

Curs 8

2023/2024

# Programarea aplicațiilor web

# PAW

- Programarea aplicațiilor web
  - An V RC
    - 1.5C/1L/1P

# Program

- An V
  - Saptamana 1
    - Luni 17-20 Curs (Intro/HTML/CSS)
  - Saptamanile 2-8
    - Luni 16:30-18 Curs
    - Luni 18-20 Laborator
  - Saptamanile 9-14
    - Luni 16:30-18 Curs
    - Luni 18-20 Proiect

# Orar

- <https://orar.etti.tuiasi.ro/> : C->16:30-18, L/P -> 18

Group:  Professor:  Classroom:



FACULTATEA DE ELECTRONICA, TELECOMUNICATII SI TEHNOLOGIA INFORMATIEI  
55RC  
ETTL

	1 8:00 - 8:50	2 9:00 - 9:50	3 10:00 - 10:50	4 11:00 - 11:50	5 12:00 - 12:50	6 13:00 - 13:50	7 14:00 - 14:50	8 15:00 - 15:50	9 16:00 - 16:50	10 17:00 - 17:50	11 18:00 - 18:50	12 19:00 - 19:50
L										PAW (C) Damian R. 2.13 TC (R)		
Ma								RCALSC (C) Scripcariu L. 2.13 TC (R)			RCALSC (L) Scripcariu L. 2.13 TC (R)	
Mi								POO (C) Sirbu A. P8 (Amf.)			TEFO (L) Trifina L. 3.25 TTI (L)	
J						Etic (C) Casian-Bo tez I. Online	Etic (S) Casian-Bo tez I. Online				TEFO (L) Trifina L. 3.25 TTI (L)	
V								TEFO (C) Trifina L. P8 (Amf.)				
Sa												



# Nota

- An V
  - 33% E
  - 66% Aplicatii
    - 33% L
    - 33% P

# Site



## Microwave and Optoelectronics Laboratory

We are enlisted in the Telecommunications Department of the Electronics, Telecommunication and Information Technology Faculty (ETTI) from the "Gh. Asachi" Technical University (TUJIASI) in Iasi, Romania

We currently cover inside ETTI the fields related to:

- Microwave Circuits and Devices
- Optoelectronics
- Information Technology

### Courses

Nr.	Course	Shortcut	Code	Type	Semester	Credits	Weekly	Examination	Link
1	Microwave Devices and Circuits for Radiocommunications	DCMR	DOS412T	DOS	7	4	0P,1L,0S,2C	Exam	<a href="#">details</a>
2	Monolithic Microwave Integrated Circuits	CIMM	RD.IA.207	DOMS	11	6	1.5L,0S,2C,0P	Exam	<a href="#">details</a>
3	Advanced Techniques in the Design of the Radio-communications Systems	TAPSR	RD.IA.103	DIMS	9	6	1.5P,0L,0S,2C	Exam	<a href="#">details</a>
4	Optical Communications	CO	DOS409T	DOS	7	5	0P,1L,0S,3C	Colloquium	<a href="#">details</a>
5	Optical Communications	OC	EDOS409T	DOS	7	5	0P,1L,0S,3C	Exam	<a href="#">details</a>
6	Satellite Communications	CS	RC.IA.104	DIMS	9	6	0L,0S,2C,1.5P	Exam	<a href="#">details</a>
7	Applied Informatics 1	IA1	DOF135	DOF	1	4	0P,1L,0S,2C	Verification	<a href="#">details</a>
8	Applied Informatics 1	AI1	EDOF135	DOF	1	4	0P,1L,0S,2C	Verification	<a href="#">details</a>
9	Databases, Web Programming and Interfacing	DWPI	ITT.IA.601	DIS	11	5	1P,1L,0.25S,1C	Verification	<a href="#">details</a>
10	Web Applications Design	PAW	RC.IA.108	DIMS	10	5	1L,0S,1.5C,1P	Exam	<a href="#">details</a>
11	Optoelectronics	OPTO	DID405M	DID	8	4	0P,1L,0S,2C	Colloquium	<a href="#">details</a>
12	Microwave Devices and Circuits for Radiocommunications (English)	MDCR	EDOS412T	DOS	8	4	0P,1L,0S,2C	Exam	<a href="#">details</a>



