

Lecture 10 (w11)

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)

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: Instructor: 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,) (video) (mp4, 467.67 MB, ro,)
 - Project/Design:** Server CentOS pentru VMWare Player (cloud) (link, 0 Bytes, en,) (Instalare CentOS (pdf, 2.54 MB, 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 Correspondents: POPESCU GOPO ION

From: Me <rdamian@etti.tuiasi.ro> ★
Subject: Important message from RF-OPTO (highlighted)
To: [REDACTED]
Cc: Me <rdamian@etti.tuiasi.ro> ★

 Laboratorul de Microunde si Optoelectronica
Facultatea de Electronica, Telecomunicatii si Tehnologia Informatiei
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In atentia: POPESCU GOPO ION
Parola pentru a accesa examenele pe server-ul rf-opto este
Parola: [REDACTED]

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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

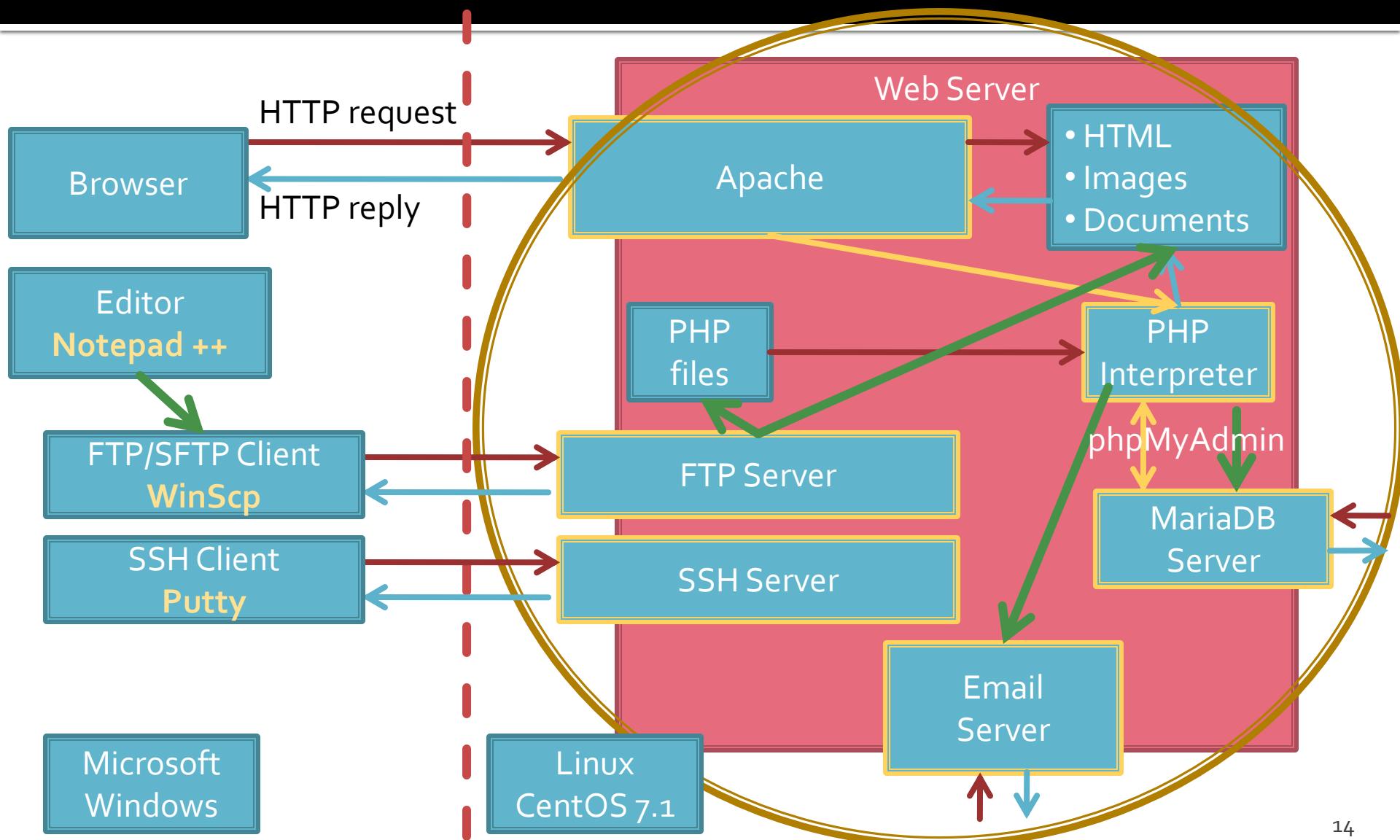
Project

- 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

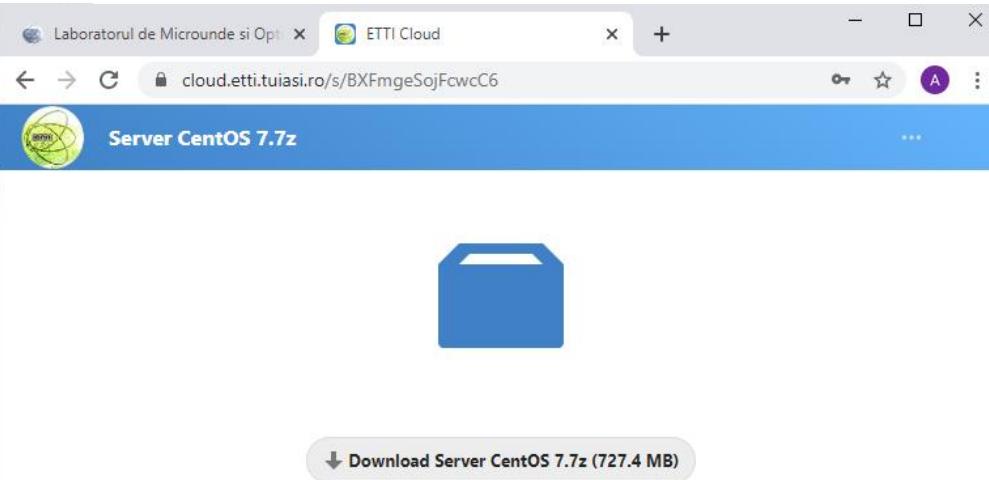
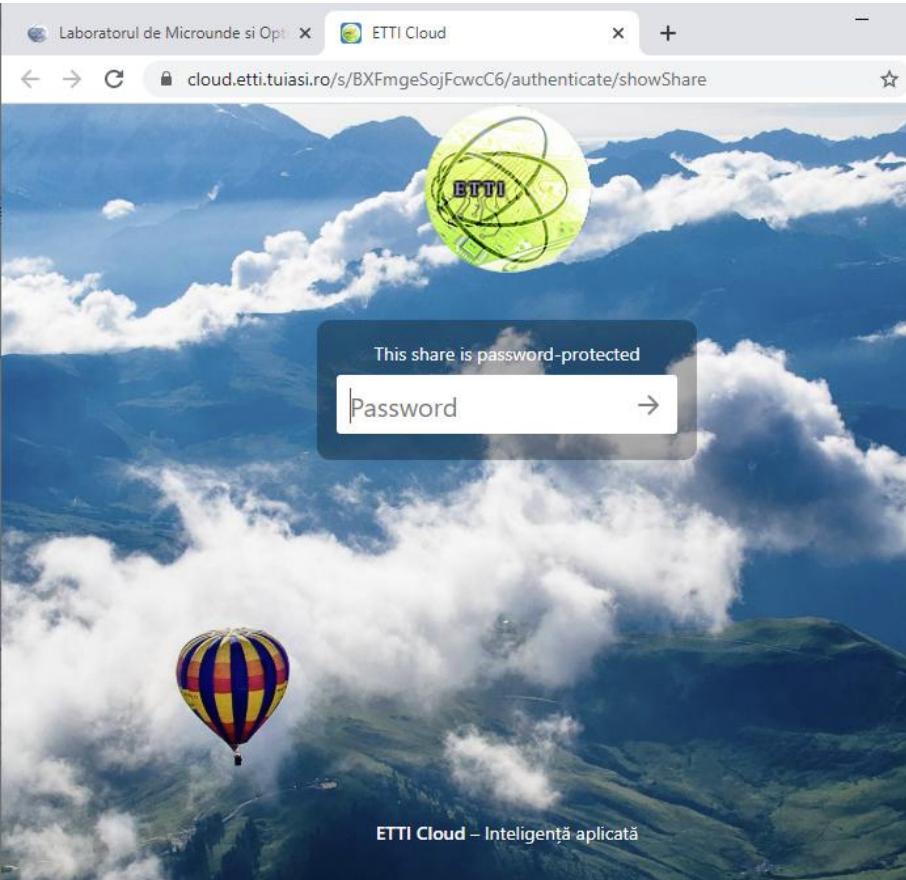
[VMware Workstation Player](#) (link, 0 Bytes, en, [Ubuntu VM for VMWare](#) (link, 0 Bytes, en, [Ubuntu Setup](#) (pdf, 1.83 MB, en, [Centos VM for VMWare](#) (link, 0 Bytes, en, [Centos Setup](#) (pdf, 2.54 MB, en, 

