



UNIVERSITAS
GADJAH MADA

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Course: Web-based GIS
(TKD1206)

Server-side Scripting dengan PHP: Hypertext Preprocessor

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An aerial photograph of a city, likely Yogyakarta, Indonesia, showing a dense urban area with a prominent university campus in the foreground. The campus features several large, modern buildings and green spaces. The background shows a vast cityscape with numerous smaller buildings and roads. The image is overlaid with a semi-transparent white layer containing text.

WebMap ≠ A map accessible online

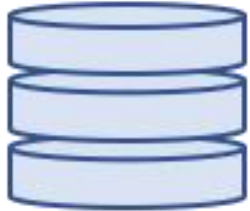
WebMap = A Web-Powered Map

Meaning: interactivity, multiple layers, dynamic data, multi-user, etc

Map Data

Tiles

Viewing



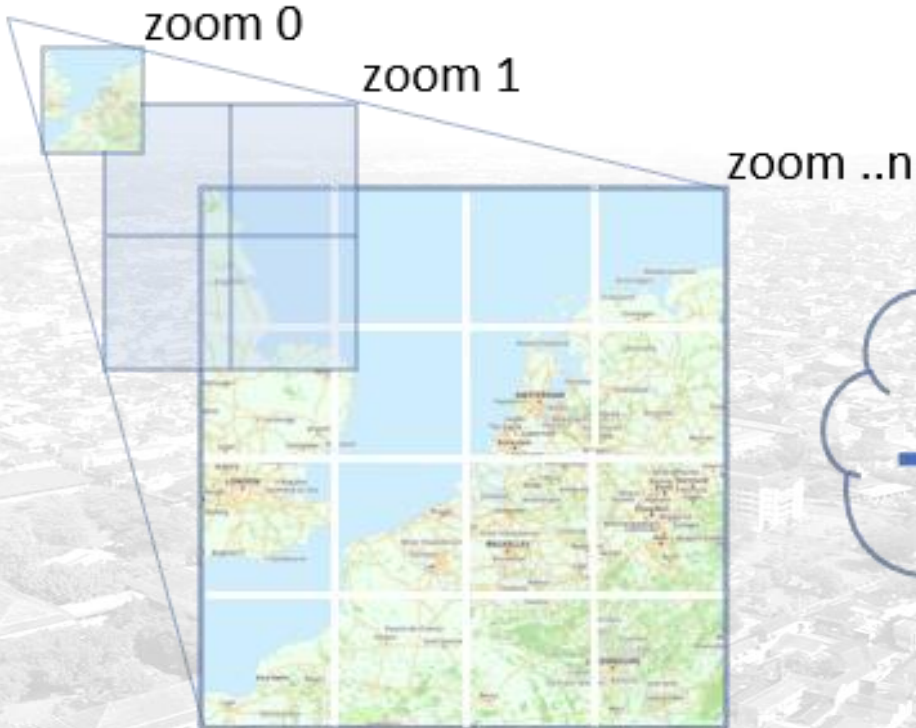
Tiling Engine (server)

Javascript WebMap Libraries



Raster Data

Vector Data



(LeafletJS, OpenLayers, Mapbox, Google Maps, etc)





How 'Internet' Works

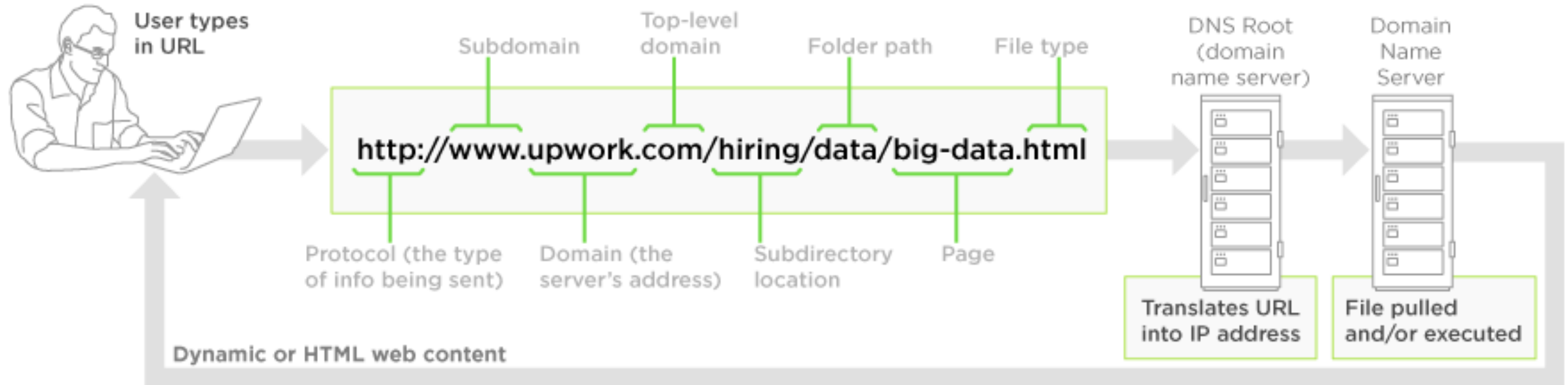


Arsitektur Web: Dari client ke server

FROM URL TO YOU: HOW SERVERS WORK



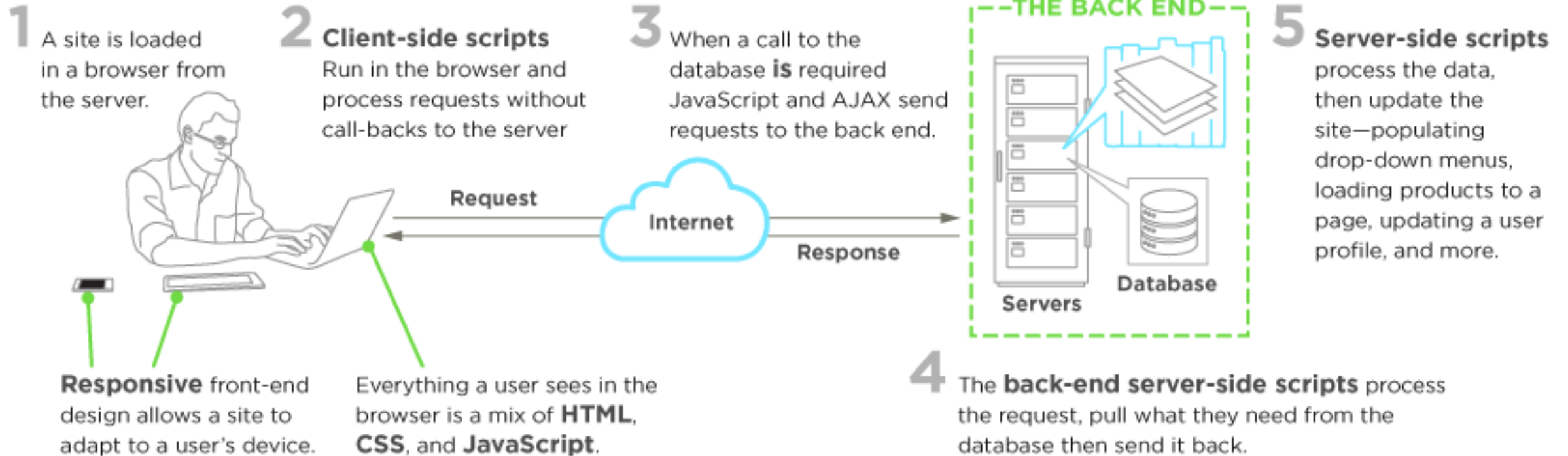
When you type a URL (uniform resource locator) into a browser, it's broken down into parts that make it a very specific address. This is translated into an IP address, telling the server exactly where to look for a file.