# Server referinta LAMP 2024

- 3 variante acceptate
  - CentOS 7.1
  - Ubuntu 20.04
  - Debian 12.5

# Tema bonus

- logfile.php
  - Afiseaza log Apache (erori php majore)
- **2p suplimentar** la laborator/examen
- Modificare logfile.php pentru a afisa **toate** erorile PHP
  - php.ini – activare erori
  - php.ini – locatie erori
  - logfile.php – afisare log PHP

# Laborator 7

# Plan aplicatie – Cumparator

- Pe masura ce aplicatia paraseste un fir liniar de executie este necesara introducerea unui plan (graf) al aplicatiei
- Cumparator
  - citirea fisierului text (XML) se realizeaza in antet.php, comun pentru toate fisierele

lista\_categ.php  
ALEGERE CATEGORIE

formular.php  
INTRODUCERE DATE

rezultat.php  
PRELUCRARE  
COMANDA

# Rezultat (comparator)

## Categorii Produse

Alegeti categoria:

Nr.	Categorie	Total Produse
1	<a href="#">Papetarie</a>	3
2	<a href="#">Instrumente</a>	3
3	<a href="#">Audio-video</a>	3
4	<a href="#">Calculatoare</a>	3
5	<a href="#">Jucarii</a>	2

Total produse: 14

## Magazin online Firma X SRL

### Finalizati comanda

Nr.	Produs	Pret	Cantitate
1	Carti	100	<input type="text" value="1"/>
2	Caiete	50	<input type="text" value="2"/>
3	Penare	150	<input type="text" value="1"/>
4	Stilouri	125	<input type="text" value="0"/>
5	Creioane	25	<input type="text" value="0"/>