Examen

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

Reference Server

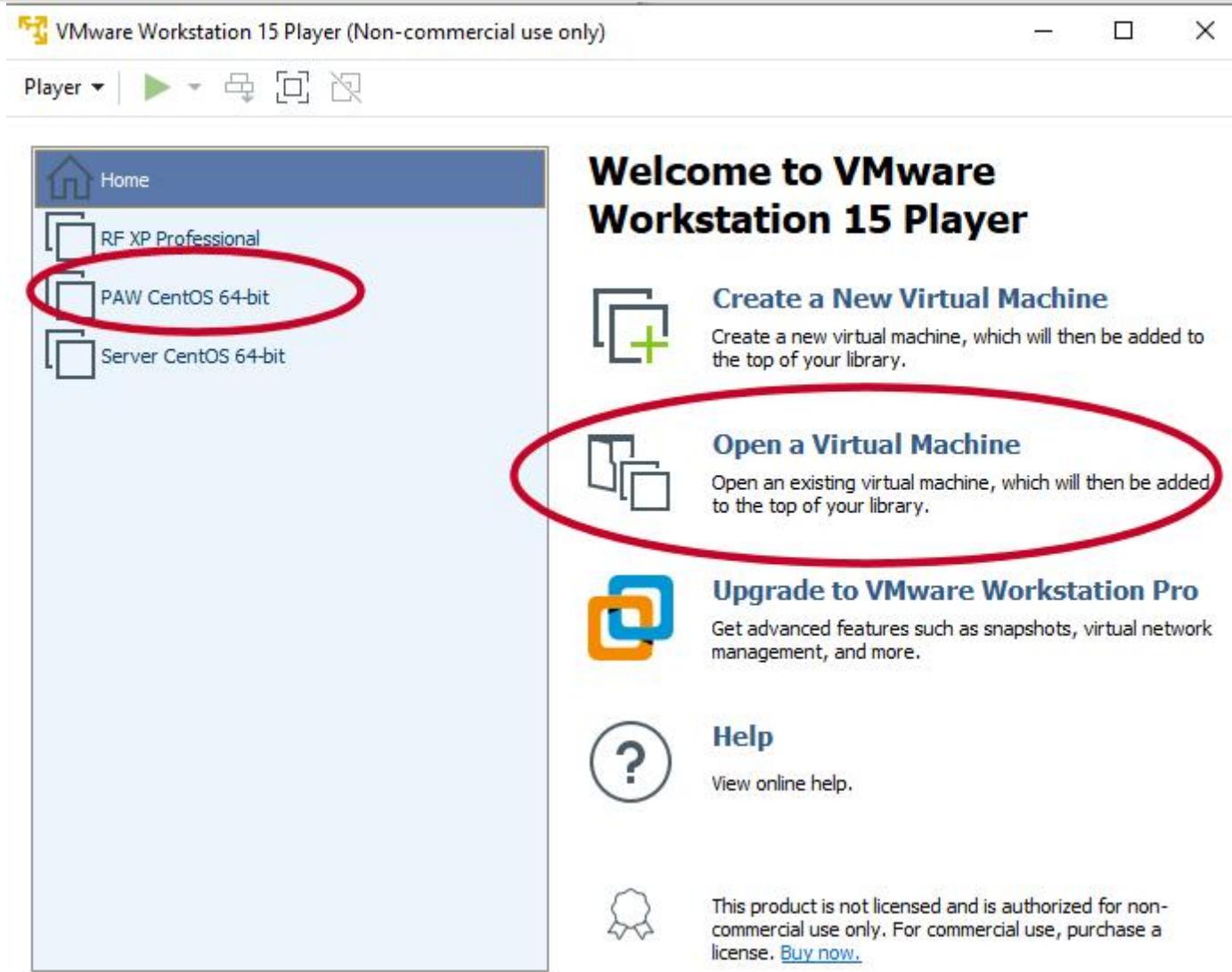
- Cloud ETTI: **RF-opto3#**



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

PAW CentOS 64-bit - VMware Workstation 15 Player (Non-commercial use only)

Player | || |

CentOS Linux 7 (Core)
Kernel 3.10.0-229.20.1.el7.x86_64 on an x86_64

```
tmpaw login: root
Password:
Last login: Wed Jun 17 05:35:16 from 192.168.0.106
[root@tmpaw ~]# ifconfig
```

PAW CentOS 64-bit - VMware Workstation 15 Player (Non-commercial use only)

Player | II |

CentOS Linux 7 (Core)
Kernel 3.10.0-229.20.1.el7.x86_64 on an x86_64

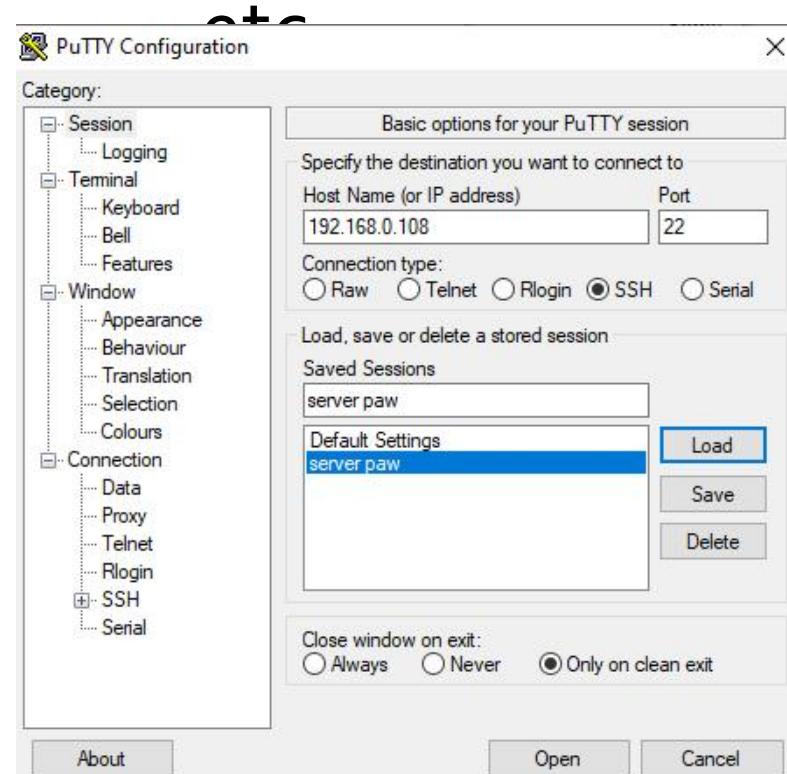
```
tmpaw login: root
Password:
Last login: Wed Jun 17 05:35:16 from 192.168.0.106
[root@tmpaw ~]# ifconfig
eno1677736: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.108 netmask 255.255.255.0 broadcast 192.168.0.255
       inet6 fe80::250:56ff:fe3e:1693 prefixlen 64 scopeid 0x20<link>
            ether 00:0c:0e:3e:16:93 txqueuelen 1000 (Ethernet)
            RX packets 104 bytes 12814 (12.5 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 99 bytes 11847 (11.5 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 0 (Local Loopback)
            RX packets 16 bytes 1774 (1.7 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 16 bytes 1774 (1.7 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@tmpaw ~]#
```