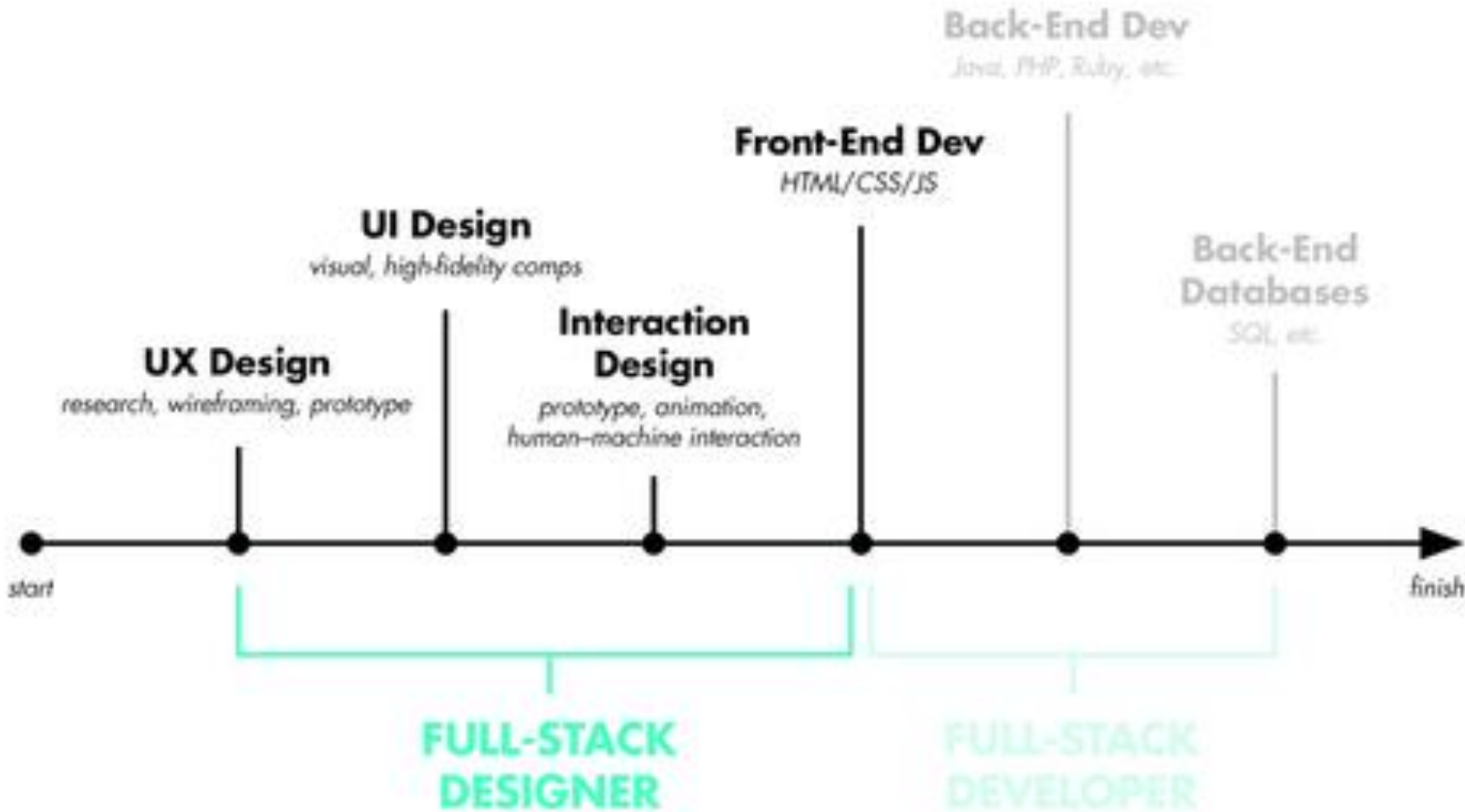
For static content, the HTTP server sends an HTML file back to the browser, which is read and displayed. For dynamic content, a server first executes then returns the file.

What we've learnt so far

FRONT-END DEVELOPMENT



What we've learnt so far



Frontend stacks:

- HTML, CSS, JS
 - Bootstrap
 - LeafletJS
 - Angular
 - React
 - Vue
 - etc.....
- (you name it)