## Magazin online Firma X SRL

### Rezultate comanda

Pret total (fara TVA): 350

Pret total (cu TVA): 416.5

Comanda receptionata la data: 17/03/2010 ora 08:24

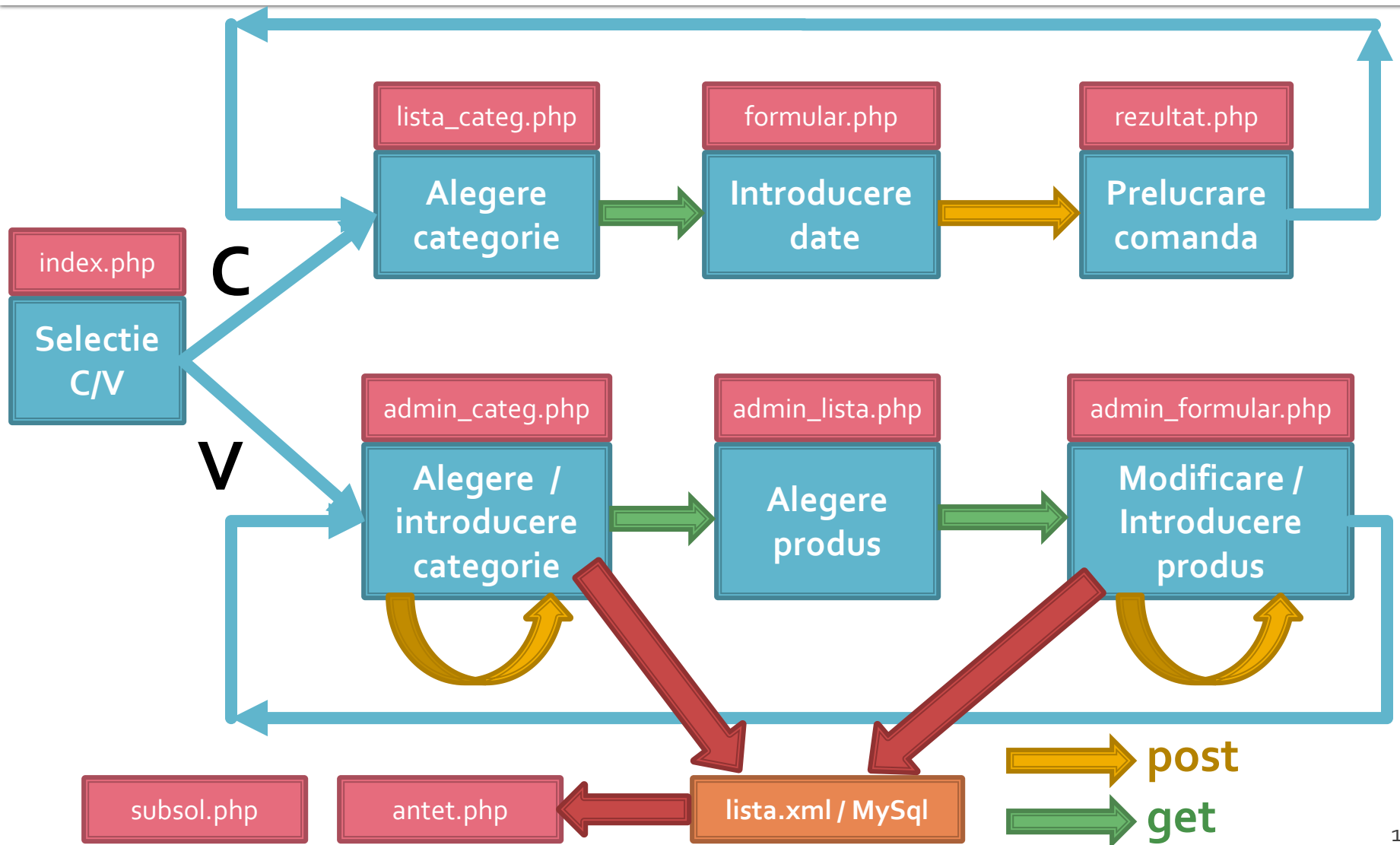


# Plan aplicatie – Vanzator

- Aparitia aplicatiei pentru vanzator
  - introduce un fir paralel de executie cu necesitatea alegerii initiale: cumparator/vanzator
  - aduce posibilitatea scrierii fisierului XML
  - diverse operatii de scriere
    - introducere categorie de produse
    - introducere produs nou intr-o categorie existenta
    - modificare produs existent
  - modificarea fisierului implica 2 actiuni:
    - colectare date
    - prelucrare



# Plan aplicatie (Proiect !!)



# Rezultat (vanzator)

**Magazin Firma X**

[Inceput](#) | [Inapoi](#)

## Magazin online Firma X SRL

Alegeti:

- [Cumparator](#)
- [Vanzator](#)

### Categorii Produse

Alegeti categoria:

Nr.	Categorie	Total Produse
1	<a href="#">Papetarie</a>	3
2	<a href="#">Instrumente</a>	3
3	<a href="#">Audio-video</a>	3
4	<a href="#">Calculatoare</a>	3
5	<a href="#">Jucarii</a>	2

Total produse: 14

Categorie noua de produse:

### Lista produse in categoria Calculatoare

Nr.	Produs	Descriere	Pret	Cantitate	Actiuni
1	Laptop	calculator mic	2000	2	<a href="#">modifica</a>
2	Desktop	calculator mare	1000	5	<a href="#">modifica</a>
3	Imprimanta	prn	200	2	<a href="#">modifica</a>
-	Produs nou				<a href="#">adauga</a>

