

Lecture 8 (w9)

2022/2023

Databases, Web Programming and Interfacing

- Databases, Web Programming and Interfacing
 - An VI IT4T
 - 1C/1L/1P
- Timetable
 - Friday, every week (fiecare saptamana) 1C + 2L (17-20)
 - Friday, 12/02/2022 rescheduled (UTI) → Saturday 12/10/2022 same hours

Grade

- 10% - Test/Examen – last week – 1h
- 40% - Personal/Team Project

Info

- http://rf-opto.eti.tuiasi.ro/master_it.php

The screenshot shows a web browser window with the following details:

- Title Bar:** Laboratorul de Microunde și Optică
- Address Bar:** Not secure | rf-opto.eti.tuiasi.ro/master_it.php
- Header:** RF-OPTO logo, English | Romana | Main Courses Master Staff Research Students
- Sub-Header:** Radiocommunication Systems, Microwave IC, Satellite Comm., Web Design, Ethics
- Content Area:**
 - Section:** Databases, Web Programming and Interfacing
 - Course:** DWPI (2021-2022)
 - Coordinator:** Assoc.P. Dr. Radu-Florin Damian
 - Code:** ITI.IA.601
 - Type:** DIS; Required, Specialty
 - Credits:** 5
 - Enrollment Year:** 6, Sem. 11
 - Activities:** Instructor: Assoc.P. Dr. Radu-Florin Damian, 1 Hours/Week, Year, Timetable; Laboratory: Assoc.P. Dr. Radu-Florin Damian, 1 Hours/Week, Year, Timetable; Project: Instructor: Assoc.P. Dr. Radu-Florin Damian, 1 Hours/Week, Year, Timetable;
 - Evaluation:** Type: Verification
 - Materials:** PHP5 and MySQL Bible (pdf, 15.97 MB, en,), PAW 2021 Curs 1 (pdf, 15.1 MB, ro,)
 - Project/Design:** Server CentOS pentru VMWare Player (cloud) (link, 0 Bytes, en,)

Access

- Not customized



Date:

Grupa	5304 (2015/2016)
Specializarea	Tehnologii si sisteme de telecomunicatii
Marca	5184

[Acceseaza ca acest student](#)

Note obtinute

Disciplina	Tip	Data	Descriere	Nota	Puncte	Obs.
TW	Tehnologii Web					
	N	17/01/2014	Nota finala	10	-	
	A	17/01/2014	Colocviu Tehnologii Web 2013/2014	10	7.55	
	B	17/01/2014	Laborator Tehnologii Web 2013/2014	9	-	
	D	17/01/2014	Tema Tehnologii Web 2013/2014	9	-	

Nume

Email

Cod de verificare

Trimite

Online

- access to **online exams** requires the **password** received by email

English | Romana |

Main Courses Master Staff Research **Student List**

Grades Student List Exams Photos

POPESCU GOPO ION

Fotografia nu există

Date:

Grupa	5700 (2019/2020)
Specializarea	Inginerie electronica si telecomunicatii
Marca	7000000

[Access the site as this student](#) | [Request access to software](#)

Grades

Inca nu a fost notat.

Main Courses Master Staff Research

Grades **Student List** Exams Photos

Login

Use the last name and email stored in the database

Name
POPESCU GOPO

Email/Password

Write the code below

828f26b

Send

Online

- access email/password

Main Courses Master Staff Research

Grades Student List Exams Photos

POPESCU GOPO ION

Fotografia nu există

Date:

Grupa	5700 (2019/2020)
Specializarea	Inginerie electronica si telec
Marca	7000000

You access the site as **this student!**

Main Courses Master Staff Research

Grades Student List Exams Photos

POPESCU GOPO ION

Fotografia nu există

Date:

Grupa	5700 (2019/2020)
Specializarea	Inginerie electronica si telec
Marca	7000000

You access the site as **this student (including exams)!**

Password

■ received by email

Important message from RF-OPTO

Inbox x

Radu-Florin Damian
to me, POPESCU

Romanian ▾ English ▾ Translate message

 Laboratorul de Microunde si Optoelectronica
Facultatea de Electronica, Telecomunicatii si Tehnologia Informatiei
Universitatea Tehnica "Gh. Asachi" Iasi

In atentia: POPESCU GOPO ION
Parola pentru a accesa examenele pe server-ul rf-opto este
Parola: [REDACTED]

Identificati-vă pe [server](#), cu parola, cat mai rapid, pentru confirmare.

Memorati acest mesaj intr-un loc sigur, pentru utilizare ulterioara

Attention: POPESCU GOPO ION
The password to access the exams on the rf-opto server is
Password: [REDACTED]

Login to the [server](#), with this password, as soon as possible, for confirmation.

Save this message in a safe place for later use

Reply Reply all Forward

Subject: Important message from RF-OPTO

From: Me <rdamian@etti.tuiasi.ro>

To: [REDACTED]

Cc: Me <rdamian@etti.tuiasi.ro>

 Laboratorul de Microunde si Optoelectronica
Facultatea de Electronica, Telecomunicatii si Tehnologia Informatiei
Universitatea Tehnica "Gh. Asachi" Iasi

In atentia: POPESCU GOPO ION
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Attention: POPESCU GOPO ION
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Password: [REDACTED]

Login to the [server](#), with this password, as soon as possible, for confirmation.

Save this message in a safe place for later use

Manual examen online

- The online exam app used for:
 - lectures (attendance)
 - laboratory
 - project
 - examinations

Materials

Other data

[Manual examen on-line \(pdf, 2.65 MB, ro, !\[\]\(71ceb62b681518c82e95d615e7265d66_img.jpg\)](#)

[Simulare Examen \(video\) \(mp4, 65.12 MB, ro, !\[\]\(e10773081adcaeab632f9dd4c8931cd5_img.jpg\)](#)

Examen online

- always against a **timetable**
 - long period (lecture attendance/laboratory results)
 - short period (tests: 15min, exam: 2h)

Announcement 23:59 (10/05/2020)	Support material 00:05 (11/05/2020)	Exam Topics 00:07 (11/05/2020)	Results 00:10 (11/05/2020)	End 00:20 (15/05/2020)	Confirmation 00:20 (16/05/2020)	Next timeframe in: 05 m 43 s Refresh now
------------------------------------	--	-----------------------------------	-------------------------------	---------------------------	------------------------------------	---

Announcement

This is a "fake" exam, introduced to familiarize you with the server interface and to perform the necessary actions during an exam: thesis scan, selfie, use email for co...

Server Time

All exams are based on the server's time zone (it may be different from local time). For reference time on the server is now:

10/05/2020 23:59:16

2022/2023

Project

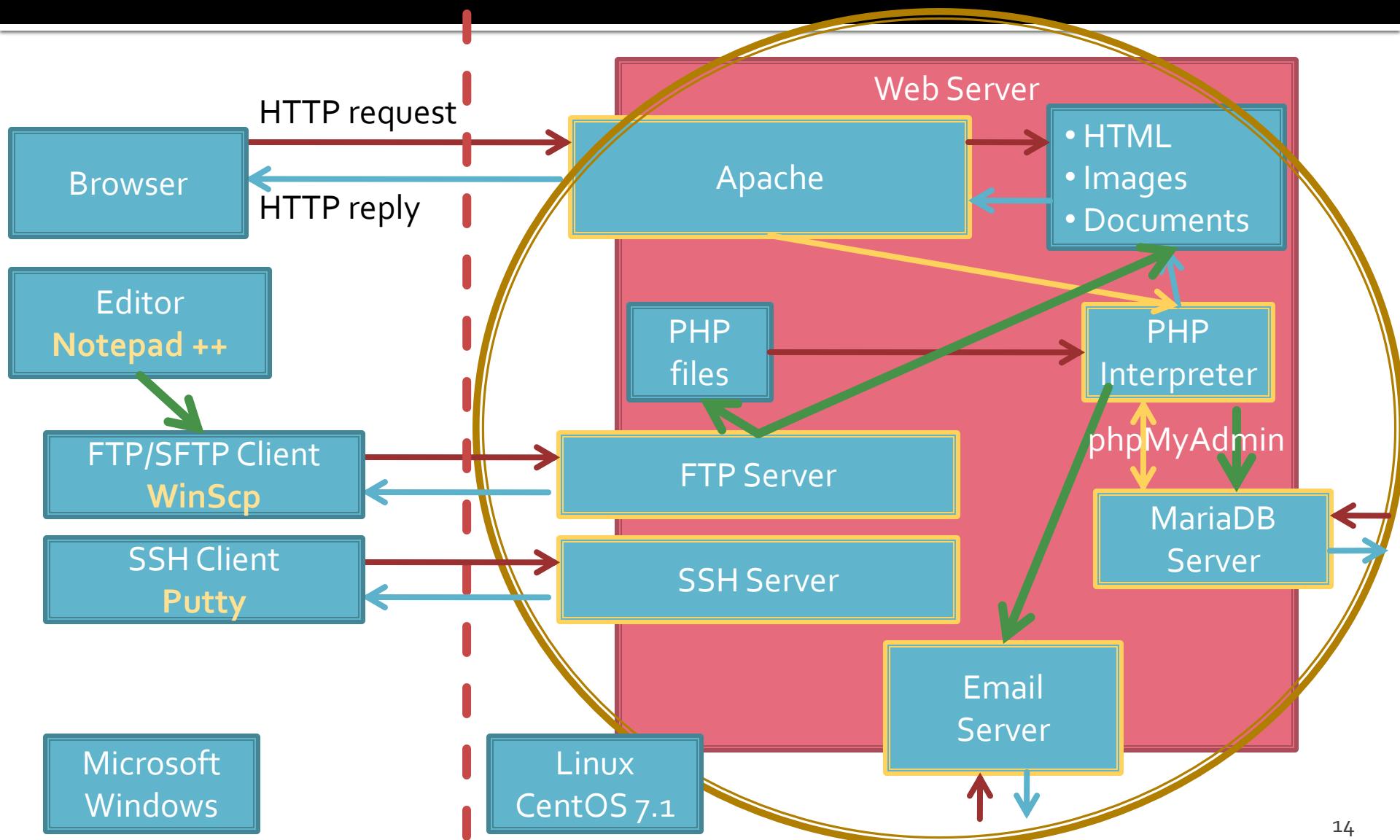
Project

- Submission: **On-site**
- Presentation (in front of the colleagues) + files submission
- 3 files
 - **1 *.pdf** (print-screen while using the application, short usage instructions, a mini-user manual for the application)
 - **1 *.sql** (backup of the database required to run the application)
 - archive of the application (inside: files *.php, *.jpg, folder tree etc., archived: ***.zip, *.7z** etc.)