Putty

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

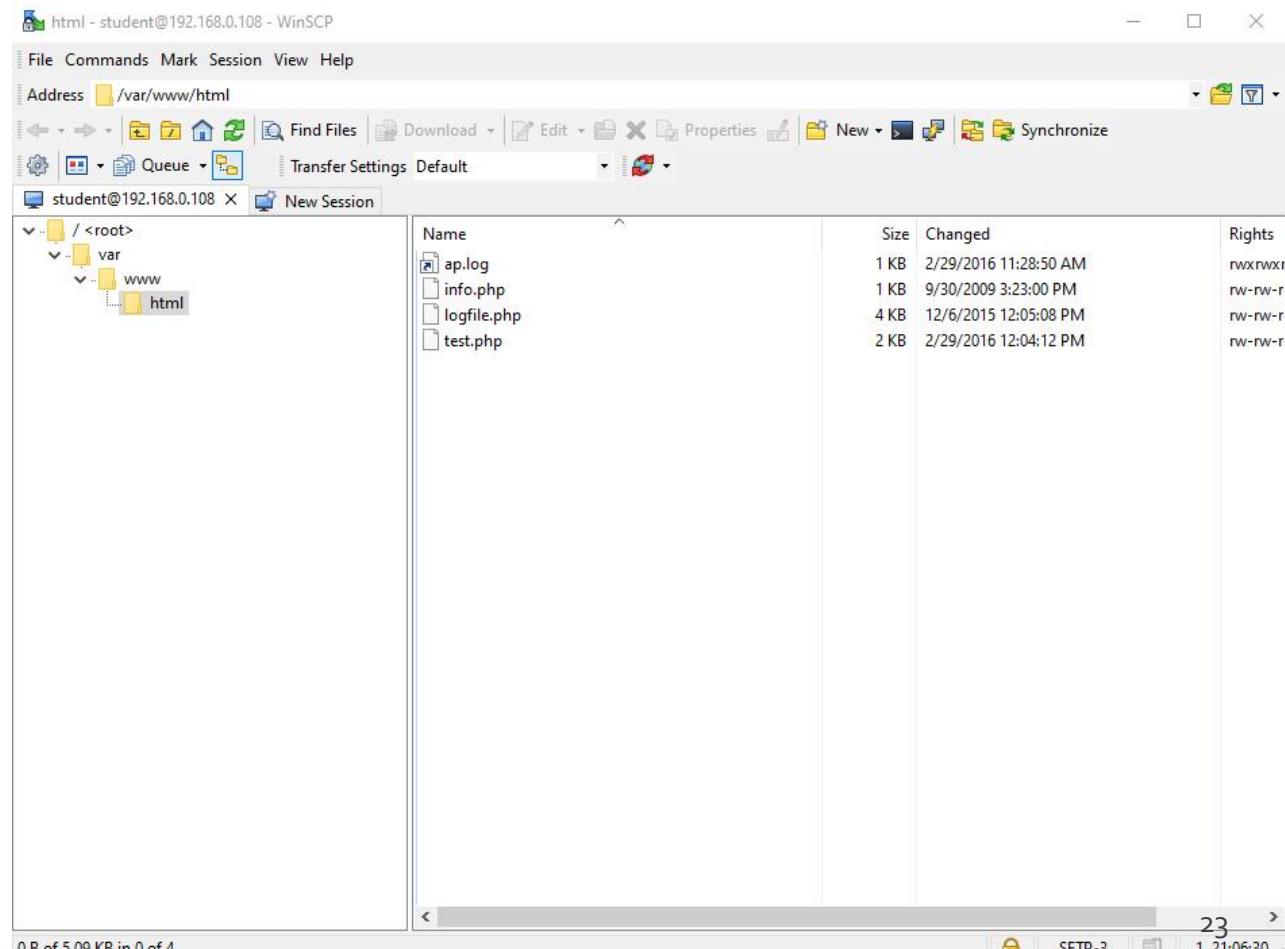
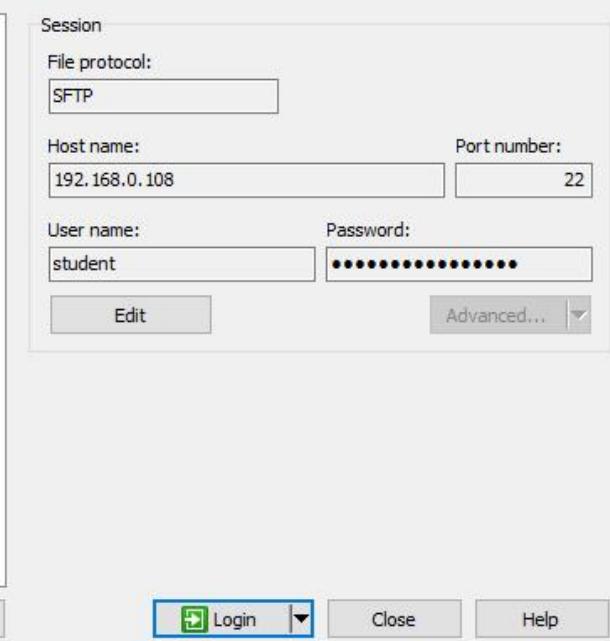


The screenshot shows a terminal window titled 'root@tmpaw:~'. The window title bar includes standard window control buttons. The terminal output is as follows:

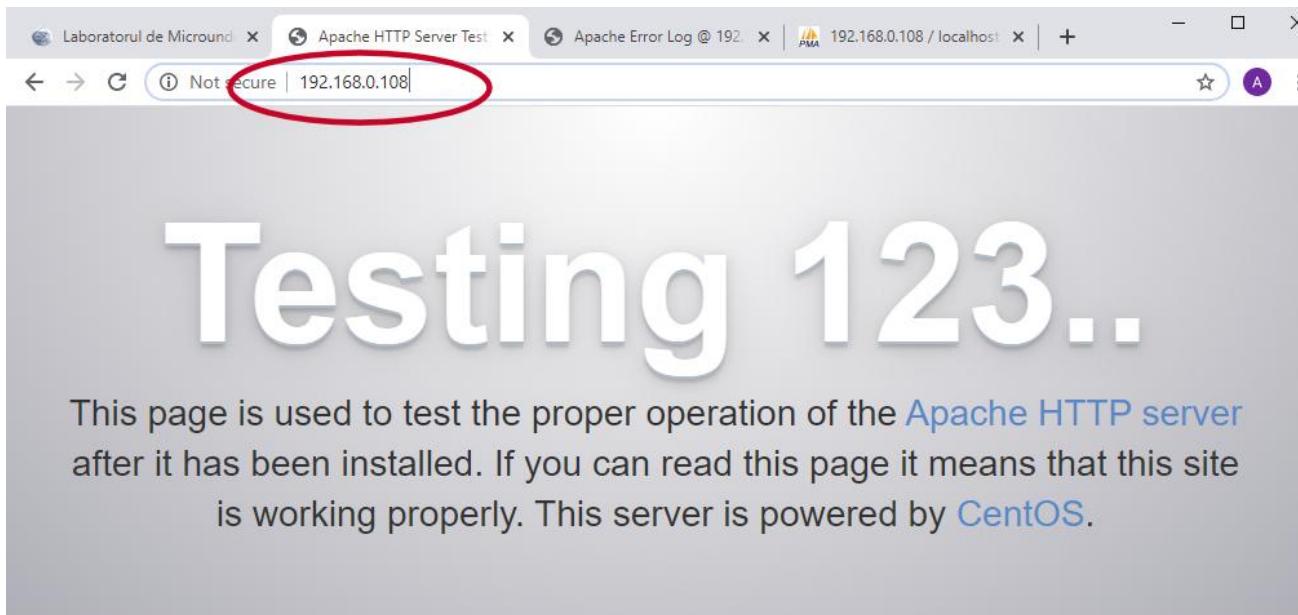
```
root@192.168.0.108's password:  
Last login: Wed Jun 17 05:34:04 2020 from 192.168.0.106  
[root@tmpaw ~]#
```