### Produs in categoria Calculatoare

Produs	<input type="text" value="laptop"/>
Descriere	<input type="text" value="calculator mic"/>
Pret	<input type="text" value="2000"/>
Cantitate	<input type="text" value="2"/>



# Laborator 6

- Sa se continue magazinul virtual cu:
  - produsele sunt grupate pe categorii de produse
  - sa prezinte utilizatorului o lista de grupe de produse pentru a alege
  - sa prezinte utilizatorului o lista de produse si preturi in grupa aleasa
  - lista de produse si preturi se citeste dintr-o baza de date **MySQL**
  - se preia comanda si se calculeaza suma totala
  - **se creaza paginile prin care vanzatorul poate modifica preturile, produsele, categoriile**

# Laborator 7

# Creare tablou produse (antet)

```
$hostname = "localhost";
$database = "tmpaw";
$username = "web";
$password = "test";
$conex= mysql_connect($hostname, $username, $password);
mysql_select_db($database, $conex);
$query = "SELECT * FROM `categorii` AS c";
$result_c = mysql_query($query, $conex) or die(mysql_error());
$row_result_c = mysql_fetch_assoc($result_c);
$totalRows_result = mysql_num_rows($result_c);
do {
    $query = "SELECT * FROM `produse` AS p WHERE `id_categ` = ".$row_result_c['id_categ'];
    $result_p = mysql_query($query, $conex) or die(mysql_error());
    $row_result_p = mysql_fetch_assoc($result_p);
    $totalRows_result = mysql_num_rows($result_p);
    $produse[$row_result_c['nume']] = array();
    do {
        $produse[$row_result_c['nume']][$row_result_p['nume']] = array ("descr" =>
$row_result_p['detalii'], "pret" => $row_result_p['pret'], "cant" => $row_result_p['cant']);
    }
    while ($row_result_p = mysql_fetch_assoc($result_p));
}
while ($row_result_c = mysql_fetch_assoc($result_c));
```

# Creare tablou produse (antet)

- Optimizare: o singura interogare SQL, unirea tabelelor lasata in baza server-ului MySql

```
$hostname = "localhost";
$database = "tmpaw";
$username = "web";
$password = "test";
$conex= mysql_connect($hostname, $username, $password);
mysql_select_db($database, $conex);

$query = "SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p
        LEFT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)";
$result = mysql_query($query, $conex) or die(mysql_error());
$row_result = mysql_fetch_assoc($result);
$totalRows_result = mysql_num_rows($result);

do {
    $produse[$row_result['nume_categ']][$row_result['nume']] = array ("descr" => $row_result['detalii'], "pret"
=> $row_result['pret'], "cant" => $row_result['cant']);
}
while ($row_result = mysql_fetch_assoc($result));
```

# Final laborator

- Sursele complete ale aplicatiei pot fi obtinute de pe site-ul laboratorului
- Utilizarea MySql in aplicatii asa cum a fost facuta in exemplu **nu este optima**
  - Se incarca initial intreaga baza de date intr-o matrice de produse (antet.php)
  - Aceasta metoda **nu este** eficienta:
    - Server-ul MySql este o aplicatie compilata nativa sistemului de operare pe care ruleaza, in timp ce PHP este un limbaj interpretat
    - Se incarca inutil toate datele chiar si atunci cand nu este necesar (de exemplu cand afisez doar produsele dintr-o categorie sau cand afisez pentru a fi modificate doar detaliile unui produs)