Desain UX/UI

Desain aplikasi
harus
menyesuaikan
kebutuhan. Bukan
sebaliknya



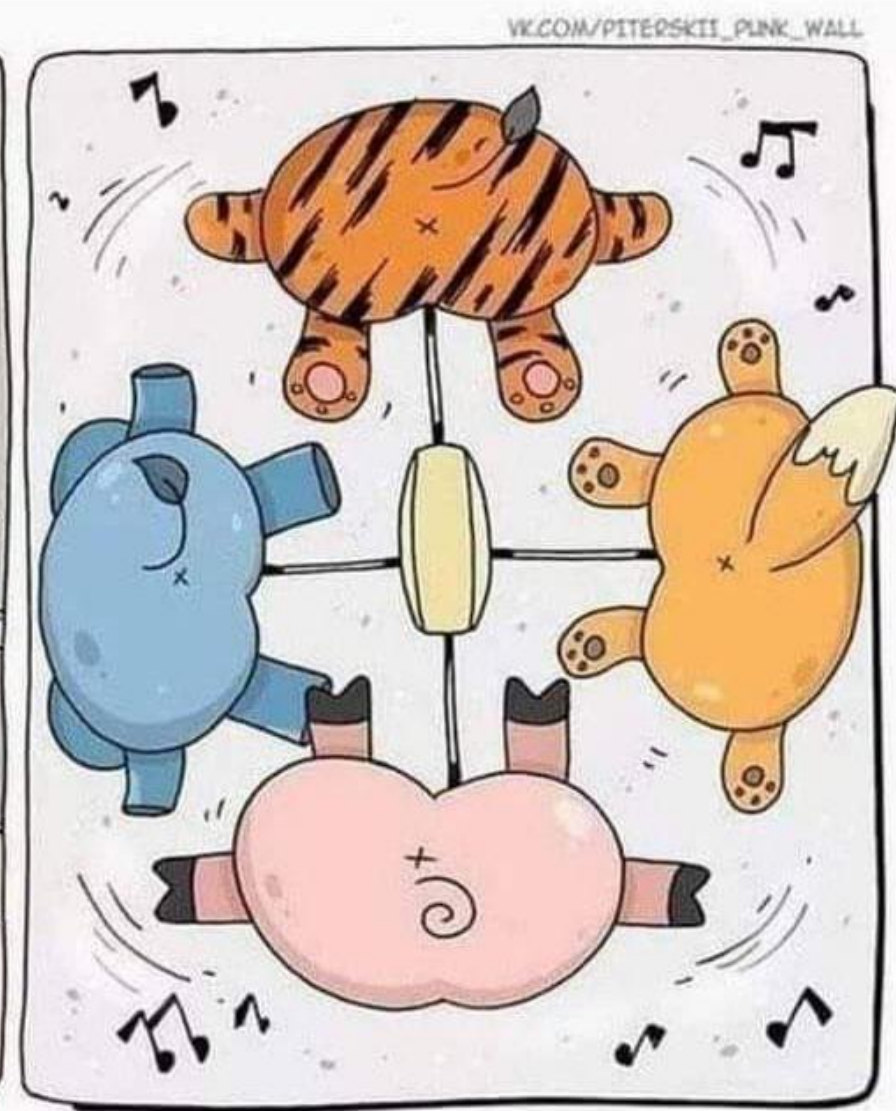
User experience

Design

UI

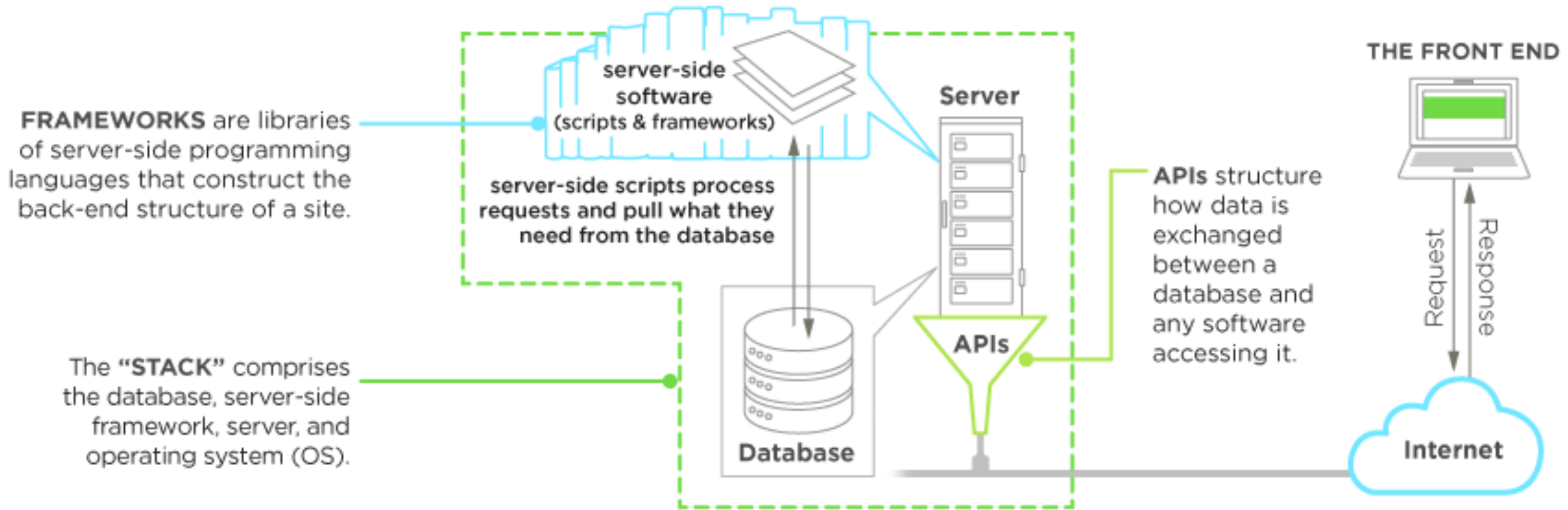
UX

What we've
learnt
so far

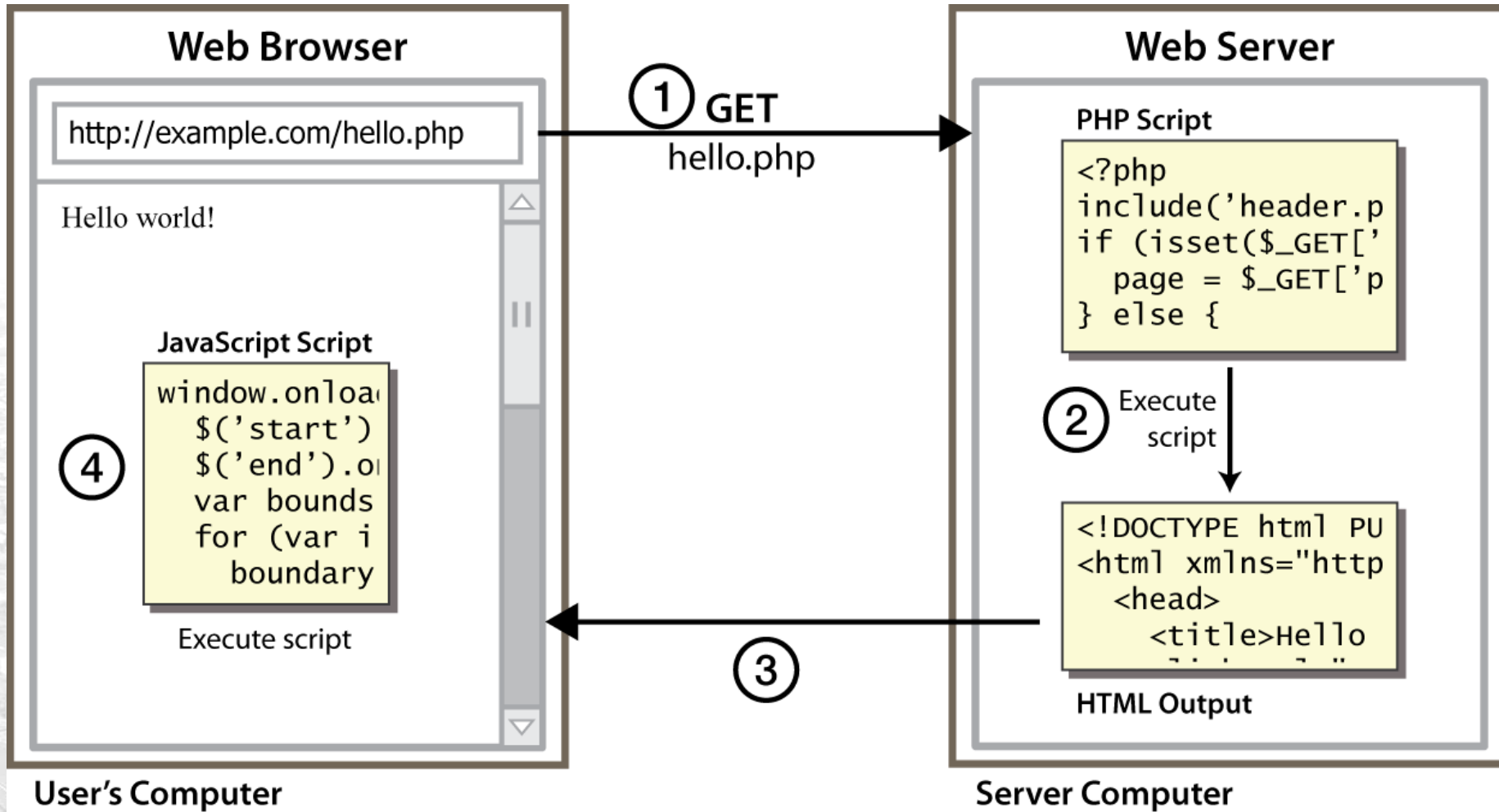


What Backend Developers do?