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

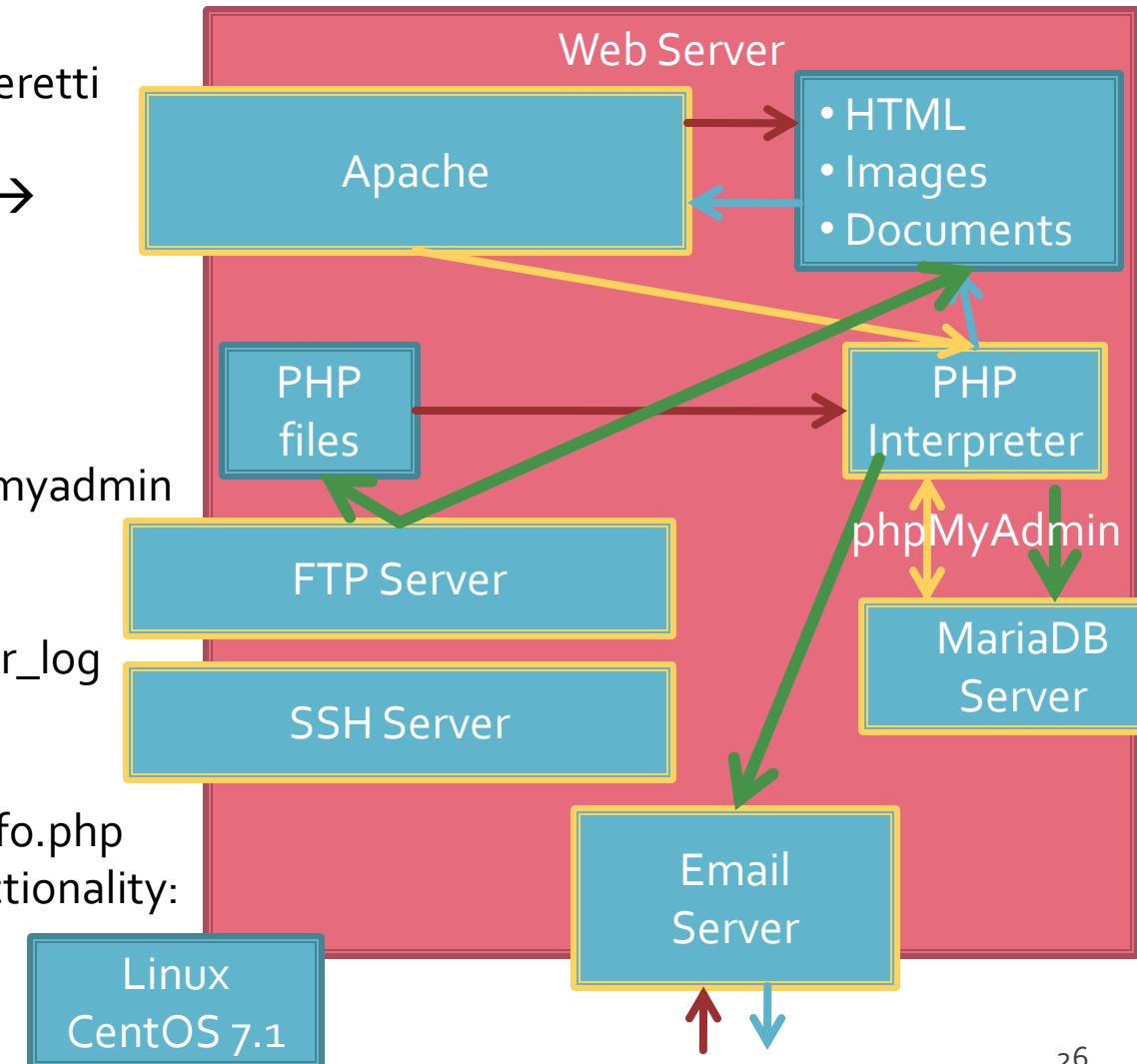
- Apache/2.4.6 (CentOS) OpenSSL/1.0.1e-fips mod_fcgid/2.3.9 PHP/5.4.16 mod_python/3.5.0- Python/2.7.5
- Database client version: libmysql - 5.5.44-MariaDB
- PHP extension: mysqli
- PHP version: 5.4.16