Project grading

- **(2p)** the application runs on the **reference server** (can be downloaded from [rf-opto](#): Ubuntu, php 7 or CentOS 7, php 5): extract files from the ***.zip** archive in a folder on the server, restore database from the ***.sql** backup file
- **(2p)** the ***.pdf** file containing the user manual exists and is appropriate for the submitted application
- **(2p)** the application **flowchart** has been submitted and contains appropriate data
- **(4p)** presentation on-site of the **application**

Using LAMP



Reference Server

- rf-opto.eti.tuiasi.ro > Master > Web Design

Project/Design

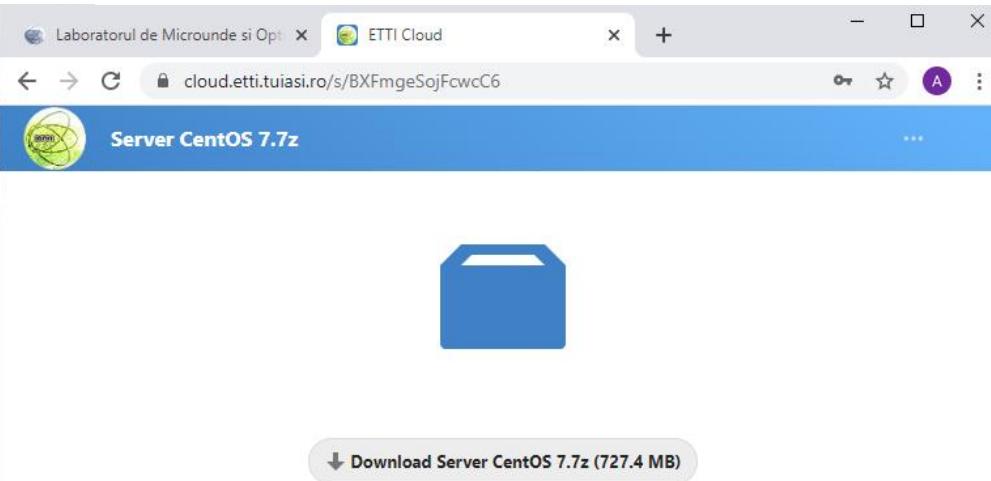
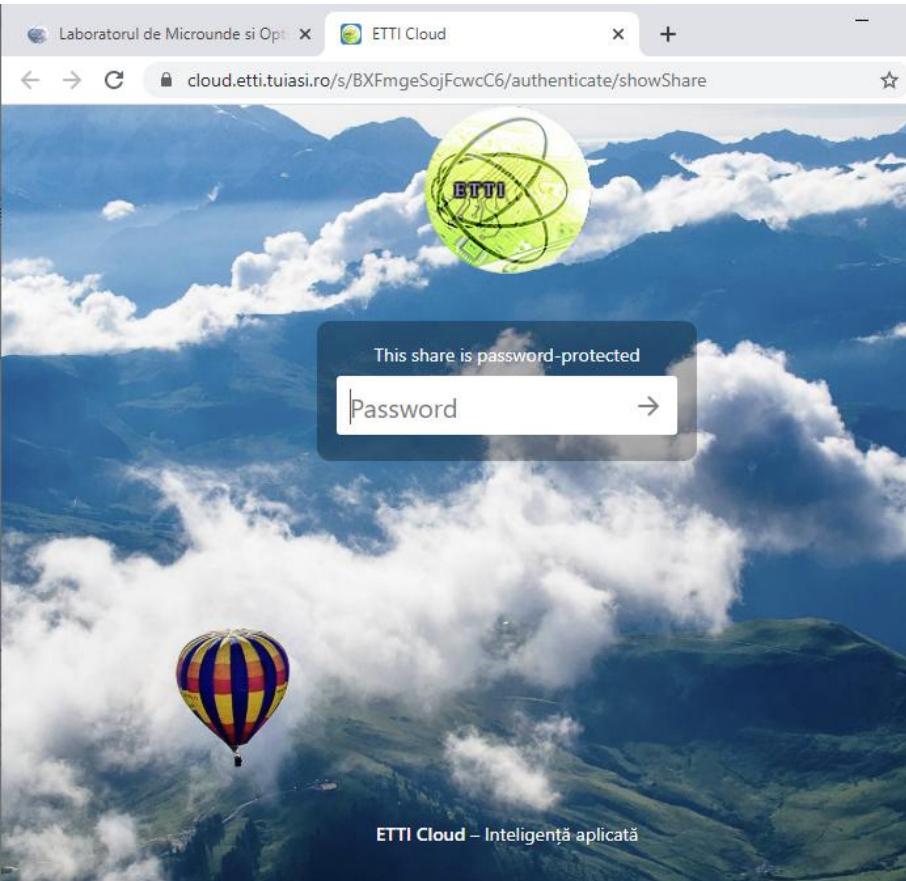
[VMware Workstation Player](#) (link, 0 Bytes, en, [Ubuntu VM for VMWare](#) (link, 0 Bytes, en, [Ubuntu Setup](#) (pdf, 1.83 MB, en, [Centos VM for VMWare](#) (link, 0 Bytes, en, [Centos Setup](#) (pdf, 2.54 MB, en, 

Examen

[Online Exam manual](#) (pdf, 2.56 MB, en, [Manual examen on-line](#) (pdf, 2.65 MB, ro, 

Reference Server

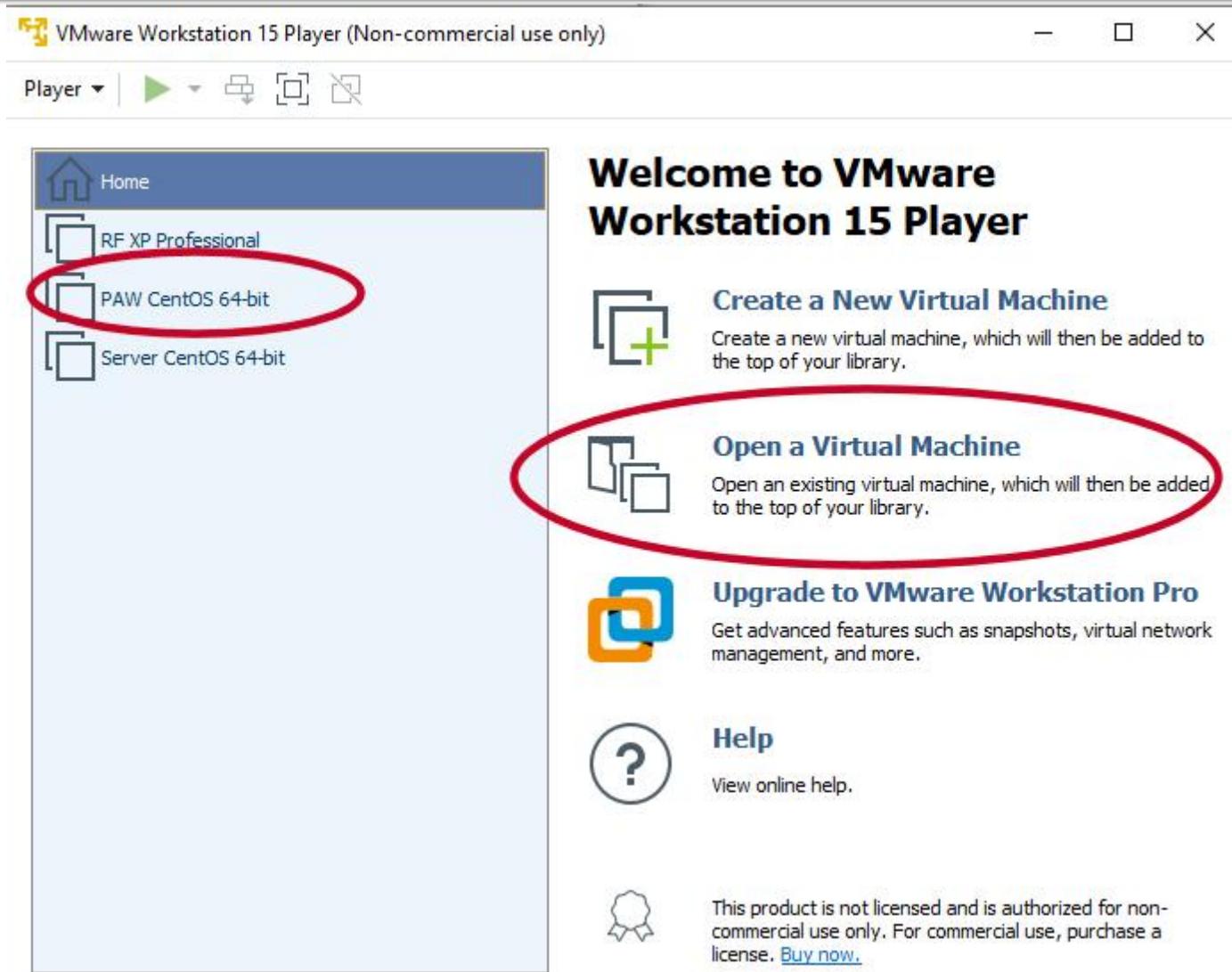
- Cloud ETTI: **RF-opto3#**



Reference Server

- Virtual Machine
- VMware Workstation Player Windows/Linux
 - Free (non-commercial use)
 - <https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html>

Reference Server



Possible problems

- Current VMWare Player runs **only** on **64bit** operating systems Windows/Linux
 - for 32bit operating systems previous (**certified originals**) can be made available on rf-opto
- The host computer **must** enable **Hardware Virtualization**
 - Hardware Virtualization is enabled in BIOS, depending on the PC manufacturer: Processor, Chipset, Northbridge
 - Options name: VT-x, AMD-V, Vanderpool, Hyper-V, SVM, Intel Virtualization Technology. if available: Intel VT-d, AMD IOMMU
- VM archive requires **7zip** native to the target operating system

Support applications

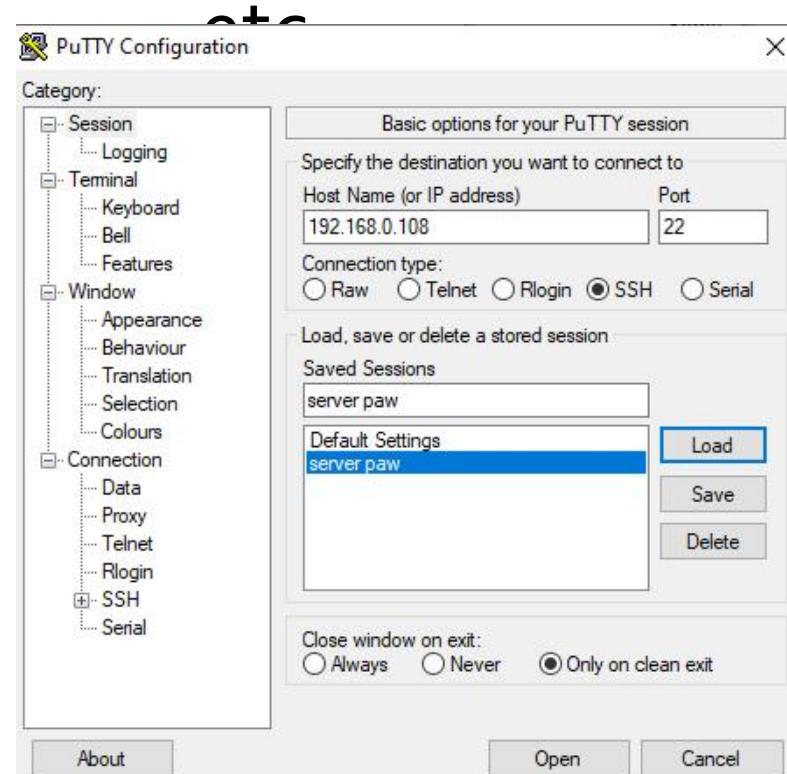
- WinSCP (FTP client, free)
 - <https://winscp.net/eng/download.php>
- Notepad ++ (text editor, advanced, free)
 - <https://notepad-plus-plus.org/downloads/>
- Putty (remote access)
 - <https://www.putty.org/>
- MySQL Workbench (gratuit, cont Oracle)
 - <https://www.mysql.com/products/workbench/>