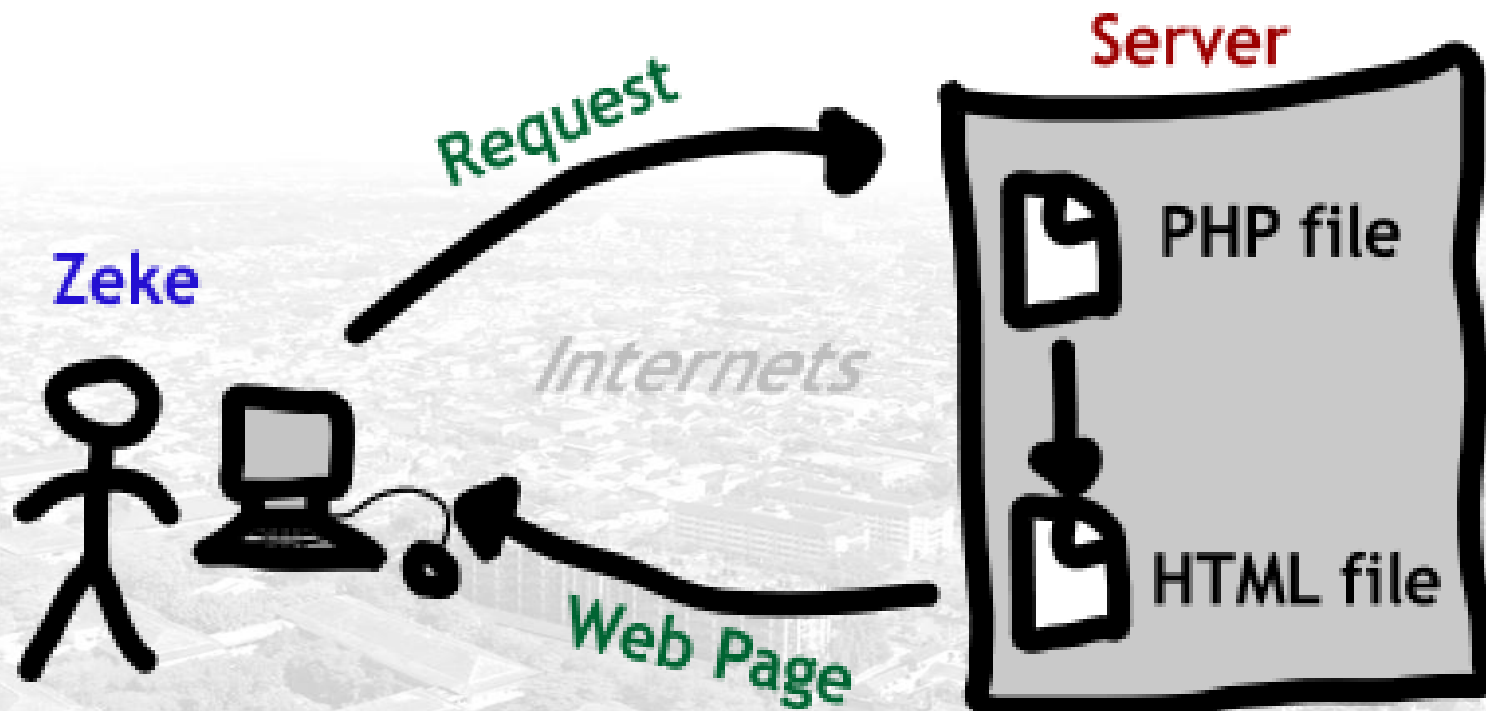
BACK-END DEVELOPMENT & FRAMEWORKS IN SERVER SIDE SOFTWARE



Client-side vs Server-side Scripting



Client-side vs Server-side Scripting



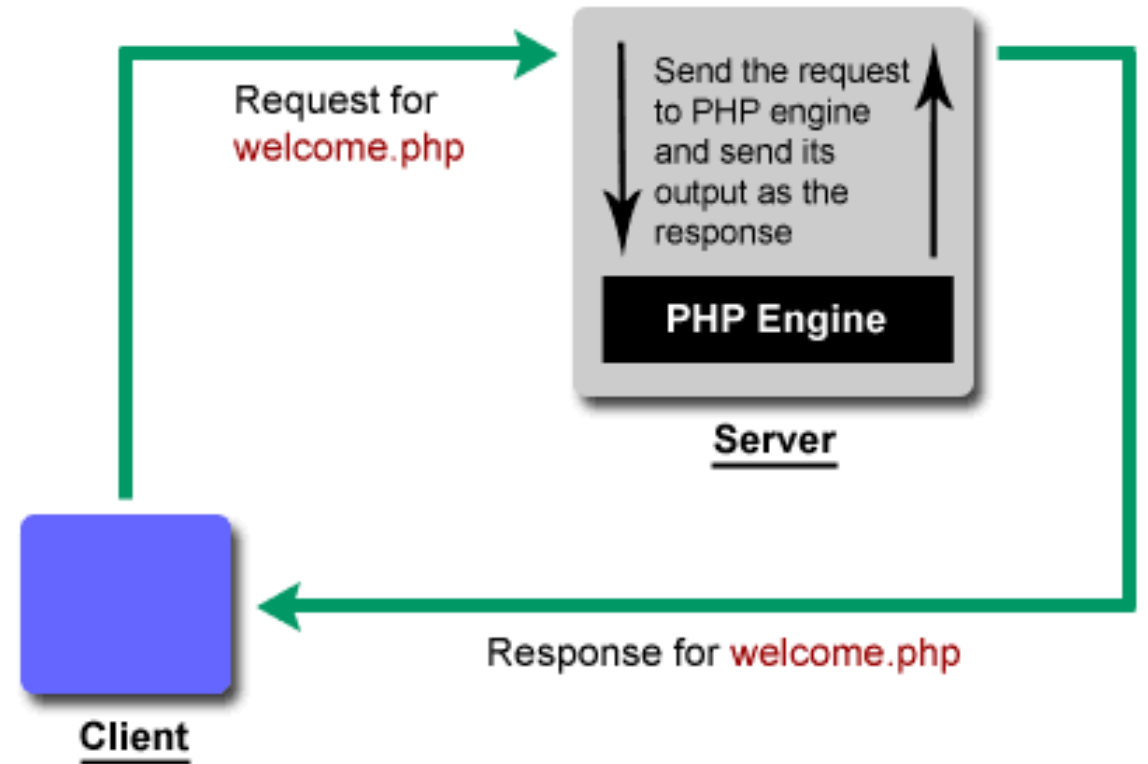
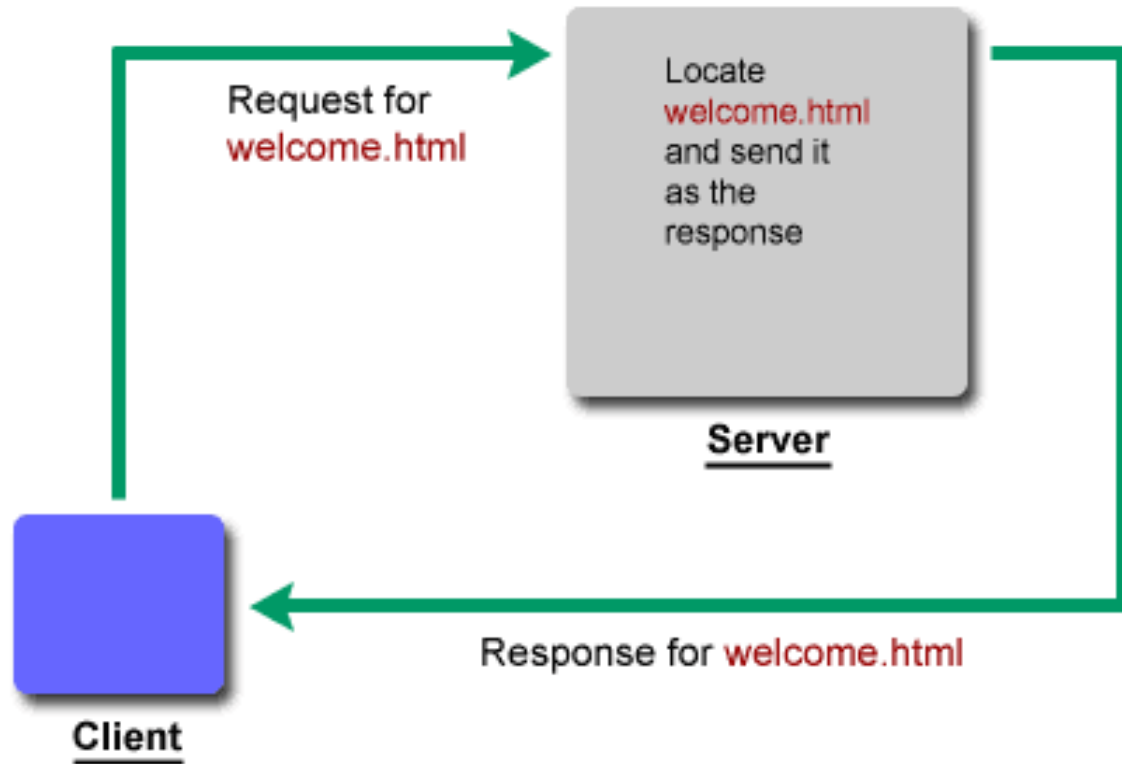
Backend stacks:

- PHP/Java/Python, etc
 - Operating System
 - Database
 - Apache/NGINX
 - Tomcat
 - etc..
- (you name it)

“Dad, I want to be a programmer..”



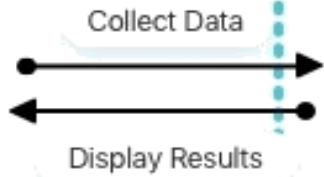
Client-side vs Server-side Scripting



Arsitektur Server



Users



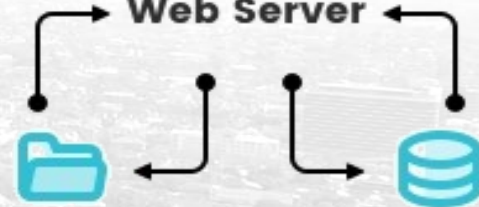
What the User Sees
& Interacts with
HTML, CSS, JavaScript

Frontend



Contains App Logic
PHP, JavaScript, Python, Java

Web Server



File System

HTML, CSS, Images

Database

MySQL, PostgresSQL,
MariaDB

Backend

Web Application Architecture

An aerial architectural rendering of a city. The top half shows a dense urban core with several tall skyscrapers. A river flows through the middle of the city, crossed by a bridge. The bottom half shows a more suburban or residential area with smaller buildings, green spaces, and a baseball field. The style is a detailed line drawing with light color washes.

PHP: Hypertext Preprocessor

What is PHP?