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

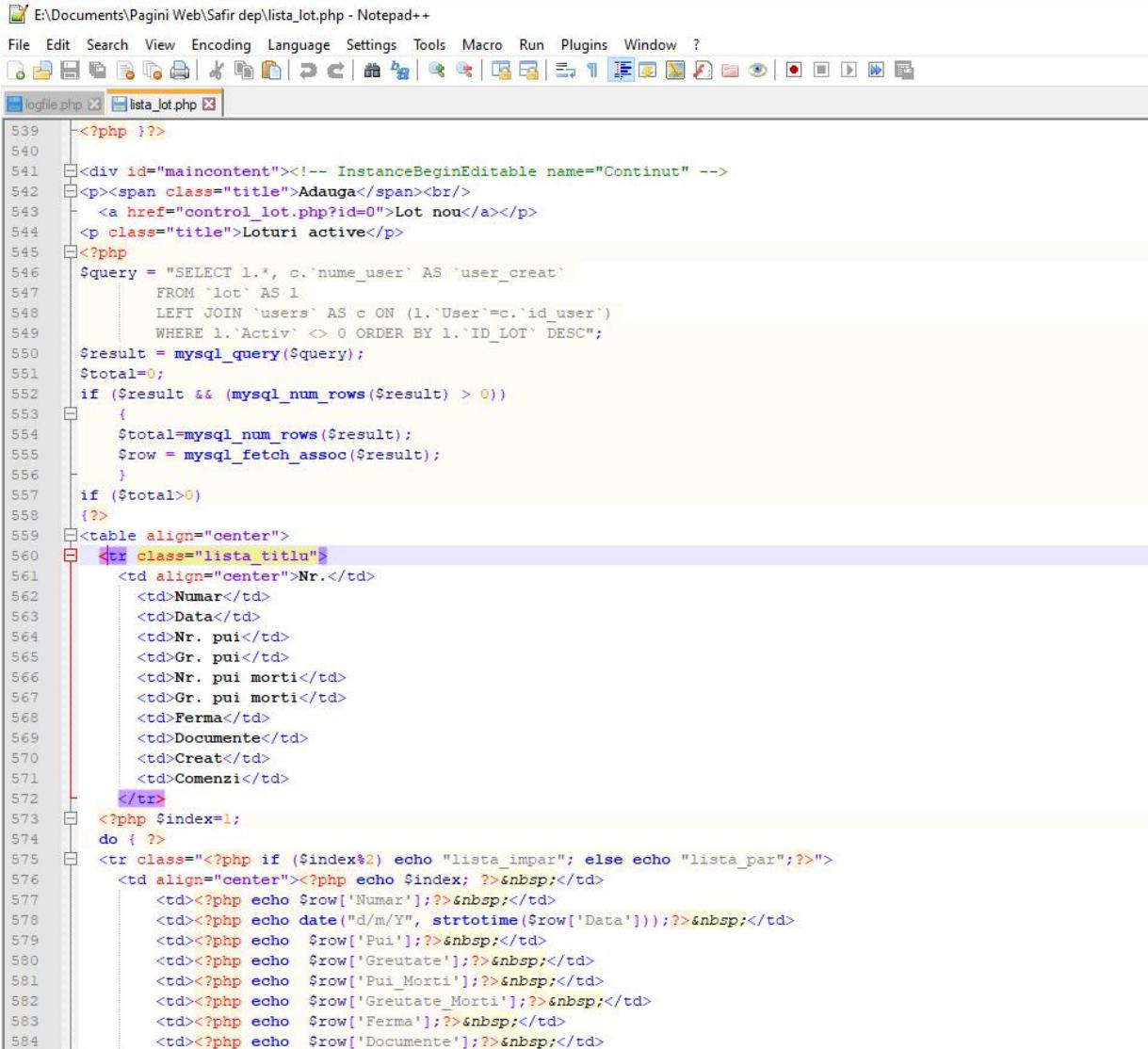


LAMP Reference Server

- 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>
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
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 }
558 if ($total>0)
559 {
560     <table align="center">
561         <tr class="lista_titlu">
562             <td align="center">Nr.</td>
563             <td>Numar</td>
564             <td>Data</td>
565             <td>Nr. pui</td>
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 $row['Numar']; ?>&nbsp;</td>
579             <td><?php echo date("d/m/Y", strtotime($row['Data'])) ?>
580             <td><?php echo $row['Pui']; ?>&nbsp;</td>
581             <td><?php echo $row['Greutate']; ?>&nbsp;</td>
582             <td><?php echo $row['Pui_Morti']; ?>&nbsp;</td>
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
------------	--------------	-------------	----------------	----------------	----------------------	----------------------	--------------	------------------	--------------	----------------

HTML + PHP

E:\Documents\Pagini Web\Safe dir\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
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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">
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563 <td>Data</td>
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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>
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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_Morti'];?>&nbsp;</td>
580 <td><?php echo $row['Greutate'];?>&nbsp;</td>
581 <td><?php echo $row['Pui_Morti1'];?>&nbsp;</td>
582 <td><?php echo $row['Greutate_Morti1'];?>&nbsp;</td>
583 <td><?php echo $row['Ferma'];?>&nbsp;</td>
584 <td><?php echo $row['Documente'];?>&nbsp;</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

```
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>
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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_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['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);
}
```

Hypertext PreProcessor

PHP

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>';
?>
```

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
 - prelucrările în 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 { }

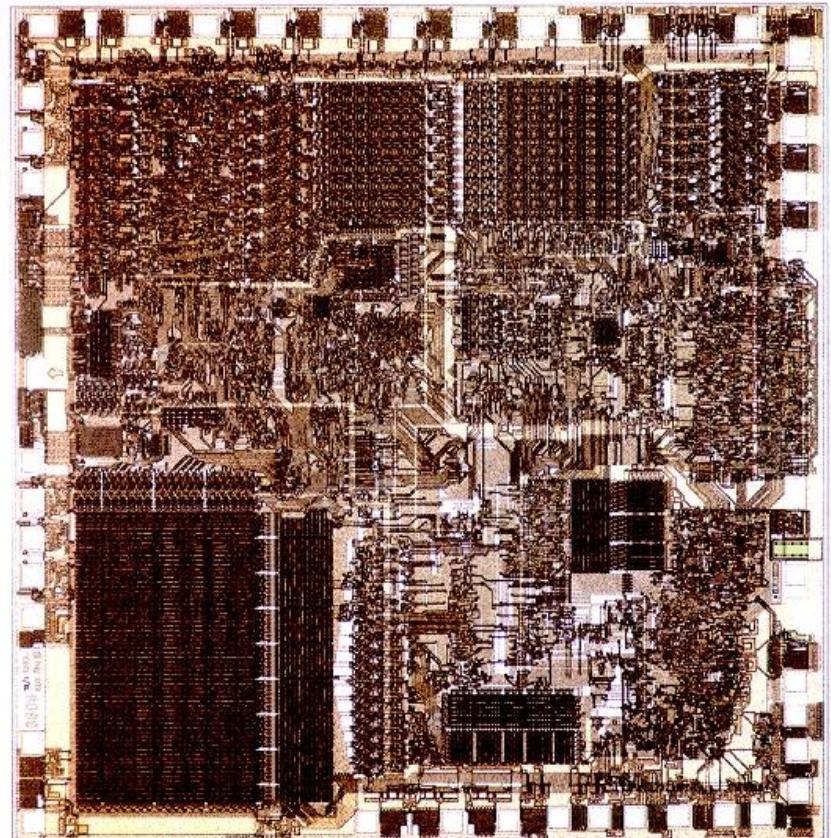
```
<?php
$juices = array(array("apple", "orange"), "koolaid1" => "purple");
class people {
    public $name = "John Smith";
}