IP address

- login, ifconfig
 - Ctrl + Alt + mouse

Putty

- putty.exe
- avoids mouse capture (CentOS), copy/paste

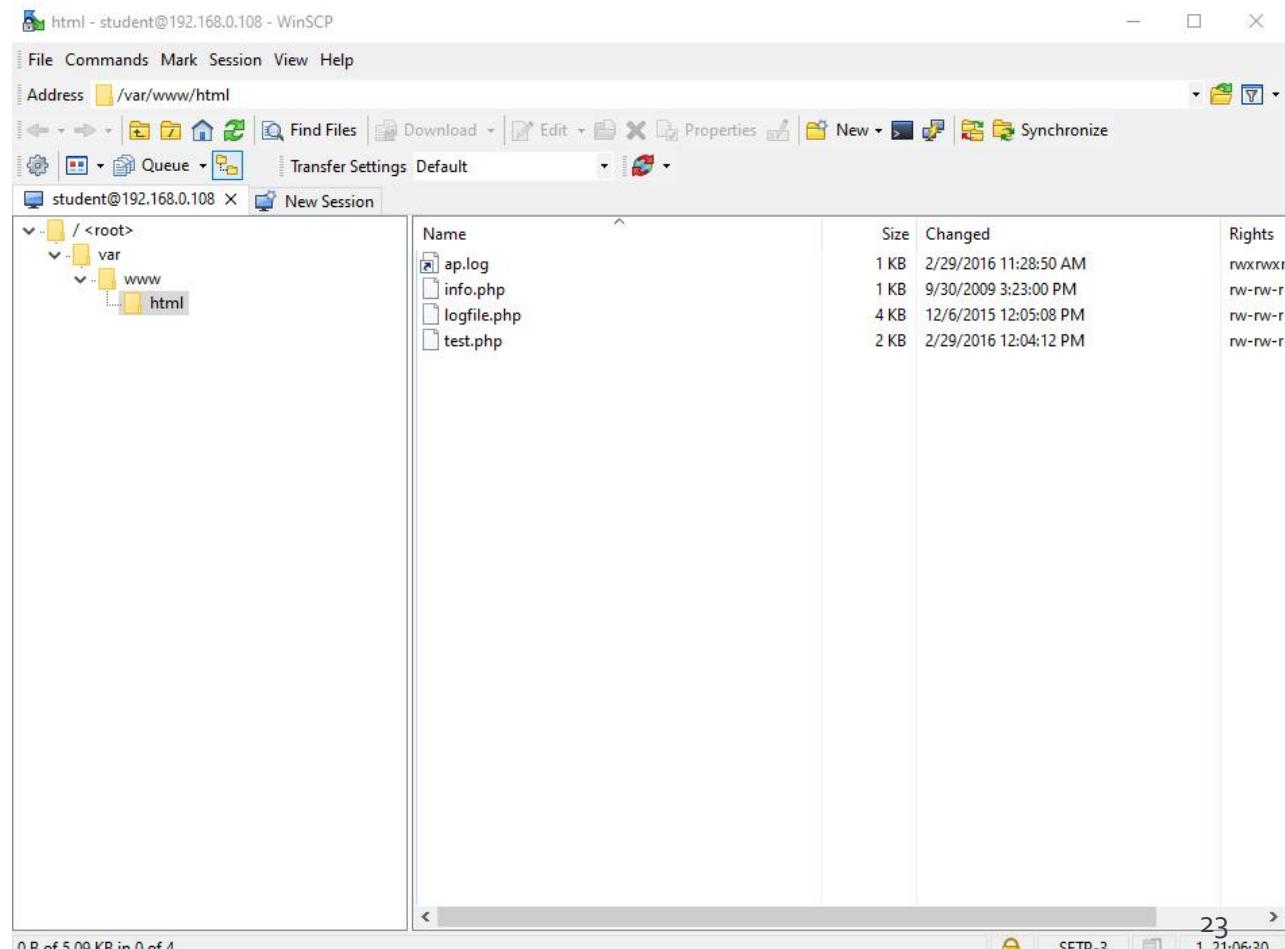
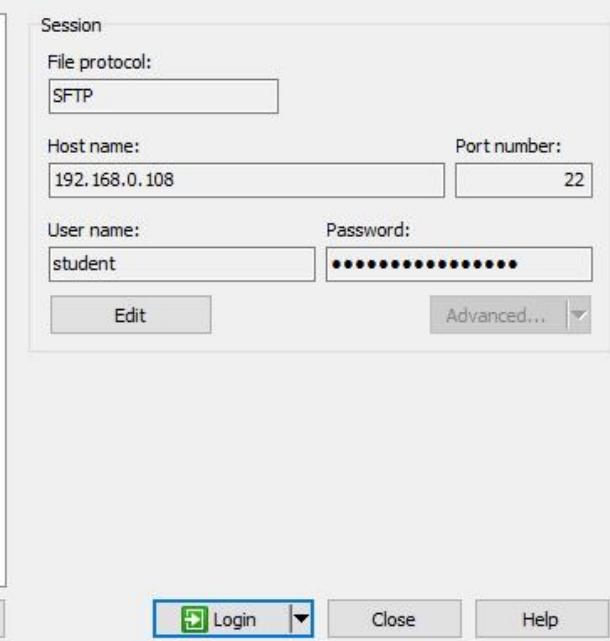


The screenshot shows a terminal window titled 'root@tmpaw:~'. The window title bar includes standard window control buttons. The terminal output is as follows:

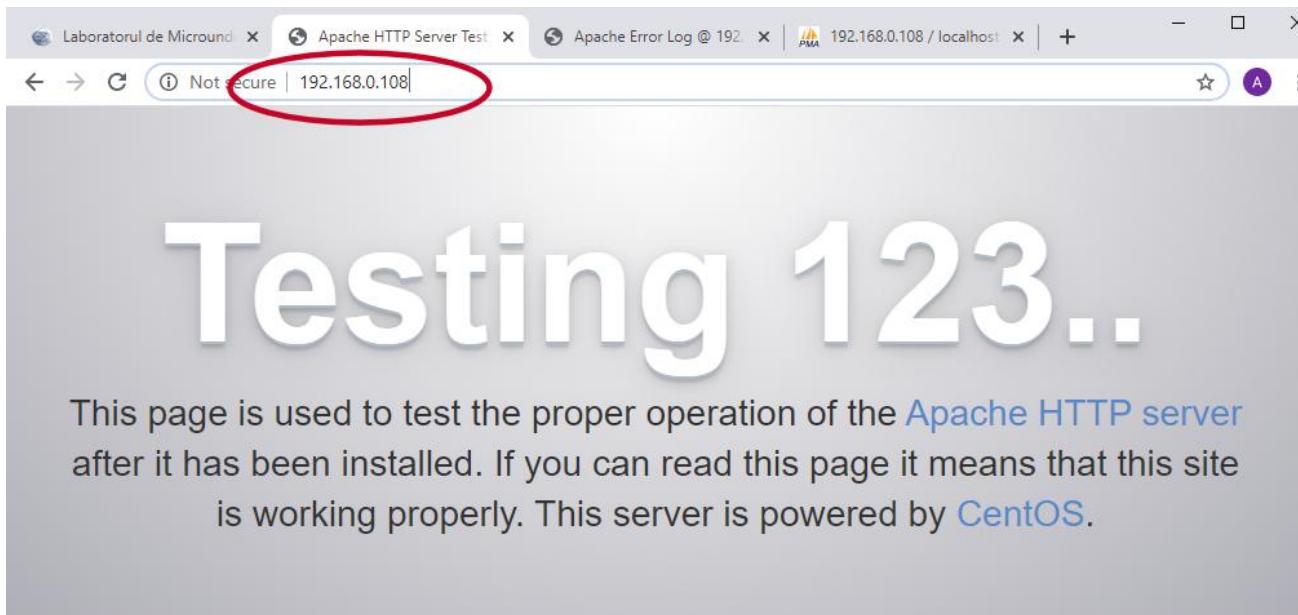
```
root@192.168.0.108's password:  
Last login: Wed Jun 17 05:34:04 2020 from 192.168.0.106  
[root@tmpaw ~]#
```

WinSCP

- FTP client
- upload files



Browser



Just visiting?

The website you just visited is either experiencing problems or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

Are you the Administrator?

You should add your website content to the directory `/var/www/html/`.

To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

Promoting Apache and CentOS

You are free to use the images below on Apache and CentOS Linux powered HTTP servers. Thanks for using Apache and CentOS!



Server MySQL/MariaDB

The screenshot shows the phpMyAdmin interface running on a local host at 192.168.0.108. The browser tabs include 'Laboratorul de Micround', 'Apache HTTP Server Test', 'Apache Error Log @ 192...', and the main page '192.168.0.108 / localhost'. The address bar shows the URL: 192.168.0.108/phpmyadmin/#PMAURL-5:index.php?db=&table=&server=1&target=&token=f7dda12d42a1...'. The phpMyAdmin header shows 'Server: localhost'.

General Settings

- Change password
- Server connection collation: utf8mb4_unicode_ci

Appearance Settings

- Language: English
- Theme: pmahomme
- Font size: 82%
- More settings

Database server

- Server: Localhost via UNIX socket
- Server type: MariaDB
- Server version: 5.5.44-MariaDB - MariaDB Server
- Protocol version: 10
- User: root@localhost
- Server charset: UTF-8 Unicode (utf8)