- PHP : Hypertext Preprocessor
- Script PHP memiliki ekstensi standar ***.php**
- **Server-Side Scripting Language**: agar sebuah file *.php dapat digunakan, PHP harus terlebih dahulu **diinstall** pada SERVER.
- Ditandai dengan tag **<?php** dan **?>**
- Sebuah file *.php tidak hanya dapat digunakan untuk script php, tetapi dapat juga berisi suatu text, script html, maupun JavaScript
- Alternatif Server-Side Script lainnya: **NODEJS**, Perl, ASP, Java, Cold Fusion, dll

What is PHP?

```
<html>
<head></head>
<body>
<h1> The hello world</h1>
  <?php
    $text1 = "Hello";
    $text2 = "world";
    echo $text1." ".$text2."!";
  ?>
  <p> Ini paragraf html </p>
  <?php echo "ini paragraf di dalam
  php"; ?>
</body>
</html>
```

- Sebuah script php dapat diletakkan diantara script html atau berdiri sebagai sebuah script sendiri
- Variable pada bahasa PHP dinyatakan dengan tanda '\$'
- PHP bersifat **loosely typed**, artinya variabel akan didefinisikan sesuai dengan data yang diisikan
- Nama variabel dan konstanta bersifat *case-sensitive*, sedangkan fungsi pada PHP bersifat *case-insensitive*

Client-side Scripting

- Dijalankan pada **komputer pengguna**
- Setelah browser pengguna mengirimkan perintah 'request', file yang dibutuhkan didownload dan berada di komputer pengguna
- Script dijalankan pada file yang sudah didownload ini tanpa ada komunikasi lebih lanjut dengan server
- Apabila diperlukan perubahan, seluruh dokumen harus diproses kembali ke server terlebih dahulu
- Contoh client-side script: Javascript, html, xml

Server-side Scripting

- Operasi dijalankan **di server**
- Setelah pengguna melakukan request, Client-side script akan membuat file output yang bisa dibaca di browser pengguna
- 'File keluaran' ini bisa berupa file html, xml, pdf, dan lain-lain
- Perubahan (misalnya isi suatu tabel) tidak harus dilakukan pada keseluruhan dokumen. Cukup bagian tertentu yang dikirim ke server untuk diproses
- Contoh server-side script: PHP, Java, ASP, Perl

Client-side vs Server-side Scripting

Client-side Scripting

```
<html>
<body>
  <h1 id="hello"> A'oooo
</h1>
  <script>
document.getElementById('
hello').innerHTML = 'Hello';
  </script>
</body>
</html>
```