$obj->values[3] = new people();
echo "$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.
?>
```

Structuri repetitive – tablouri

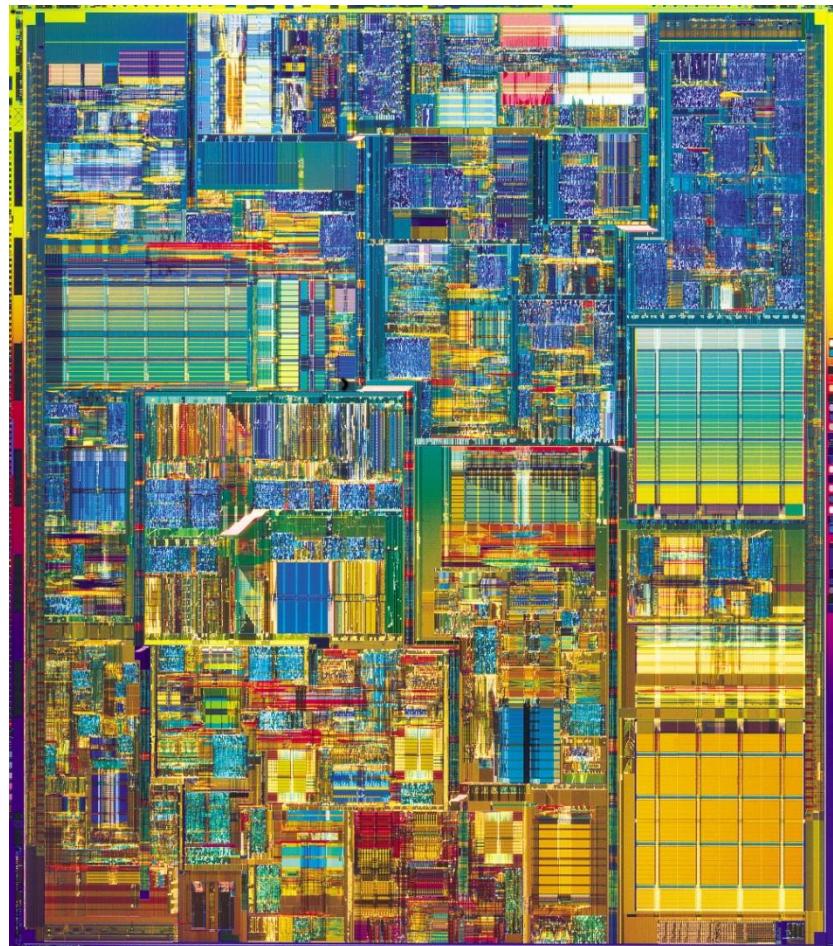
Impresionant?

- Intel® 8086
- 29.000 tranzistoare pe CPU
- 1978
- 1 MB date
- 4.7 MHz



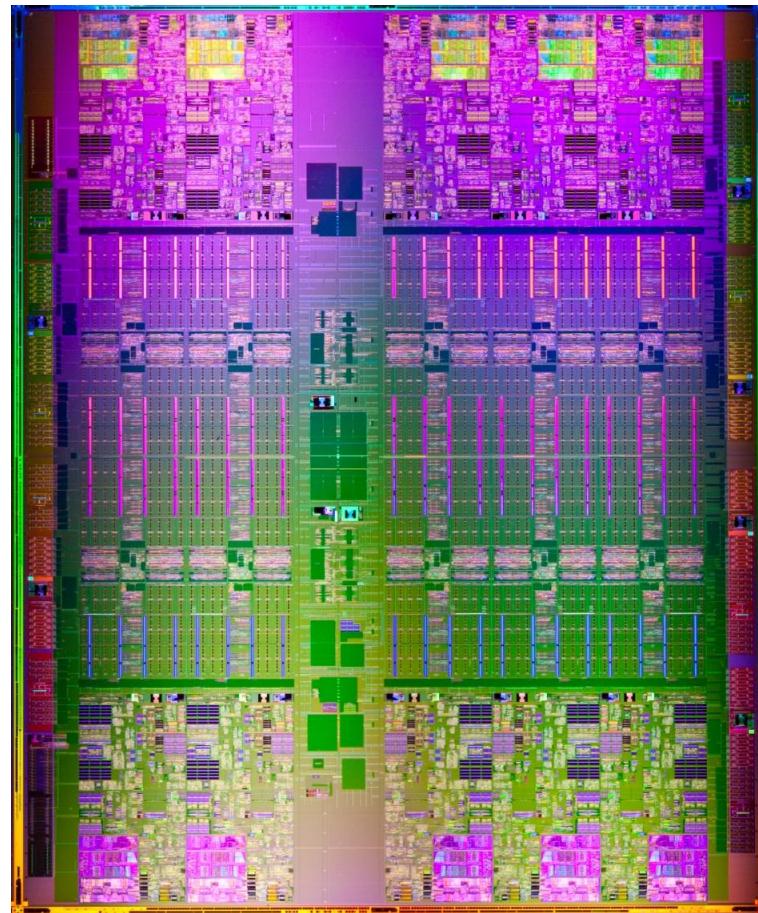
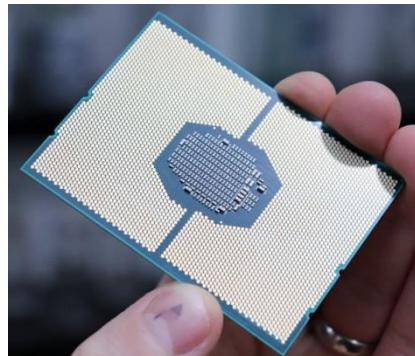
Impresionant?

- Intel® Itanium® processors (Tukwila)
- 2009
- 2 miliarde tranzistoare pe CPU
- 16 EB date (16 G GB)
- > 3 GHz



Impresionant?

- Intel® Xeon® Platinum 8380 Processor
- 2021
- ~8 miliarde tranzistoare pe CPU
- 40 nuclee (80 fire de executie)
- Sisteme cu 8 microprocesoare (224/448)
- 2.3-3.4 GHz



Concepte

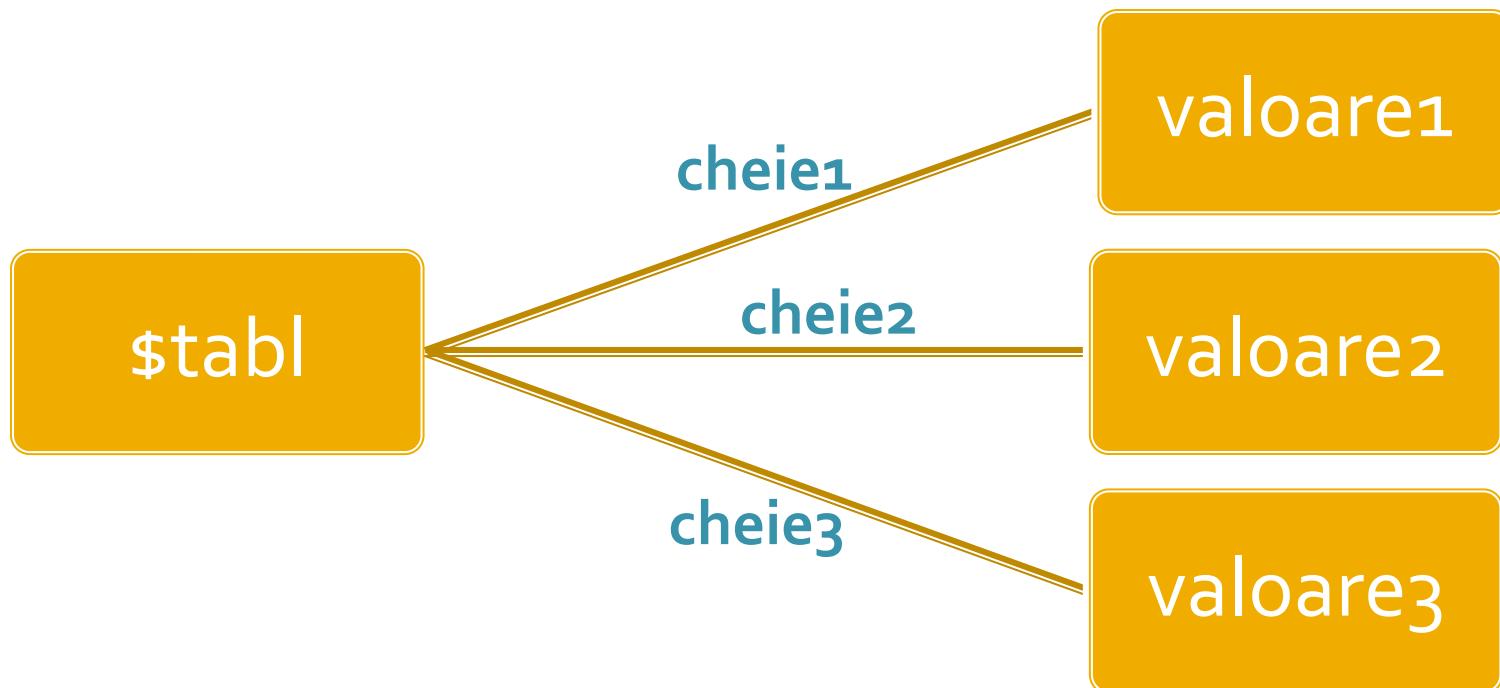
- Efectuare foarte rapida a unui numar **mic** de instructiuni, de **complexitate redusa**, repeta de un numar foarte mare de ori
- Programare: coborarea rationamentului la nivelul de **complexitate redusa**, cu obtinerea performantei prin structuri repetitive simple efectuate rapid.