Web server

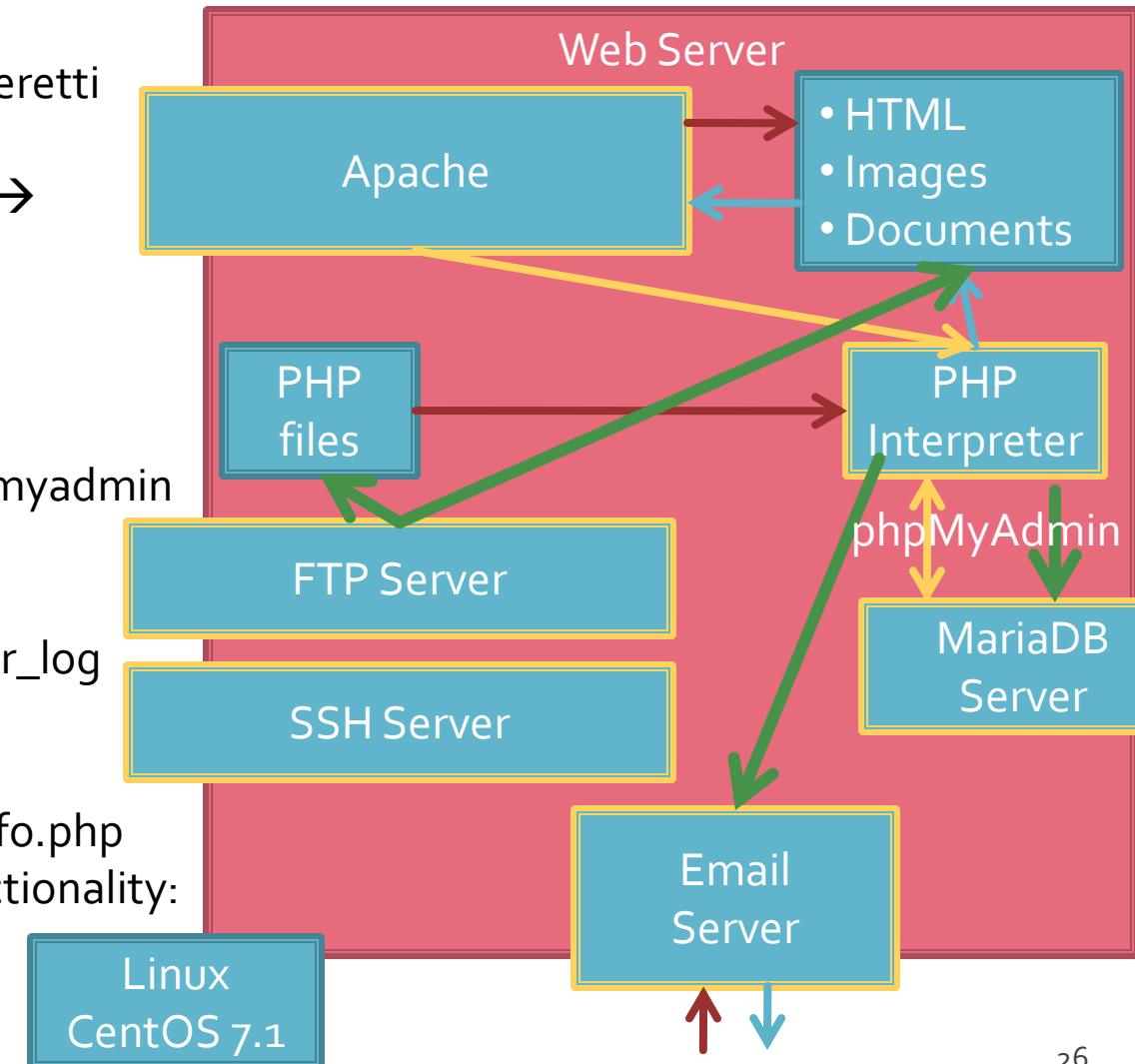
- Apache/2.4.6 (CentOS) OpenSSL/1.0.1e-fips mod_fcgid/2.3.9 PHP/5.4.16 mod_python/3.5.0- Python/2.7.5
- Database client version: libmysql - 5.5.44-MariaDB
- PHP extension: mysqli
- PHP version: 5.4.16

phpMyAdmin

- Version information: 4.4.15.1
- Documentation
- Wiki
- Official Homepage
- Contribute
- Get support
- List of changes

Using LAMP

1. login → root:masterrc / paw:masteretti
2. ifconfig → 192.168.30.5
3. putty.exe → 192.168.30.5 → SSH →
root:masterrc (remote login)
4. [other linux command line]
5. FTP → Winscp → SFTP →
student:masterrc@192.168.30.5
6. MySQL → http://192.168.30.5/phpmyadmin
→ root:masterrc / root:masteretti
7. Apache Error Log →
- 7a. putty → nano /var/log/httpd/error_log
- 7b. http://192.168.30.5/logfile.php
(nonstandard)
8. PHP info → http://192.168.30.5/info.php
9. if DHCP service stops Apache functionality:
service httpd restart

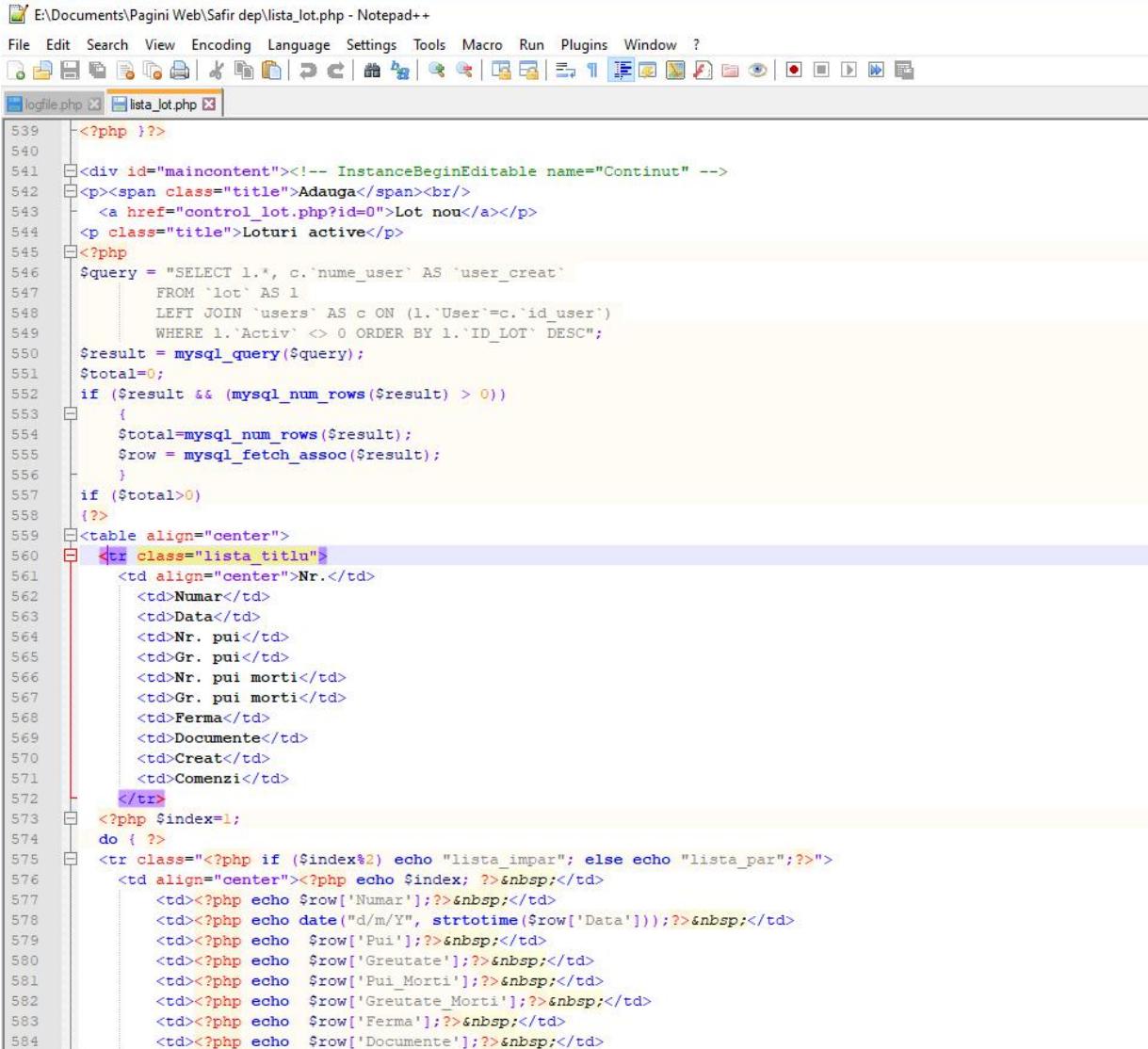


LAMP Reference Server

- Linux, two variants
 - Centos 7.1
 - PHP 5.4.16
 - MariaDB 5.5.44
 - Apache 2.4.6
 - **root/student:masterrc**
 - Ubuntu 20.04 (**recommended**)
 - PHP 7.4.3
 - MariaDB 10.3.31
 - Apache 2.4.41
 - **paw/student:masteretti**
 - correction **paw FTP access:**
 - sudo usermod -a -G upload paw
 - sudo chmod -R 775 /var/www

Introduction

Necessity



The screenshot shows a Notepad++ window displaying a PHP script. The script includes HTML and PHP code for generating a table. The table has columns for Numar, Data, Nr. pui, Gr. pui, Nr. pui morti, Gr. pui morti, Ferma, Documente, Creat, and Comenzi. The script uses MySQL queries to fetch data and loops through the results to build the table rows.

```
<?php
539 -<?php ?>
540
541 -<div id="maincontent"><!-- InstanceBeginEditable name="Continut" -->
542 -<p><span class="title">Adauga</span><br/>
543 -<a href="control_lot.php?id=0">Lot nou</a></p>
544 <p class="title">Loturi active</p>
545 <?php
546 $query = "SELECT l.* , c.`nume_user` AS `user_creat`
547     FROM `lot` AS l
548     LEFT JOIN `users` AS c ON (l.`User`=c.`id_user`)
549     WHERE l.`Activ` <> 0 ORDER BY l.`ID_LOT` DESC";
550 $result = mysql_query($query);
551 $total=0;
552 if ($result && (mysql_num_rows($result) > 0))
553 {
554     $total=mysql_num_rows($result);
555     $row = mysql_fetch_assoc($result);
556 }
557 if ($total>0)
558 {?
559 <table align="center">
560 <tr class="lista_titlu">
561 <td align="center">Nr.</td>
562 <td>Numar</td>
563 <td>Data</td>
564 <td>Nr. pui</td>
565 <td>Gr. pui</td>
566 <td>Nr. pui morti</td>
567 <td>Gr. pui morti</td>
568 <td>Ferma</td>
569 <td>Documente</td>
570 <td>Creat</td>
571 <td>Comenzi</td>
572 </tr>
573 <?php $index=1;
574 do { ?
575 <tr class="<?php if ($index%2) echo "lista_impar"; else echo "lista_par";?>">
576 <td align="center"><?php echo $index; ?>&nbsp;</td>
577 <td><?php echo $row['Numar'];?>&nbsp;</td>
578 <td><?php echo date("d/m/Y", strtotime($row['Data']));?>&nbsp;</td>
579 <td><?php echo $row['Pui'];?>&nbsp;</td>
580 <td><?php echo $row['Gruitate'];?>&nbsp;</td>
581 <td><?php echo $row['Pui_Morti'];?>&nbsp;</td>
582 <td><?php echo $row['Gruitate_Morti'];?>&nbsp;</td>
583 <td><?php echo $row['Ferma'];?>&nbsp;</td>
584 <td><?php echo $row['Documente'];?>&nbsp;</td>
```

HTML

E:\Documents\Pagini Web\Safir dep\lista_lot.php - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Win

logfile.php lista_lot.php

```
<?php }?>
540
541 <div id="maincontent"><!-- InstanceBeginEditable name="Conti
542 <p><span class="title">Adauga</span><br/>
543 <a href="control_lot.php?id=0">Lot nou</a></p>
544 <p class="title">Loturi active</p>
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547     FROM `lot` AS l
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549     WHERE l.'Activ' <> 0 ORDER BY l.'ID_LOT' DESC";
550
551 $result = mysql_query($query);
552 $total=0;
553 if ($result && (mysql_num_rows($result) > 0))
554 {
555     $total=mysql_num_rows($result);
556     $row = mysql_fetch_assoc($result);
557 }
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559 {
560     <table align="center">
561         <tr class="lista_titlu">
562             <td align="center">Nr.</td>
563             <td>Numar</td>
564             <td>Data</td>
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566             <td>Gr. pui</td>
567             <td>Nr. pui morti</td>
568             <td>Gr. pui morti</td>
569             <td>Ferma</td>
570             <td>Documente</td>
571             <td>Creat</td>
572             <td>Comenzi</td>
573         </tr>
574     <?php $index=1;
575     do { ?>
576         <tr class=<?php if ($index%2) echo "lista_in
577             <td align="center"><?php echo $index; ?>&nbsp;</td>
578             <td><?php echo $row['Numar']; ?>&nbsp;</td>
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580             <td><?php echo $row['Pui']; ?>&nbsp;</td>
581             <td><?php echo $row['Greutate']; ?>&nbsp;</td>
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583             <td><?php echo $row['Greutate_Morti']; ?>&nbsp;</td>
584             <td><?php echo $row['Ferma']; ?>&nbsp;</td>
585             <td><?php echo $row['Documente']; ?>&nbsp;</td>
```