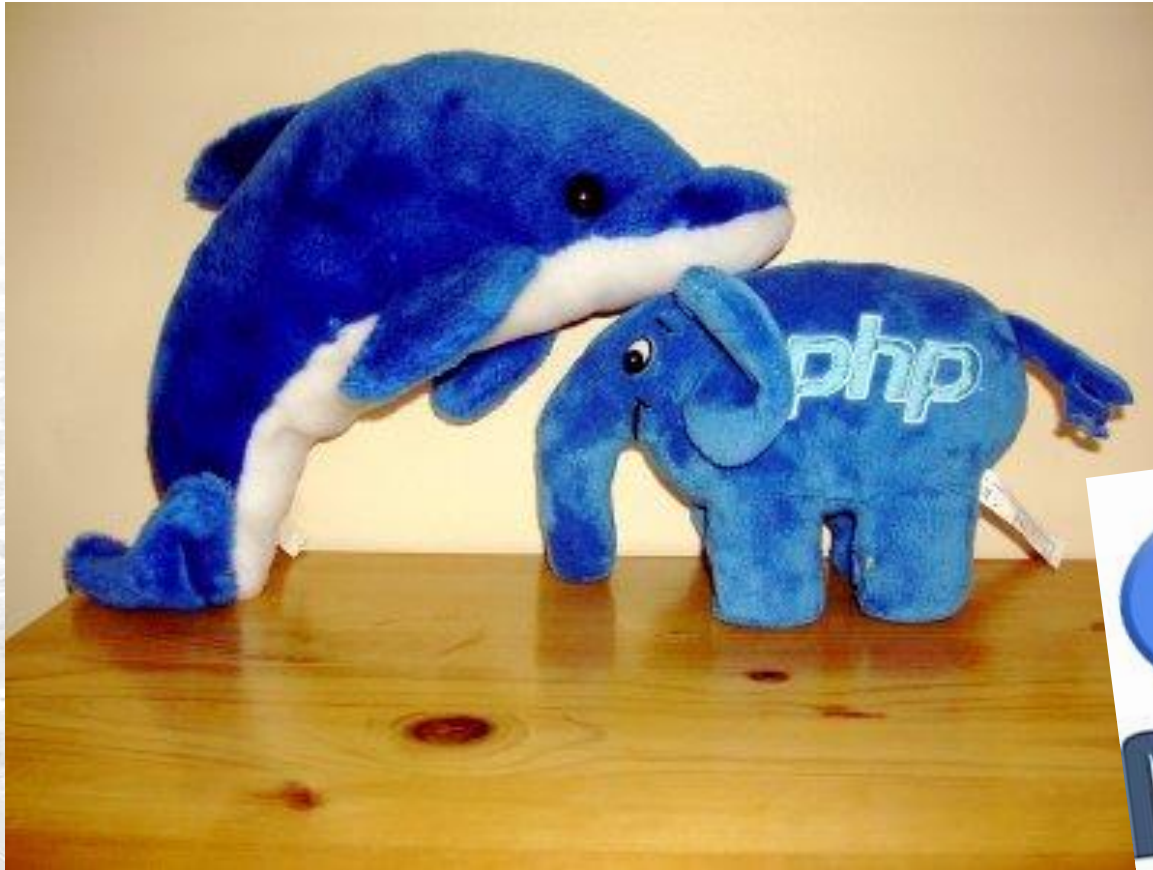
Helloo.html

Server-side Scripting

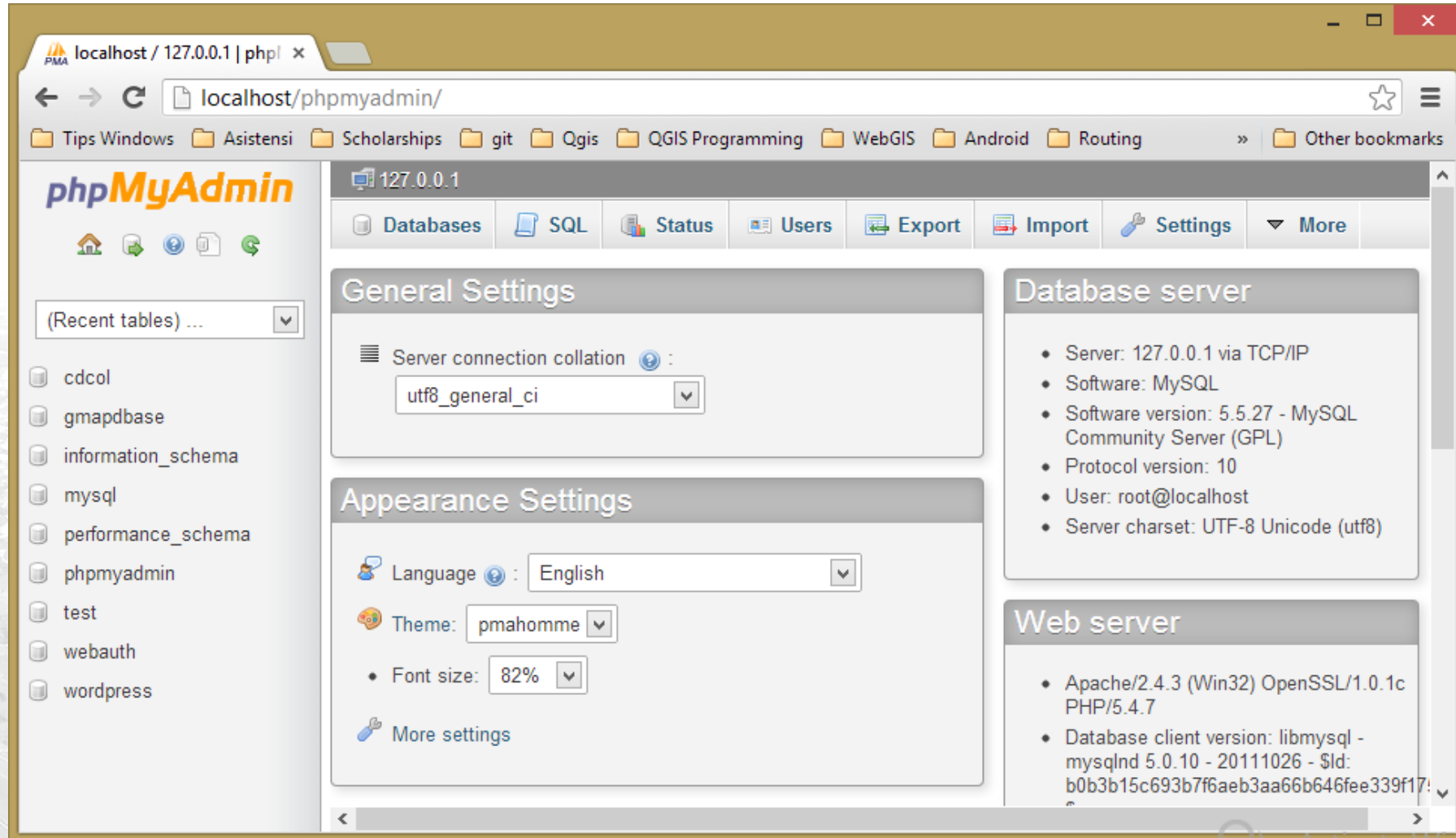
```
<html>
<body>
  <h1 id="hello">
    <?php echo 'Hello'; ?>
  </h1>
</body>
</html>
```

Helloo.php

PHP and MySQL is best friend



PHPMyAdmin: PHP for MySQL

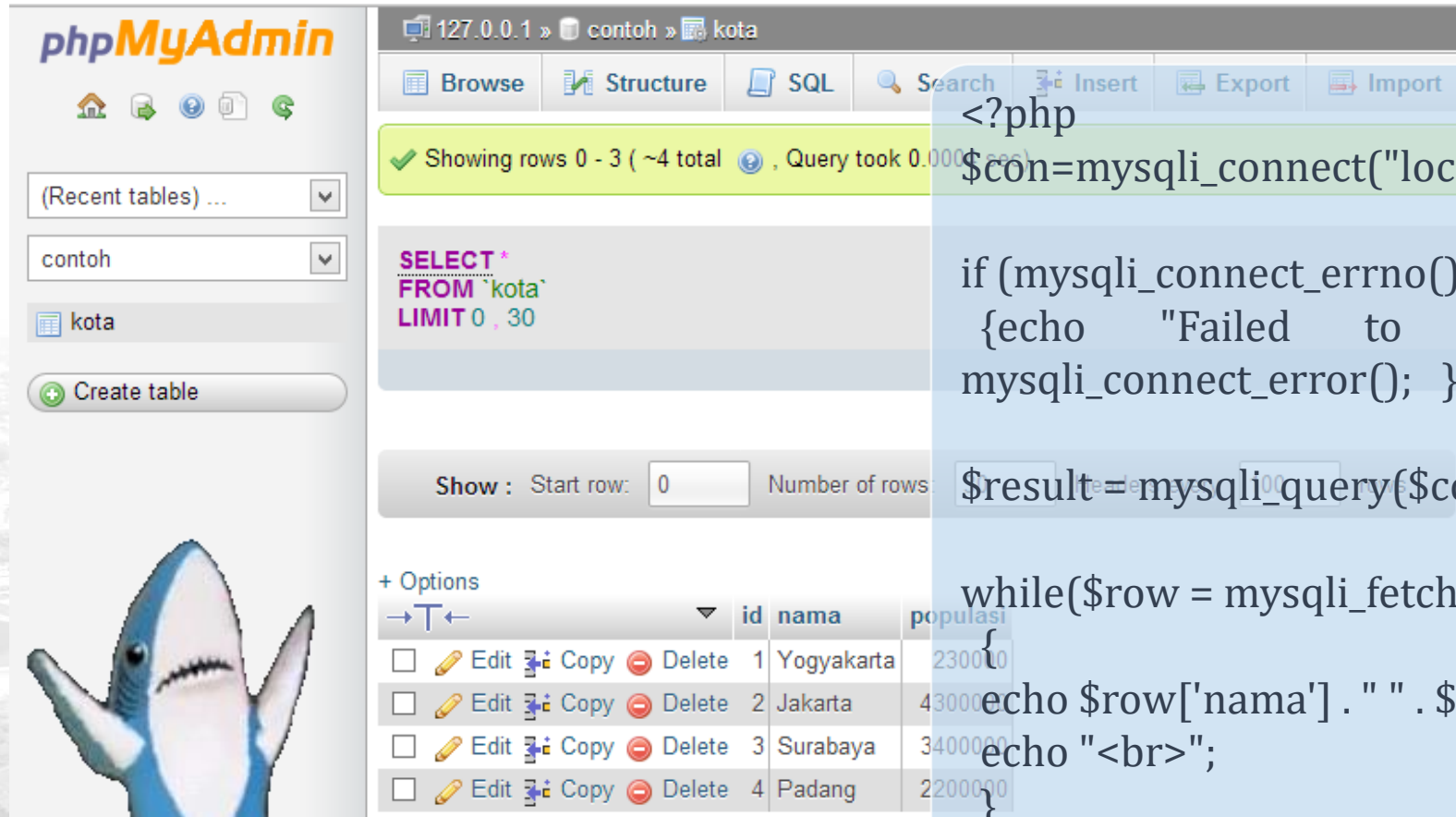


The screenshot displays the PHPMyAdmin web interface in a browser window. The browser's address bar shows the URL `localhost/phpmyadmin/`. The interface includes a navigation menu with options like Databases, SQL, Status, Users, Export, Import, Settings, and More. The main content area is divided into several panels:

- General Settings:** Shows the "Server connection collation" set to `utf8_general_ci`.
- Appearance Settings:** Shows the "Language" set to "English" and the "Theme" set to "pmahomme". The font size is set to 82%.
- Database server:** Lists server details: Server: 127.0.0.1 via TCP/IP, Software: MySQL, Software version: 5.5.27 - MySQL Community Server (GPL), Protocol version: 10, User: root@localhost, and Server charset: UTF-8 Unicode (utf8).
- Web server:** Lists web server details: Apache/2.4.3 (Win32) OpenSSL/1.0.1c PHP/5.4.7, and Database client version: libmysql - mysqlnd 5.0.10 - 20111026 - \$Id: b0b3b15c693b7f6aeb3aa66b646fee339f17\$.

A sidebar on the left lists recent tables, including `cdcol`, `gmapdbase`, `information_schema`, `mysql`, `performance_schema`, `phpmyadmin`, `test`, `webauth`, and `wordpress`.

PHPMyAdmin: PHP for MySQL



phpMyAdmin

127.0.0.1 » contoh » kota

Browse Structure SQL Search Insert Export Import

Showing rows 0 - 3 (~4 total), Query took 0.000000 sec

```
SELECT *  
FROM `kota`  
LIMIT 0, 30
```

Show : Start row: 0 Number of rows: 4

+ Options

	id	nama	populasi
<input type="checkbox"/> Edit Copy Delete	1	Yogyakarta	230000
<input type="checkbox"/> Edit Copy Delete	2	Jakarta	430000
<input type="checkbox"/> Edit Copy Delete	3	Surabaya	340000
<input type="checkbox"/> Edit Copy Delete	4	Padang	220000

```
<?php
```

```
$con=mysqli_connect("localhost","root","","contoh");
```

```
if (mysqli_connect_errno())
```

```
{echo "Failed to connect to MySQL: " .
```

```
mysqli_connect_error(); }
```

```
$result=mysqli_query($con,"SELECT * FROM Kota");
```

```
while($row = mysqli_fetch_array($result))
```

```
{
```

```
echo $row['nama'] . " " . $row['populasi'];
```

```
echo "<br>";
```

```
}
```

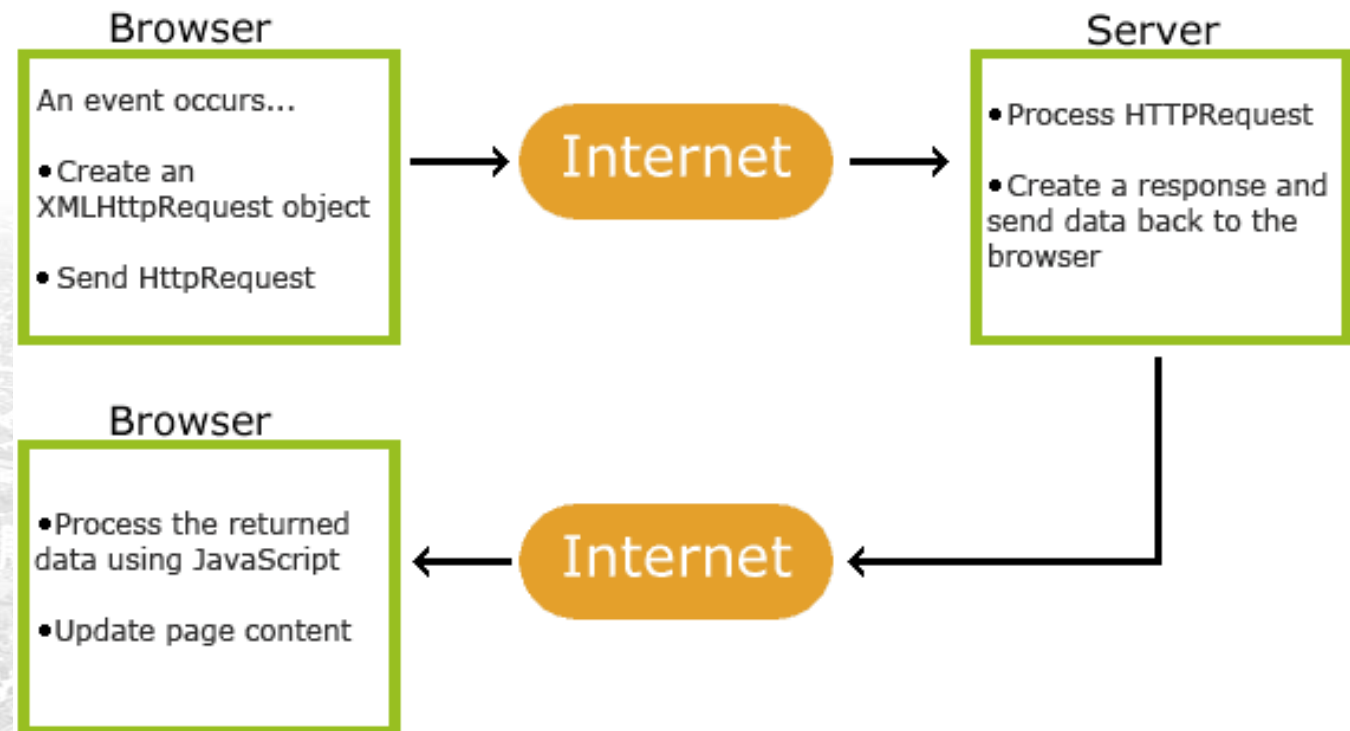
```
mysqli_close($con);
```

```
?>
```



- AJAX bukan sebuah bahasa baru; AJAX merupakan **metode** yang menggabungkan berbagai fungsi dari standard yang ada, seperti HTML, JS, dan XML
- AJAX dapat digunakan untuk mengupdate sebagian dari sebuah halaman web secara dinamis, tanpa harus memodifikasi keseluruhan dokumen

Example of What PHP is for: AJAX



FULL STACK



FRONT-END DEV



BACK-END DEV



DATABASES



DEVOPS



MOBILE APP DEV





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TERIMA KASIH

LOCALLY ROOTED, GLOBALLY RESPECTED

UGM.AC.ID