- Operatii repetitive / date repetitive

Tablouri in PHP

- tabloul este tipul de variabila care asociaza **valori** unor **chei**
- spre deosebire de C, Basic, **cheile nu sunt** obligatoriu numere **intregi**, pot fi si **siruri**
- implicit cheile sunt intregi succesivi (pentru fiecare element adaugat) si primul element este 0.
- definirea unei perechi cheie / valoare
 - cheie => valoare
- definirea unui tablou
 - \$matr = array("definirea perechilor chei/valori")
 - pereche: cheie => valoare, ...

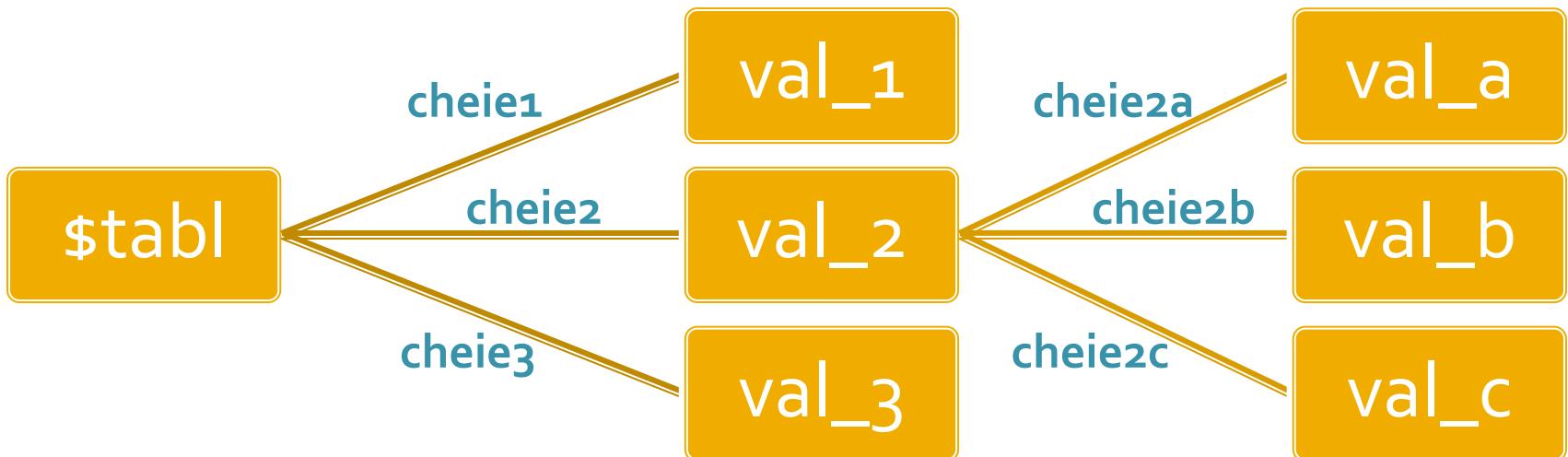
Tablou = Arbore

- \$tabl = array(cheie1 => valoare1, cheie2 => valoare2, cheie3 => valoare3)



Tablou = Arbore

- În particular, una sau mai multe dintre din valori poate fi la randul ei tablou, ducând la **ramificarea** arborelui
- `$tabl = array(cheie1 => val_1, cheie2 => array(cheie2a => val_a, cheie2b => val_b, cheie2c => val_c), cheie3 => val_3)`



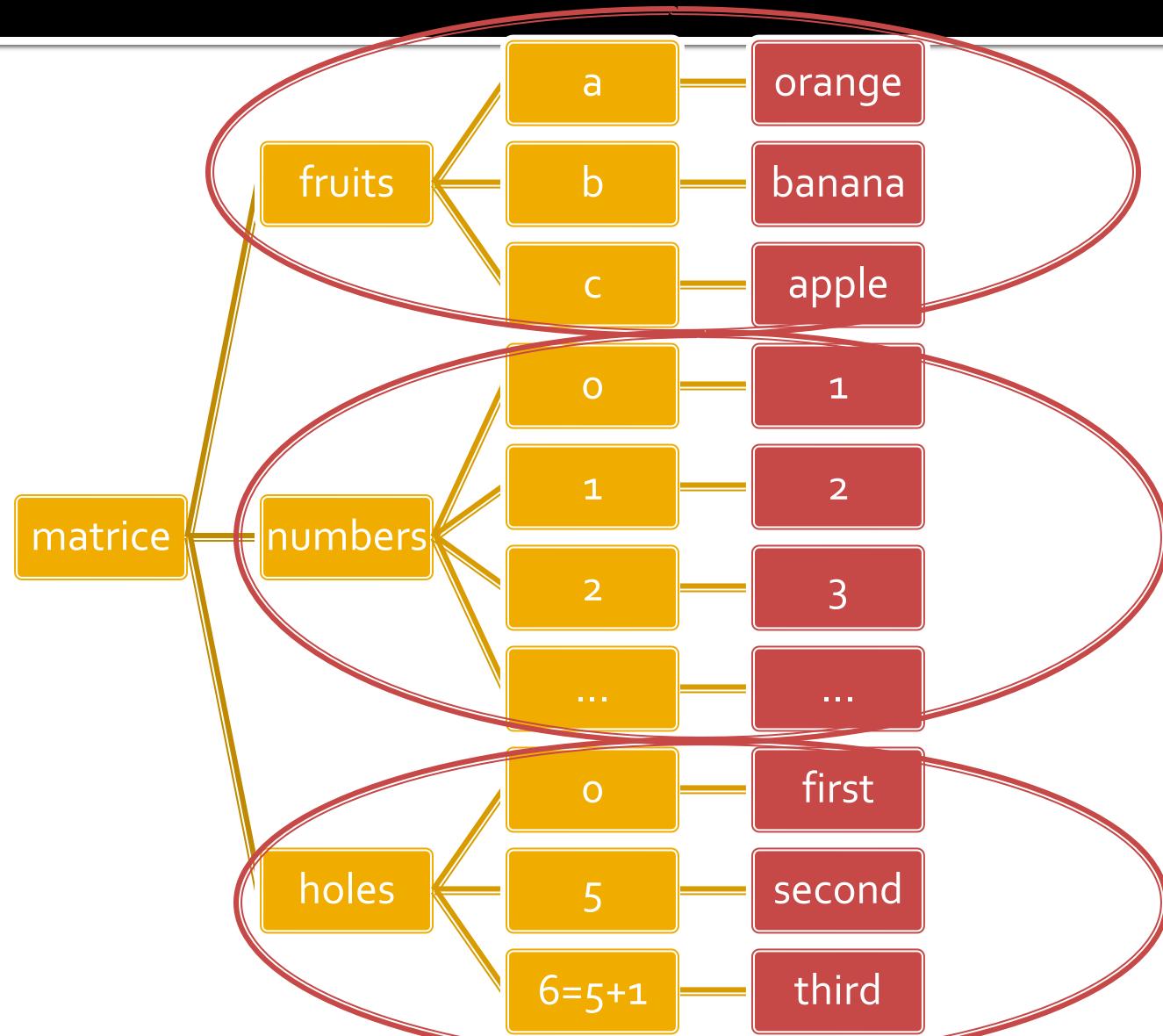
Tablouri in PHP