Nr.	Numar	Data	Nr. pui	Gr. pui	Nr. pui morti	Gr. pui morti	Ferma	Documente	Creat	Comenzi
<?php echo \$index; ?> 	<?php echo \$row['Numar']; ?> 	<?php echo date("d/m/Y", strtotime(\$row['Data'])) ?> 	<?php echo \$row['Pui']; ?> 	<?php echo \$row['Greutate']; ?> 	<?php echo \$row['Pui_Morti']; ?> 	<?php echo \$row['Greutate_Morti']; ?> 	<?php echo \$row['Ferma']; ?> 	<?php echo \$row['Documente']; ?> 		

HTML + PHP

E:\Documents\Pagini Web\Safir dep\lista_lot.php - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

file.php lista_lot.php

```
539 <?php }?>
540
541 <div id="maincontent"><!-- InstanceBeginEditable name="Continut" -->
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552 if ($result && (mysql_num_rows($result) > 0))
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583         <td><?php echo $row['Ferma'];?>&ampnbsp</td>
584         <td><?php echo $row['Documente'];?>&ampnbsp</td>
```

HTML + PHP + SQL

E:\Documents\Pagini Web\Safe dep\lista_lot.php - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

file.php lista_lot.php

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579 <td><?php echo $row['Pui'];?>&nbsp;</td>
580 <td><?php echo $row['Greutate'];?>&nbsp;</td>
581 <td><?php echo $row['Pui_Morti'];?>&nbsp;</td>
582 <td><?php echo $row['Greutate_Morti'];?>&nbsp;</td>
583 <td><?php echo $row['Farma'];?>&nbsp;</td>
584 <td><?php echo $row['Documente'];?>&nbsp;</td>
```

