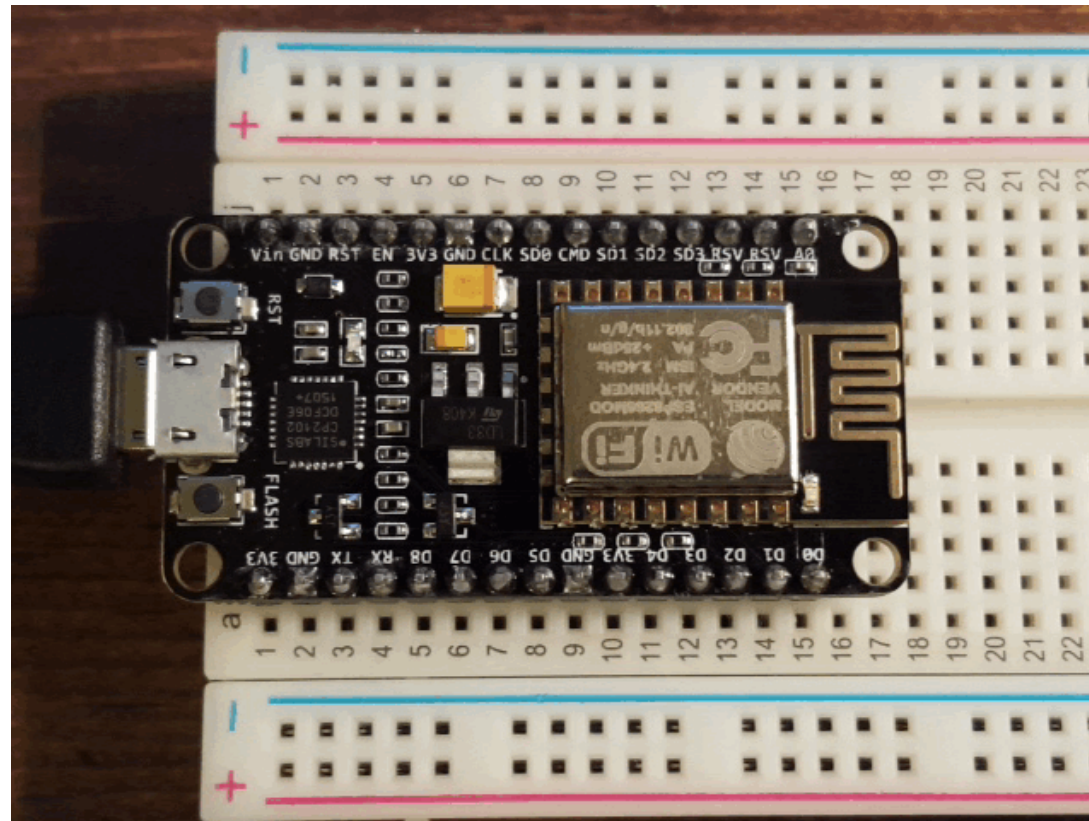
## **NodeJS:**

- Handles dynamic content
- Asynchronous requests
- Handles requests fast
- Lightweight and resource-friendly

How do you usually search the internet?  
How is your browser finding the desired content?

# Hosting your own Webserver at your Home

- For example with a NodeMCU (ESP8266)



# Discussion Exercise 1