```
$matr = array(1, 2, 3, 4, 5);  
  
$matr[0]=1  
$matr[1]=2  
$matr[2]=3  
$matr[3]=4  
$matr[4]=5
```

```
$matr = array('a' => 1, 'b' => 2, 3, 4, 5);  
  
$matr['a']=1  
$matr['b']=2  
$matr[0]=3  
$matr[1]=4  
$matr[2]=5
```

```
$matrice= array (  
    "fruits" => array("a" => "orange", "b" => "banana", "c" => "apple"),  
    "numbers" => array(1, 2, 3, 4, 5, 6),  
    "holes" => array("first", 5 => "second", "third")  
);
```

Tablou = arbore



Afisarea tablourilor

```
echo "<pre>";
print_r ($matr);
echo "</pre>";
```

```
$matr= array (
"fruits" =>
array("a" => "orange", "b" => "banana", "c" => "apple",
"ultim"),
"numbers" =>
array(1, 2, 3, 4, 5, 6),
"holes" =>
array("first", 5 => "second", "third")
);
echo $matr;
echo "<pre>";
print_r ($matr);
echo "</pre>";
```

```
Array
(
    [fruits] => Array
    (
        [a] => orange
        [b] => banana
        [c] => apple
        [0] => ultim
    )
    [numbers] => Array
    (
        [0] => 1
        [1] => 2
        [2] => 3
        [3] => 4
        [4] => 5
        [5] => 6
    )
    [holes] => Array
    (
        [0] => first
        [5] => second
        [6] => third
    )
)
```

Chei

- Chei numerice
 - implicite
 - similar cu celelalte limbaje de programare
 - dificil de utilizat (trebuie retinuta valoarea logica a unei anumite chei numerice)
- Chei sir
 - claritate mai mare
 - eficiență numerică mai mică
 - tablourile au un index numeric intern, implicit ascuns, accesibil prin funcții :
index => cheie => valoare

Elemente de control

- **for** – util daca la definirea tablourilor sunt folosite cheile numerice implice (numere intregi)
- **do ... while** si **while** se pot folosi impreuna cu functii specifice caracteristice tablourilor next(), prev(), end(), reset(), current(), each()
- **foreach** - elementul de control al iteratiilor cel mai potrivit pentru chei alfanumerice

Elemente de control – foreach

- **foreach (array_expression as \$key => \$value)
statement**
- **foreach (array_expression as \$value)
statement**
- iterarea prin fiecare element al tabloului
- la fiecare element variabila declarata in instructiune variabila locala **\$key** ofera acces la cheia curenta iar variabila locala **\$value** ofera acces la valoarea asociata
- foreach() lucreaza cu o **copie** a tabloului deci tabloul original nu va fi modificat prin schimbarea continutului variabilelor **\$key** si **\$value**

Elemente de control – foreach

```
$matr = array (
    "fruits" => array("a" => "orange", "b" => "banana", "c" => "apple", "ultim"),
    "numbers" => "in loc de numere",
    "holes" => "in loc de ce era"
);
foreach ($matr as $cheie => $continut)
    echo "matr[".$cheie."]=".$continut."<br />";
```

```
matr[fruits]=Array
matr[numbers]=in loc de numere
matr[holes]=in loc de ce era
```

Tablouri – functii utile

- current (\$matr) – returneaza elementul indicat de indicele intern al tabloului ($\sim v[i]$)
- next (\$matr) – incrementeaza indicele intern si returneaza valoarea stocata acolo ($\sim v[+ + i]$)
- prev (\$matr) – decrementeaza indicele intern si returneaza valoarea stocata acolo ($\sim v[--i]$)
- end(\$matr) – muta indicele intern la ultimul element si returneaza valoarea stocata acolo ($\sim i=N-1;v[i]$)
- reset(\$matr) – muta indicele intern la primul element si returneaza valoarea stocata acolo ($\sim i=0;v[i]$)

Tablouri – functii utile

- sort(\$matr) – ordoneaza in ordine crescatoare a **valorilor** un tablou, cheile sunt sterse si recreate
 - \$fruits = array("lemon", "orange", "banana", "apple");
sort(\$fruits);
 - fruits[0] = apple, fruits[1] = banana, fruits[2] = lemon, fruits[3] = orange
- rsort(\$matr) – similar, descrescator

Tablouri – functii utile

- asort(\$matr) ordoneaza in ordine crescatoare a **valorilor** un tablou, cheile sunt pastrate, inclusiv asocierea cheie => valoare
 - \$fruits = array("d" => "lemon", "a" => "orange", "b" => "banana", "c" => "apple");
asort(\$fruits);
 - c = apple, b = banana, d = lemon, a = orange
- arsort(\$matr) – similar, descrescator

Tablouri – functii utile

- `ksort($matr)` ordoneaza in ordine crescatoare a **cheilor** un tablou, cheile sunt pastrate, inclusiv asocierea cheie => valoare
 - `$fruits = array("d" => "lemon", "a" => "orange", "b" => "banana", "c" => "apple");
ksort($fruits);`
 - a = orange, b = banana, c = apple , d = lemon
- `krsort($matr)` – similar, descrescator

Variabile globale

Variabile globale

- Variabile globale (predefinite)
 - accesibile script-urilor PHP prin conlucrarea cu server-ul
 - Exemple:
 - `$_SERVER` — Server and execution environment information
 - `$_GET` — HTTP GET variables
 - `$_POST` — HTTP POST variables
 - `$_FILES` — HTTP File Upload variables
 - `$_REQUEST` — HTTP Request variables
 - `$_SESSION` — Session variables
 - `$_ENV` — Environment variables
 - `$_COOKIE` — HTTP Cookies

Forme in HTML

- necesare pentru ca utilizatorul sa poate trimite date server-ului
- <form>...</form>
- Atribute specifice:
 - action: adresa documentului care preia datele
 - <form **action**= "<?php echo \$_SERVER['SCRIPT_NAME'];?>">
 - <form **action**= "actiuni/fisier2.html">
 - method: modalitatea de transmitere a datelor: post sau get
 - <form **method**= "post" **action**= ... >

Metode de transmitere

- **post** datele sunt transmise in bloc
- **get** datele sunt atasate adresei documentului de procesare : `results.php?prob=81&an=2009`
- **get** trebuie folosit numai cand datele sunt “idempotente”,
 - nu cauzeaza efecte colaterale
 - nu modifica starea server-ului (baze date, etc)
- se poate simula realizarea unei forme (**get**) prin scrierea corespunzatoare a link-urilor

Elemente de interacțiune cu utilizatorul – <form>

- în interiorul etichetei <form>...</form>
 - input
 - select/option
 - textarea
 - button
- **toate** elementele vor avea un nume
 - atribut: name=""
 - numele va fi întâlnit în URI-ul generat prin GET, sau în numele variabilei trimisă prin POST
- trimiterea datelor se face prin intermediul unui buton cu tipul type="submit"

Exemple

```
<input name="textfield" type="text" value="ceva" />

<input name="Ok" type="submit" value="Trimite" />

<label><input name="check" type="checkbox" value="5" checked />check1</label>

<label><input name="RG1" type="radio" value="a" checked="checked" />but1</label>
<label><input name="RG1" type="radio" value="b" />but2</label>

<input name="hid" type="hidden" value="6" />
```

The screenshot shows a web page with the following elements:

- A text input field containing the value "ceva".
- A submit button labeled "Trimite".
- A checkbox labeled "check1" which is checked.
- A radio button labeled "but1" which is checked.
- A radio button labeled "but2" which is not checked.

Interactiunea cu utilizatorul

- Datele introduse de utilizator in forme se regasesc in fisierul **action** (in functie de metoda aleasa pentru forma) in una din variabilele:
 - `$_POST` – `method="post"`
 - `$_GET` – `method="get"`
 - `$_REQUEST` – ambele metode
- variabilele sunt **matrici** cu **cheia** data de atributul **name** din forma HTML
 - `<input type="text" name="carti_cant" size="3" maxlength="3" />`
 - `$_POST['carti_cant']` contine valoarea introdusa

Subdivizare \$_POST

- atributul **name** în forma devine **cheie** în tabloul global **\$_POST**
 - <input type="text" name="carti_cant" size="3" maxlength="3" />
 - **\$_POST['carti_cant']** conține valoarea introdusa
- realizând atributul **name** ca tablou, se obține în **\$_POST** un "subtablou" (ramificare locală a arborelui) care grupează elementele input
 - <input type="text" name="cant[carti]" size="3" maxlength="3" />
 - **\$_POST ['cant'] ['carti']** conține valoarea introdusa

Subdivizare \$_POST

- realizand atributul `name` ca tablou, se obtine in `$_POST` un "subtablou" (ramificare locala a arborelui) care grupeaza elementele dorite
 - `<input type="text" name="cant[carti]" size="3" maxlength="3" />`
 - `$_POST ['cant'] ['carti']` contine valoarea introdusa
- Este necesar pentru a grupa elementele similare pe care sa le prelucram la receptie cu `foreach`
- `$_POST` contine si alte elemente pe care le dorim eventual tratate separat
 - numele (name) si valoarea butonului "submit" apar in `$_POST` de exemplu

Documentatie

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

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