```
<?php
$query = "SELECT l.* , c.`nume_user` AS `user_creat`
FROM `lot` AS l
LEFT JOIN `users` AS c ON (l.`User`=c.`id_user`)
WHERE l.`Activ` <> 0 ORDER BY l.`ID_LOT` DESC";
$result = mysql_query($query);
$total=0;
if ($result && (mysql_num_rows($result) > 0))
{
    $total=mysql_num_rows($result);
    $row = mysql_fetch_assoc($result);
}
```

HTML

- Offers **the logical structure** of the document
- Required
 - the **final result** of any type of programming for a distributed application web is almost exclusively HTML code (HTML structure eventually manipulated by “client side scripting”/Javascript)
- Curs 1 PAW 2021-2022 – Recapitulare HTML (RO + video)
- Course: Web Technologies (2012-2013) (EN)
 - <http://rf-opto.eti.tuiasi.ro/internet.php>
 - Web Technologies, Lecture 5
 - Web Technologies, Lecture 6

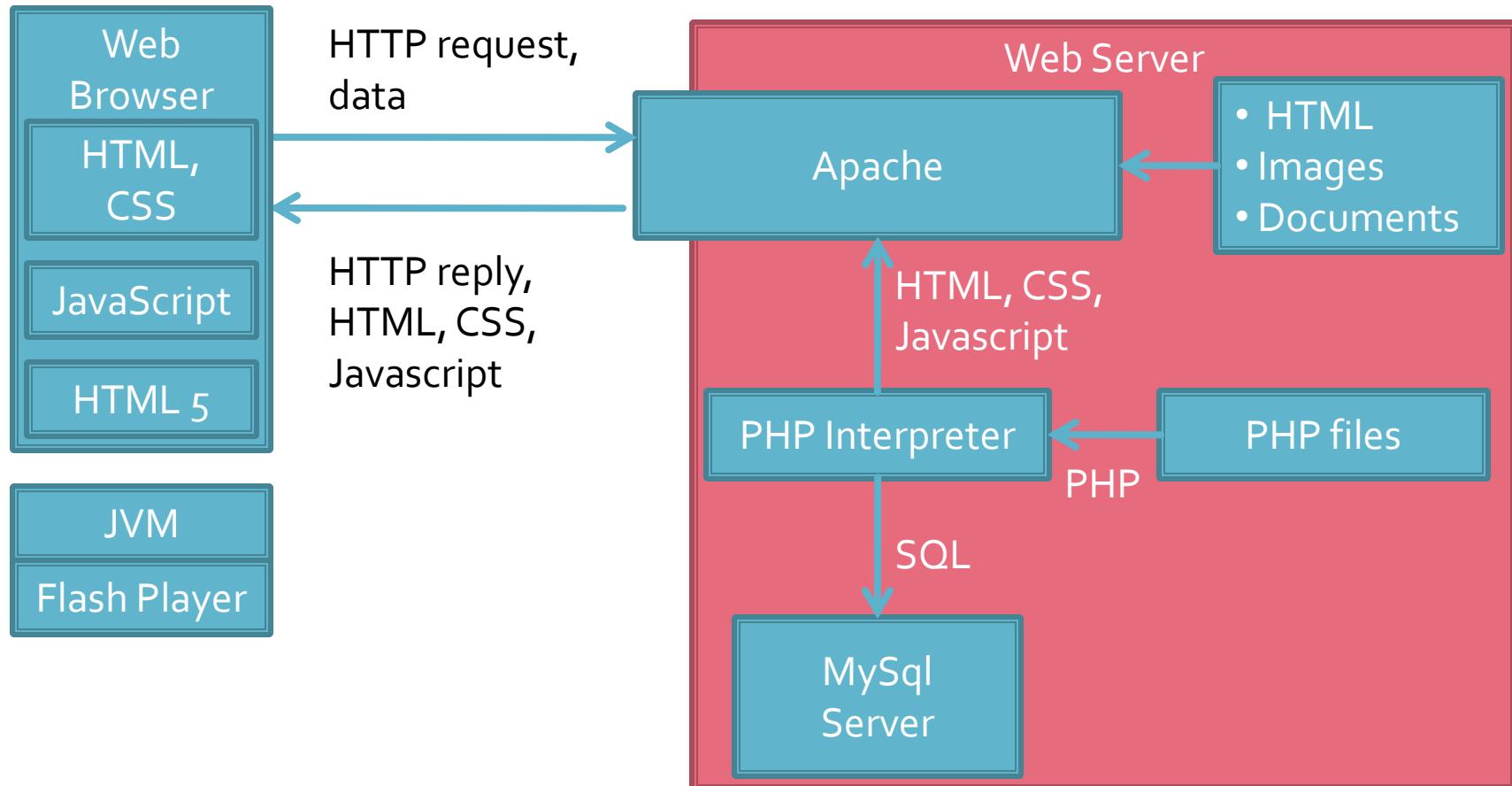
Hypertext PreProcessor

PHP

PHP

- Hypertext PreProcessor – recursive acronym
 - initial – Personal Home Page / Form Interpreter
 - 1995 – 1.0
- current version: 7.4.33
 - 2022-11-03
- current version: 8.2.0
 - 2022-12-08
- general-purpose scripting language
- server-side scripting
- open source

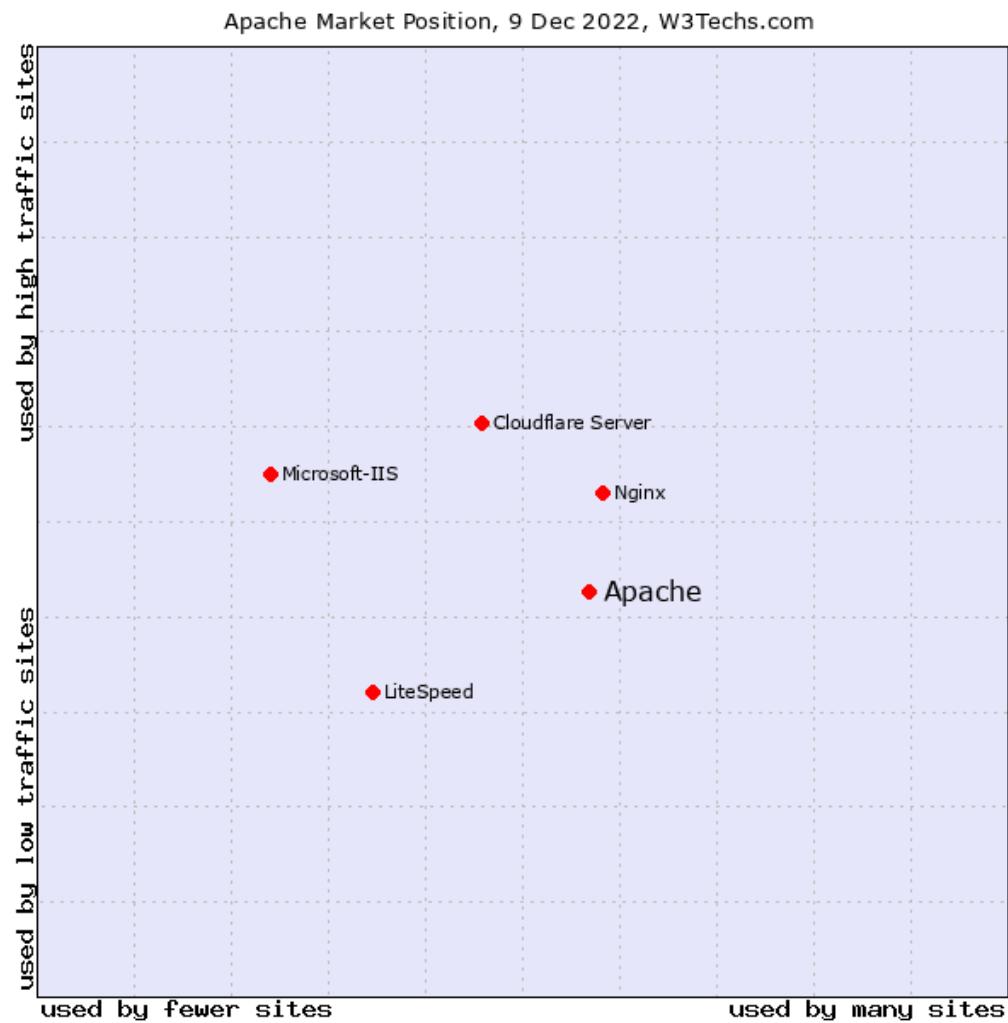
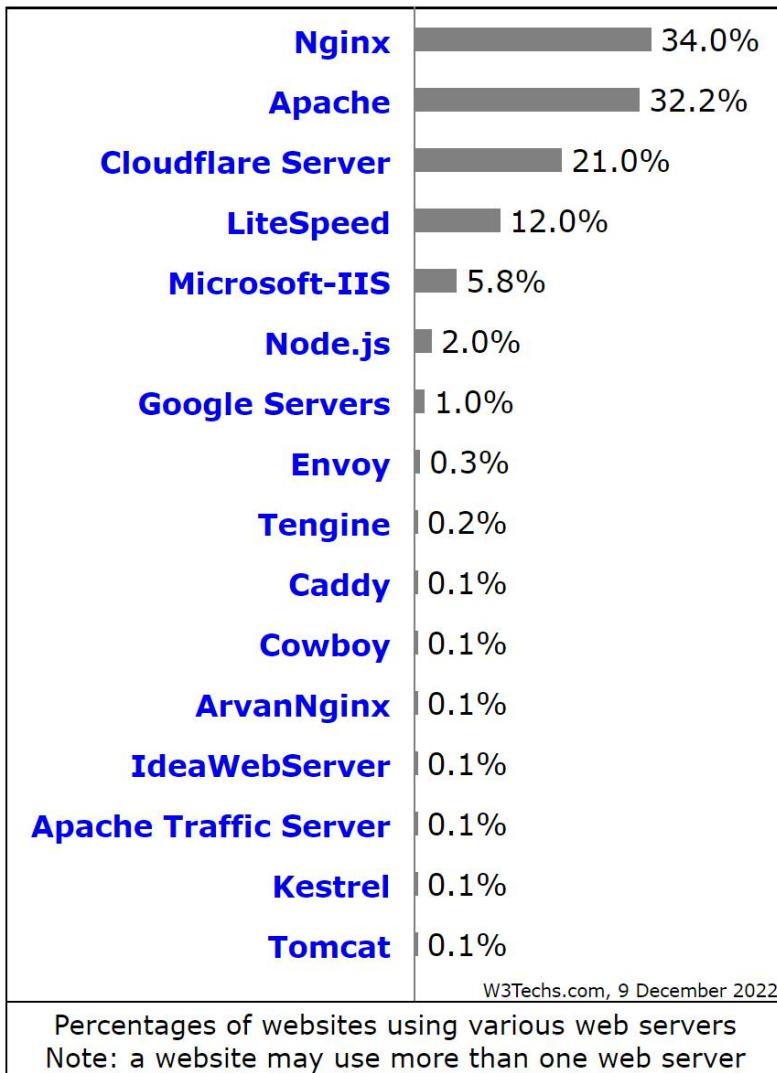
Client/Server Scripting



client
side
scripting

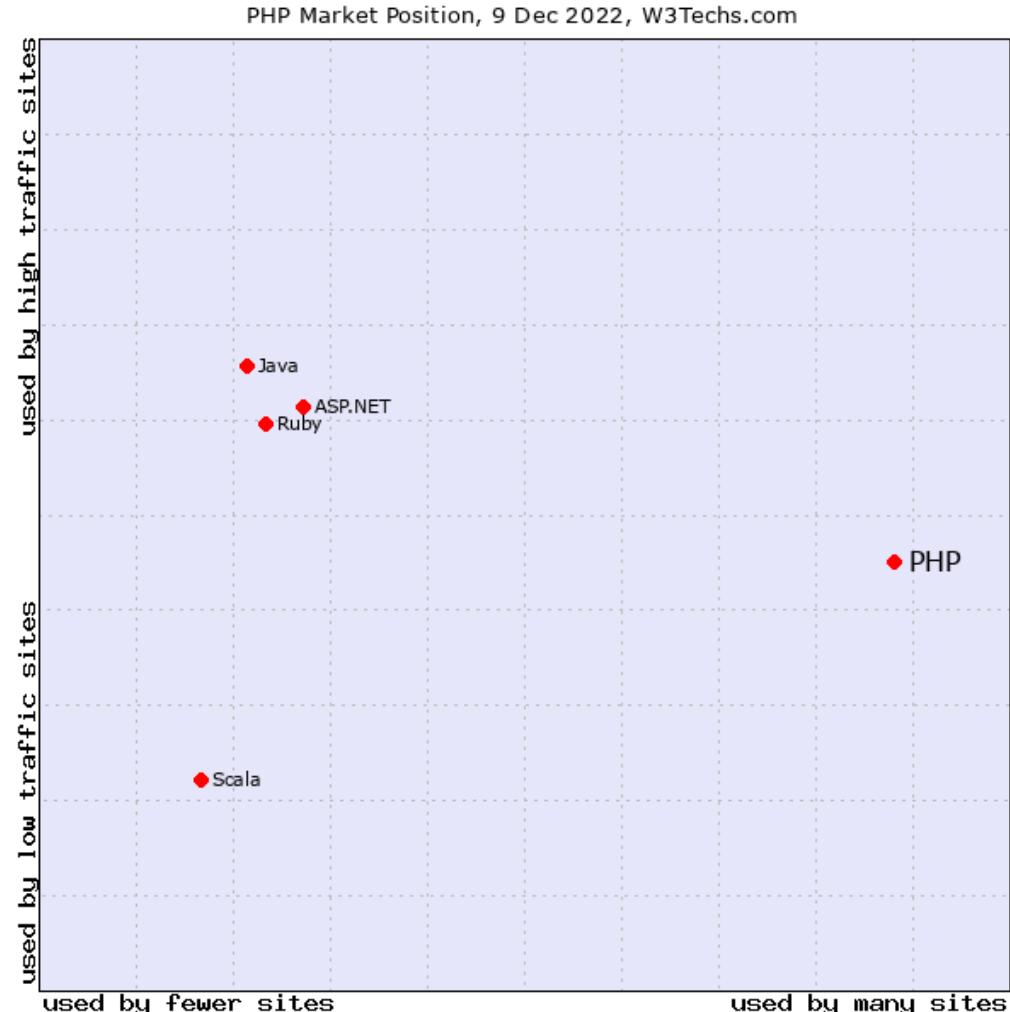
server
side
scripting

Technology of Web servers



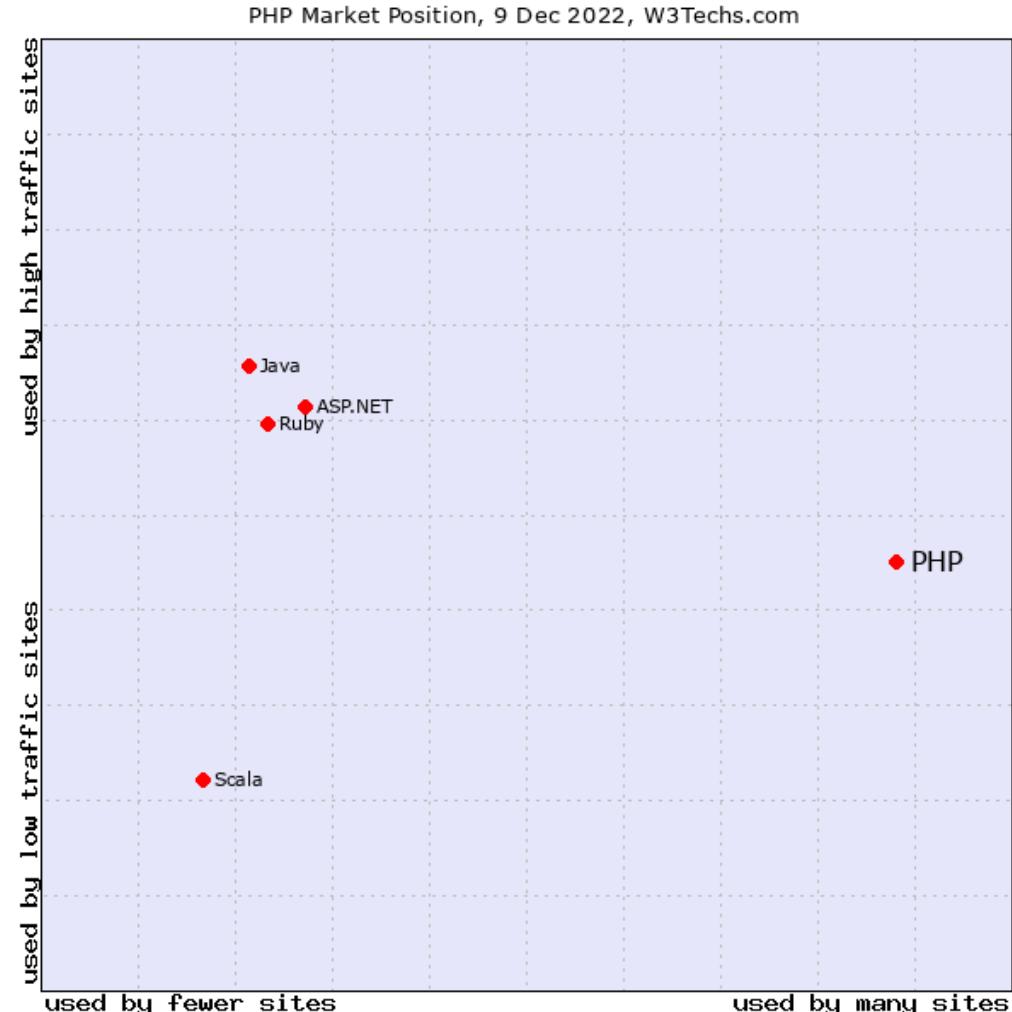
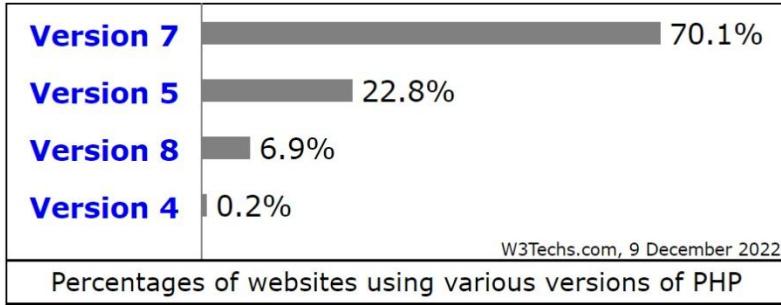
Technology of Web servers

- PHP – 77.60%
- ASP.NET – 7.40%
- Ruby – 5.50%
- Java – 4.60%
- Scala – 2.80%
- JavaScript – 2.10%
- ...
- Python – 1.30%



Technology of Web servers

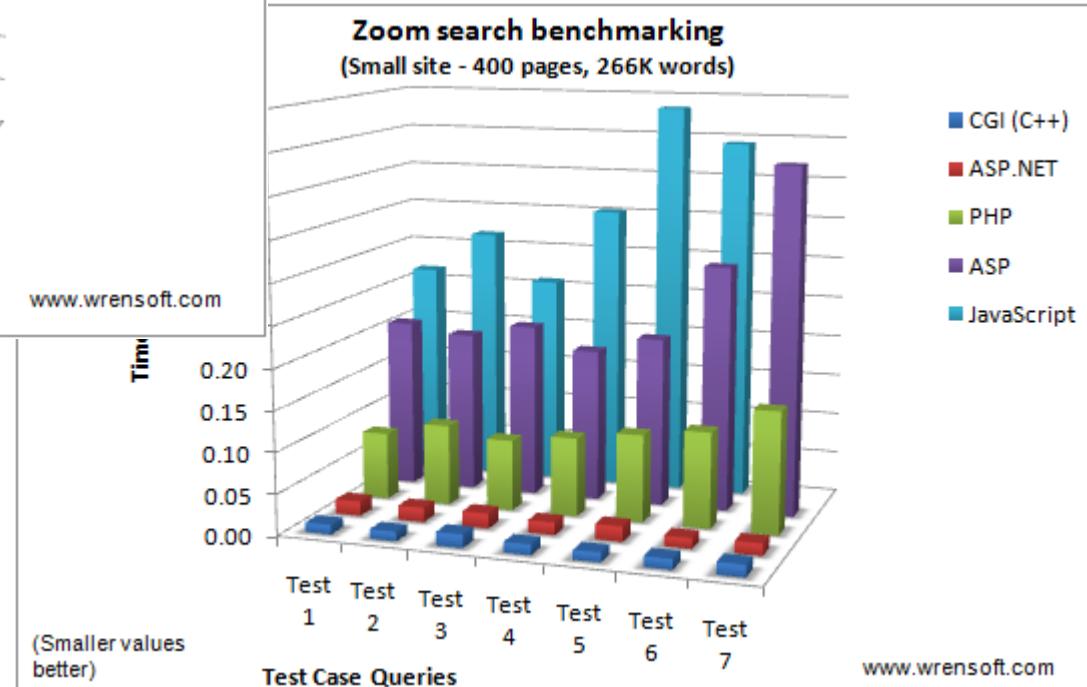
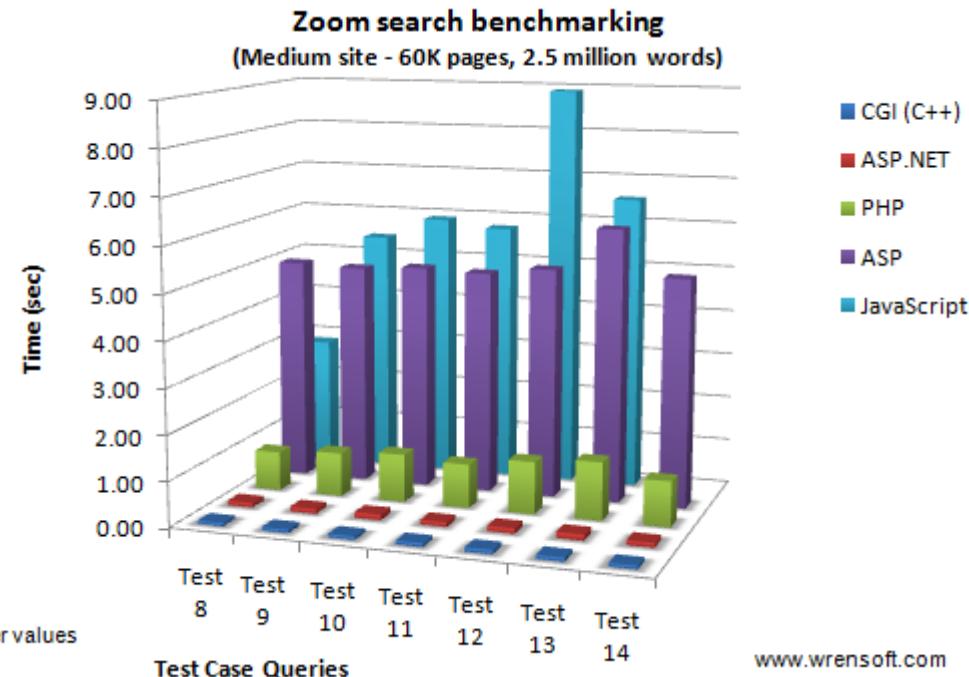
■ PHP version



Avantaje PHP

- Performanta ridicata
- Interfata cu multe sisteme de baze de date
- Costuri reduse
- Biblioteci incluse pentru majoritatea operatiunilor uzuale in aplicatii web
- Usurinta in invatare (C)
- Portabilitate
 - Disponibilitate a codului sursa
- Exemple disponibile in comunitate
- Suport disponibil

Performance



Server Side Scripting

	2010	2011	2012	2013	2014	2015
	1 Jan					
PHP	72.5%	75.3%	77.3%	78.7%	81.6%	80.6%
ASP.NET	24.4%	23.4%	21.7%	20.2%	18.2%	16.7%
Java	4.0%	3.8%	4.0%	4.1%	2.7%	2.8%
ColdFusion		1.3%	1.2%	1.1%	0.8%	0.7%
Perl		1.1%	1.0%	0.8%	0.6%	0.5%
Ruby	0.5%	0.5%	0.6%	0.5%	0.4%	0.9%
Python	0.3%	1.0%	1.3%	1.5%	1.7%	1.6%
JavaScript			<0.1%	<0.1%	0.1%	0.1%

Sites

- Facebook.com
- Wikipedia.org
- Whatsapp.com
- Sina.com.cn
- Pinterest.com
- Vk.com
- Zoom.us
- Wordpress.com
- Tumblr.com
- Digicert.com

PHP - Concepts

- interpreted language – compiled “on the fly” by a PHP interpreter on the server
- PHP scripts contain the sources
 - there is the possibility of pre-compiling the sources in order to increase speed
 - [Hip-Hop for PHP / Facebook](#)
 - [HipHop Virtual Machine / Facebook](#)
- oriented towards dynamic web applications (libraries)
- can be integrated into HTML - typical usage

Integration

```
539      <td><?php echo $row['Documente'];?>&ampnbsp</td>
540      <td><?php echo $row['user_creat'];?>&ampnbsp</td>
541      <td class="smaller"><a href="control_lot.php?id=<?php echo $row['ID_LOT'];?>">dezactiveaza</a><br /><a href=
"control_lot.php?id=<?php echo $row['ID_LOT'];?>">modifica</a></td>
542      </tr>
543      <?php $index++;
544      } while ( $row = mysql_fetch_assoc($result));?>
545  </table><?php
546  }
547 else
548 {
549   echo "<p>Nu exista loturi active</p>";
550 }
551 ?>
552
553 <p class="title">Loturi inactive</p>
554 <?php
555 $query = "SELECT l.* , c.`nume_user` AS `user_creat`
556     FROM `lot` AS l
557     LEFT JOIN `users` AS c ON (l.`User`=c.`id_user`)
558     WHERE l.`Activ` = 0 ORDER BY l.`ID_LOT` DESC";
559 $result = mysql_query($query);
560 $total=0;
561 if ($result && (mysql_num_rows($result) > 0))
562 {
563   $total=mysql_num_rows($result);
564   $row = mysql_fetch_assoc($result);
565 }
566 if ($total>0)
567 {?>
568 <table align="center">
569   <tr class="lista_titlu">
      <td>----</td>
      <td>----</td>
      <td>----</td>
```

Escaping from HTML

- A PHP file normally contains HTML tags (**IS** basically a HTML file), with some PHP code **sections** inside
- PHP interpreter
- the PHP interpreter looks for sections that it needs to interpret and their interior is processed as PHP code
- what is found **outside** these sections is sent to the web server **unmodified**
- most of the time the result is a virtual "text file" containing (pure) **HTML** code (+CSS/Javascript)

Escaping from HTML

- <?php ... ?>
 - XML type – default, always available, recommended
- <? ... ?>
 - short, usually deactivated
 - absent in PHP 7,8
- <script language="php"> ... </script>
 - script type, available
- <% ... %>
 - ASP type, usually deactivated
 - absent in PHP 7,8

Escaping from HTML

- echo a PHP language construct: output one or more strings (equivalent with puts() in C)
- can process data
 - echo \$a + \$b;
- in most cases “output” is the data sent to the client by the web server
- “output” can usually be considered:
 - the current document
 - that particular script position inside the document

HTML + PHP

E:\Documents\Pagini Web\Safir dep\lista_lot.php - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

logfile.php lista_lot.php

```
539 <?php ?>
540
541 <div id="maincontent"><!-- InstanceBeginEditable name="Continut" -->
542 <p><span class="title">Adauga</span><br/>
543 <a href="control_lot.php?id=0">Lot nou</a></p>
544 <p class="title">Loturi active</p>
545 <?php
546 $query = "SELECT l.*, c.'nume_user' AS 'user_creat'
547     FROM `lot` AS l
548     LEFT JOIN `users` AS c ON (l.'User'=c.'id_user')
549     WHERE l.'Activ' <> 0 ORDER BY l.'ID_LOT' DESC";
550 $result = mysql_query($query);
551 $total=0;
552 if ($result && (mysql_num_rows($result) > 0))
553 {
554     $total=mysql_num_rows($result);
555     $row = mysql_fetch_assoc($result);
556 }
557 if ($total>0)
558 {?
559 <table align="center">
560 <tr class="lista_titlu">
561 <td align="center">Nr.</td>
562 <td>Numar</td>
563 <td>Data</td>
564 <td>Nr. pui</td>
565 <td>Gr. pui</td>
566 <td>Nr. pui morti</td>
567 <td>Gr. pui morti</td>
568 <td>Farma</td>
569 <td>Documente</td>
570 <td>Creat</td>
571 <td>Comenzi</td>
572 </tr>
573 <?php $index=1;
574 do { ?
575 <tr class="<?php if ($index%2) echo "lista_impar"; else echo "lista_p
576 <td align="center"><?php echo $index; ?>&ampnbsp</td>
577 <td><?php echo $row['Numar'];?>&ampnbsp</td>
578 <td><?php echo date("d/m/Y", strtotime($row['Data']));?>&ampnbsp</td>
579 <td><?php echo $row['Pui'];?>&ampnbsp</td>
580 <td><?php echo $row['Greutate'];?>&ampnbsp</td>
581 <td><?php echo $row['Pui_Morti'];?>&ampnbsp</td>
582 <td><?php echo $row['Greutate_Morti'];?>&ampnbsp</td>
583 <td><?php echo $row['Farma'];?>&ampnbsp</td>
584 <td><?php echo $row['Documente'];?>&ampnbsp</td>
```

The code block shows a PHP script for generating a table of lot information. It includes logic for alternating row classes ('lista_impar' or 'lista_p'), displaying numerical indices, and echoing data from a MySQL result set (\$row). A red box highlights a section of the code where the row class is determined based on the index (\$index%2), and another red circle highlights a specific row structure.

Escaping possibilities

- All versions offer the same HTML source for the browser
- The one that leaves the HTML structure outside the escaping tags and only the dynamic data results from PHP processing is **recommended**
- HTML + PHP code is interpreted much more elegantly in WYSIWYG editors

```
<h2>Transaction result</h2>
<?php echo '<p>Command received</p>';?>
```

```
<h2>Transaction result</h2>
<p><?php echo 'Command received';?></p>
```

```
<?php echo '<h1>Online Shop XXX SRL</h1>';?>
<?php echo '<h2>Transaction result</h2>';?>
<?php echo '<p>Command received</p>';?>
```

```
<?php
echo '<h1>Online Shop XXX SRL</h1>';
echo '<h2>Transaction result</h2>';
echo '<p>Command received</p>';
?>
```

Escaping possibilities

```
test.php
1 <h2>Rezultate comanda</h2>
2 <p><?php echo 'Comanda receptionata'; ?></p>
3
4 <?php
5 echo '<h1>Magazin online XXX SRL</h1>';
6 echo '<h2>Rezultate comanda</h2>';
7 echo '<p>Comanda receptionata</p>';
8 ?>
9
```

PHP – statements

- PHP statements end with a semicolon ;
 - exception: semicolon can be omitted at the end of the PHP code block: ... **echo 'something' ?>**
- multiple statements can be written on the same line (without moving to the next line)
 - **echo 'some1'; echo 'some2'; ...**
 - not recommended

PHP – comments

- comments in PHP follow C and Pearl syntax
- at the end of the line:
 - // echo some; //comment
 - # echo some; #comment
- block comment
 - /* ... */
 - /* a
multiline
comment */

PHP – constants

- Like any programming language PHP is based on usage
 - constants
 - variables
 - functions
- Constants definition:
 - `define('BOOKPRICE', 100);`
- “case sensitive”
 - by convention, only in capital letters
 - `echo BOOKPRICE; // 100`

PHP – variables

- variable – \$ char followed by the variable name
- the variable name is “case sensitive”
- a frequent mistake is forgetting the \$ char
 - PHP Notice: Use of undefined constant an – assumed \$an ([sau 'an'](#)) in D:\\Server\\
- Data types
 - scalar
 - composite
 - special

PHP – data types

- scalar
 - Boolean
 - integer
 - float (double)
 - **string**
- composite
 - array
 - object
- special
 - resource
 - NULL

PHP – tipuri de date

- **declararea** variabilelor **nu** e necesara decat cand se declara un domeniu de definitie (variabile globale)
 - global \$a, \$b;
 \$c=\$a+\$b;
- eliberarea memoriei nu este necesara, se face automat la terminarea executiei

PHP – tipuri de date

`$var = expression`

- Controlul variabilelor se face automat, “on the fly”
 - Daca \$var nu era definita anterior, in urma atribuirii se defineste de tipul dat de rezultatul expresiei
 - Daca \$var era definita, de un anumit tip (oarecare), in urma atribuirii devine de tipul dat de rezultatul expresiei
 - La finalizarea executiei script-ului se elimina variabila din memorie (automat)

PHP – tipuri de date

- tipul de date este în totalitate dependent de ceea ce se stochează
- PHP reactualizează tipul pentru a putea primi ceea ce se stochează
- conversiile sunt “**umane**” nu numerice

```
<?php
echo $variabila ; // tip Null, neinitializat – valoare NULL (doar)
$variabila = "o"; // $variabila tip string (ASCII 48)
$variabila += 2; // $variabila tip integer (2)
$variabila = $variabila + 1.3; // $variabila tip float (3.3)
$variabila = 5 + "10 obiecte"; // $variabila tip integer (15)
$var2=5; // $var2 tip integer (5)
$variabila=$var2."10 obiecte"; // $variabila tip string "510 obiecte"
?>
```

PHP – operatori

- În general similar celor din C/C++
- Opertori
 - Aritmetici
 - Atribuire
 - Bit
 - Comparare
 - Incrementare/Decrementare
 - Logici
 - **Sir**

PHP – operatori

■ Aritmetici

- $-\$a$ – Negare
- $\$a + \b – Adunare
- $\$a - \b – Scadere
- $\$a * \b – Inmultire
- $\$a / \b Impartire
- $\$a \% \b Modulo (rest)

■ Sir

- $\$a.\b – Concatenare sir a si sir b

PHP – operatori

■ Atribuire

- $\$a = \b
- $\$a += \b ($a = a + b$)
- $\$a -= \b ($a = a - b$)
- $\$a /= \b ($a = a / b$)
- $\$a *= \b ($a = a * b$)
- $\$a \% = \b ($a = a \% b$)
- $\$a .= \b ($a = a$ concatenat b - siruri)

PHP – operatori

- Operatori la nivel de bit
 - similari celor din C
 - ~ , & , | , ^ , << , >>
- Operatori logici
 - ofera rezultat boolean true/false
 - similari celor din C
 - && , || , !
 - suplimentar
 - and , or , xor – echivalenti dar de prioritate mai mica
 - \$a=55/0 or die('impartire prin 0');

PHP – operatori

■ Operatori de comparare

- ofera rezultat boolean true/false
- similari celor din C
- == , != , > , < , <> , >= , <=
- suplimentar
 - === identic, valoare egala **SI** de acelasi tip
 - !== “neidentic”, valoare diferita **SAU** de tipuri diferite

Precedenta operatorilor

non-associative	clone new	clone and new
left	[array()
non-associative	++ --	increment/decrement
right	~ - (int) (float) (string) (array) (object) (bool) @	types
non-associative	instanceof	types
right	!	logical
left	* / %	arithmetic
left	+ - .	arithmetic and string
left	<< >>	bitwise
non-associative	< <= > >= <>	comparison
non-associative	== != === !==	comparison
left	&	bitwise and references
left	^	bitwise
left		bitwise
left	&&	logical
left		logical
left	? :	ternary
right	= += -= *= /= .= %= &= = ^= <<= >>=	assignment
left	and	logical
left	xor	logical
left	or	logical
left	,	many uses

Precedenta operatorilor PHP7

non-associative	clone new	clone and new
left	[array()
non-associative	++ --	increment/decrement
right	~ - (int) (float) (string) (array) (object) (bool) @	types
non-associative	instanceof	types
right	!	logical
left	* / %	arithmetic
left	+ - .	arithmetic and string
left	<< >>	bitwise
non-associative	< <= > = >>	comparison
non-associative	== != === !== <=>	comparison
left	&	bitwise and references
left	^	bitwise
left		bitwise
left	&&	logical
left		logical
right	??	comparison
left	? :	ternary
right	= += -= *= /= .= %= &= = ^= <<= >>=	assignment
left	and	logical
left	xor	logical
left	or	logical
left	,	many uses

Exemplu de separare cod php

Raspuns dinamic

- <form action="rezultat.php" method="post">

```
<html>
<head>
<title>Magazin online XXX SRL</title>
</head>
<body>
<h1>Magazin online XXX SRL</h1>
<h2>Rezultate comanda</h2>
<p><?php echo 'Comanda receptionata';?></p>
</body>
</html>
```

Magazin online XXX SRL

Rezultate comanda

Comanda receptionata

<
<
<

```
</head>
<body>
<h1>Magazin online XXX SRL</h1>
<h2>Rezultate comanda</h2>
<p>Comanda receptionata</p>
</body>
</html>
```

PHP – Functii

- conceptual similar celor din C/C++
- functiile nu trebuie declarate inainte de a fi folosite
- numele functiilor este “case-insensitive”
- un mare numar de functii cu utilitate directa in aplicatiile web exista in bibliotecile PHP
- unele biblioteci trebuie activate in momentul configurarii PHP
 - extension=php_gd2.dll (linia 639) // pentru functii de procesare grafica de exemplu
 - extension=php_mysql.dll (linia 651) // pentru functii de acces la baze de date MySql
 - extension=php_mysqli.dll (linia 652) // pentru functii de acces la baze de date MySql (**obligatoriu** de la PHP 5.6)

Utilizarea functiilor PHP

- <form action="rezultat.php" method="post">

```
<p>Comanda receptionata la data:  
<?php echo date('d/m/Y')." ora ".date('H:i');?></p>
```

Magazin online XXX SRL

Rezultate comanda

Comanda receptionata la data: 10/03/2010 ora 13:36

```
<body>  
<h1>Magazin online XXX SRL</h1>  
<h2>Rezultate comanda</h2>  
<p>Comanda receptionata la data:  
10/03/2010 ora 13:36</p>  
</body>
```

Elemente de control

- majoritatea notiunilor si sintaxei sunt similare celor din C/C++
- instructiune compusa: separata de accolade {...}
- if / else / elseif – executie conditionata

```
<?php
if ($a > $b) {
    echo "a mai mare ca b";
} elseif ($a == $b) {
    echo "a egal cu b";
} else {
    echo "a mai mic ca b";
}
?>
```

Elemente de control

- while
- do-while
- for
- switch
- return
- break
- goto
- Similar cu echivalentele C/C++

```
$i = 1;  
while ($i <= 10) {  
    echo $i++;  
}
```

```
$i = 10;  
do {  
    echo $i--;  
} while ($i > 0);
```

```
for ($i = 1; $i <= 10; $i++) {  
    echo $i;  
}
```

```
switch ($i) {  
    case 0:  
        echo "i este 0";  
        break;  
    case 1:  
        echo "i este 1";  
        break;  
    default:  
        echo "i nici 1 nici 0";  
        break;  
}
```

Elemente de control

- `include()`
- `require()`
- `include_once()`
- `require_once()`

- pentru inserarea **SI** evaluarea fisierului folosit ca parametru
- folosite pentru a nu multiplica sectiunile de cod comune
- `require` opreste executia script-ului curent daca fisierul parametru nu este gasit
- `..._once()` verifica daca respectivul fisier a mai fost introdus si **nu** il mai introduce inca o data

Variabile tip string

PHP – tipuri de date

- scalar
 - boolean
 - integer
 - float (double)
 - **string**
- compus
 - array
 - object
- special
 - resource
 - NULL

Variabile tip string

- Scopul final al PHP e popularea cu date (sub forma de text) a campurilor existente intr-un schelet HTML
- Ca urmare datele de tip sir de caractere (string) sunt tratate mai complex decat echivalentul C/C++
 - mai multe modalitati de definire
 - mai multe modalitati de interpretare
 - **mult** mai multe functii

Variabile tip string

- definire variabila de tip string
 - utilizare apostrof ` `
 - utilizare ghilimele " "
 - definiri tip bloc
 - heredoc <<< "X"
 - nowdoc <<<'X' (PHP>5.3.0)

Variabile tip string ''

- apostroful **'** e utilizat pentru definirea sirurilor primare de caractere
 - se defineste o suita de caractere
 - prelucrarile in interiorul sirului sunt reduse
 - \' reprezinta caracterul apostrof
 - \\ si \ reprezinta caracterul backslash
 - doar atat!!!

Variabile tip string " "

- ghilimele " " sunt utilizate pentru definirea sirurilor de caractere complexe
 - prelucrările în interiorul sirului sunt mai complexe decât echivalentul C/C++
 - caracterele ASCII speciale, identic cu C++: \n, \r, \t, \\, \v, \e, \f, \x, \u
 - \" caracterul ghilimele
 - \\$ caracterul \$
 - se interpretează **variabile** în interiorul sirului !!!

Variabile tip string " "

- caracterul \$ indica faptul ca urmeaza un nume de variabila
 - interpretorul foloseste toate caracterele care pot genera nume de variabile valide (\$x, \$x->y, \$x[y])
 - daca e nevoie de exprimare mai complexa a variabilelor (de exemplu matrici cu 2 indici x[y][z] sau cu indici neintregi) se foloseste sintaxa complexa: {}

Variabile tip string " "

- sintaxa **simplă** pentru interpretarea variabilelor în interiorul sirurilor

```
<?php  
$juice = "apple";  
  
echo "He drank some $juice juice.";  
// He drank some apple juice.  
echo "He drank some juice made of $juices.";  
// He drank some juice made of . //s caracter valid pentru variabile  
?>
```

Variabile tip string " "

- sintaxa **simplă** pentru interpretarea variabilelor în interiorul sirurilor

```
<?php
$juices = array("apple", "orange", "koolaid1" => "purple");
class people {
    public $john = "John Smith";
}

$people = new people();
echo "$people->john drank some $juices[0] juice.";
// John Smith drank some apple juice.
?>
```

Variabile tip string " "

- sintaxa **complexa** pentru interpretarea variabilelor in interiorul sirurilor { }

```
<?php
$juice = "apple";

echo "He drank some juice made of $juices.";
// He drank some juice made of . // s caracter valid pentru variabile
echo "He drank some juice made of ${juice}s."
// He drank some juice made of apples. // {} arata unde se incheie
numele variabilei

?>
```

Variabile tip string " "

- sintaxa **complexa** pentru interpretarea variabilelor in interiorul sirurilor { }

```
<?php
$juices = array(array("apple", "orange"), "koolaid1" => "purple");
class people {
    public $name = "John Smith";
}

$obj->values[3] = new people();
echo "$obj->values[3]->name drank some $juices[0][1] juice.";
// drank some juice.
echo "{$obj->values[3]->name} drank some {$juices[0][1]} juice.";
// John Smith drank some apple juice.
?>
```

Documentatie

- <https://www.php.net/>
- http://rf-opto.etti.tuiasi.ro/master_it.php

Contact

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