# Final laborator

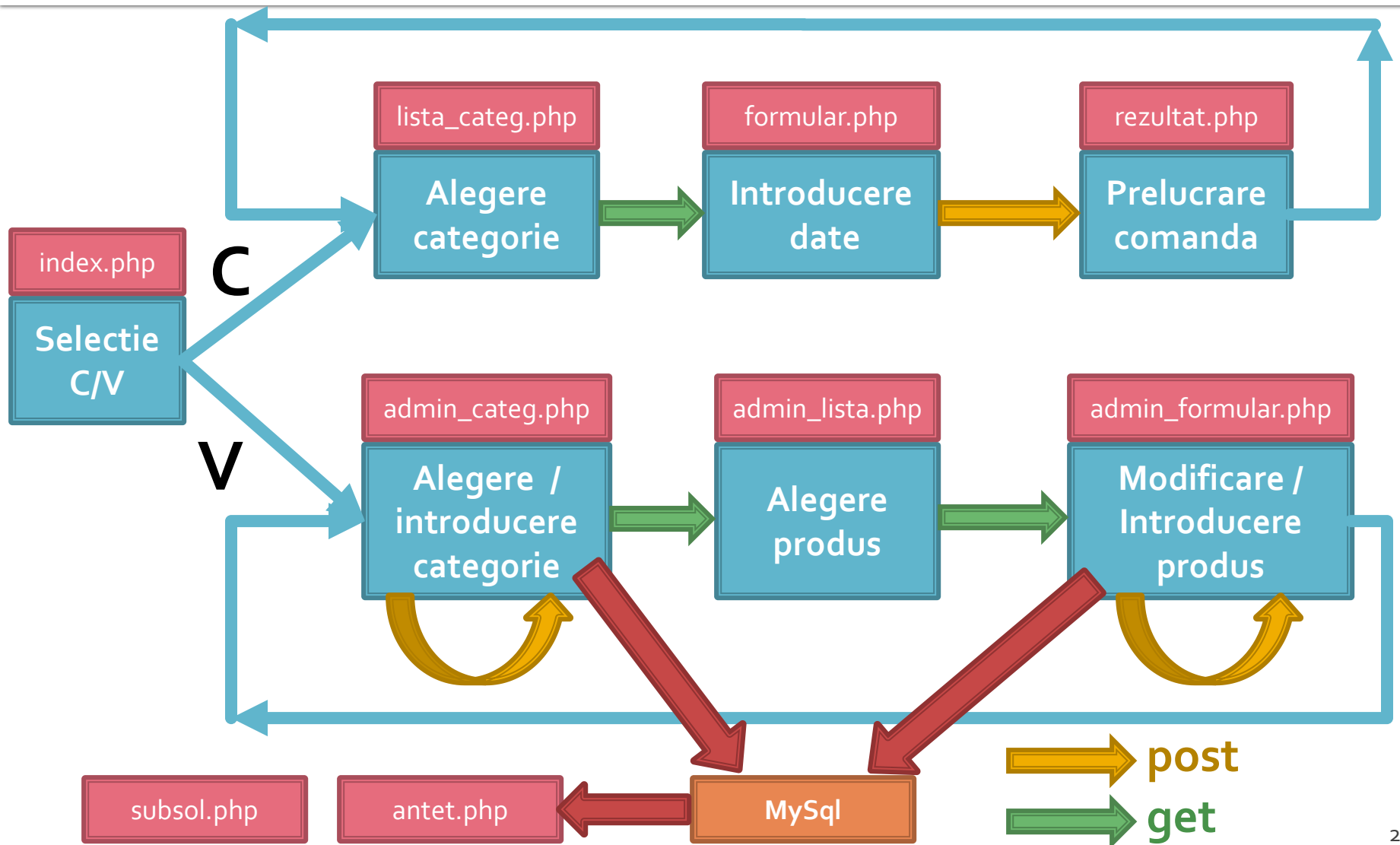
- Varianta corecta presupune:
  - Citirea datelor in fiecare fisier in parte
  - Selectia datelor necesare pe server-ul MySQL (mult mai eficient decat PHP)
  - De multe ori e mai eficienta utilizarea resursei rezultate din interogarea SQL decat crearea unei variabile tablou suplimentare (\$produse)
    - `$result = mysql_query($query, $conex);`  
`$row_result = mysql_fetch_assoc($result);`  
`..... $row_result['nume'] .....`;



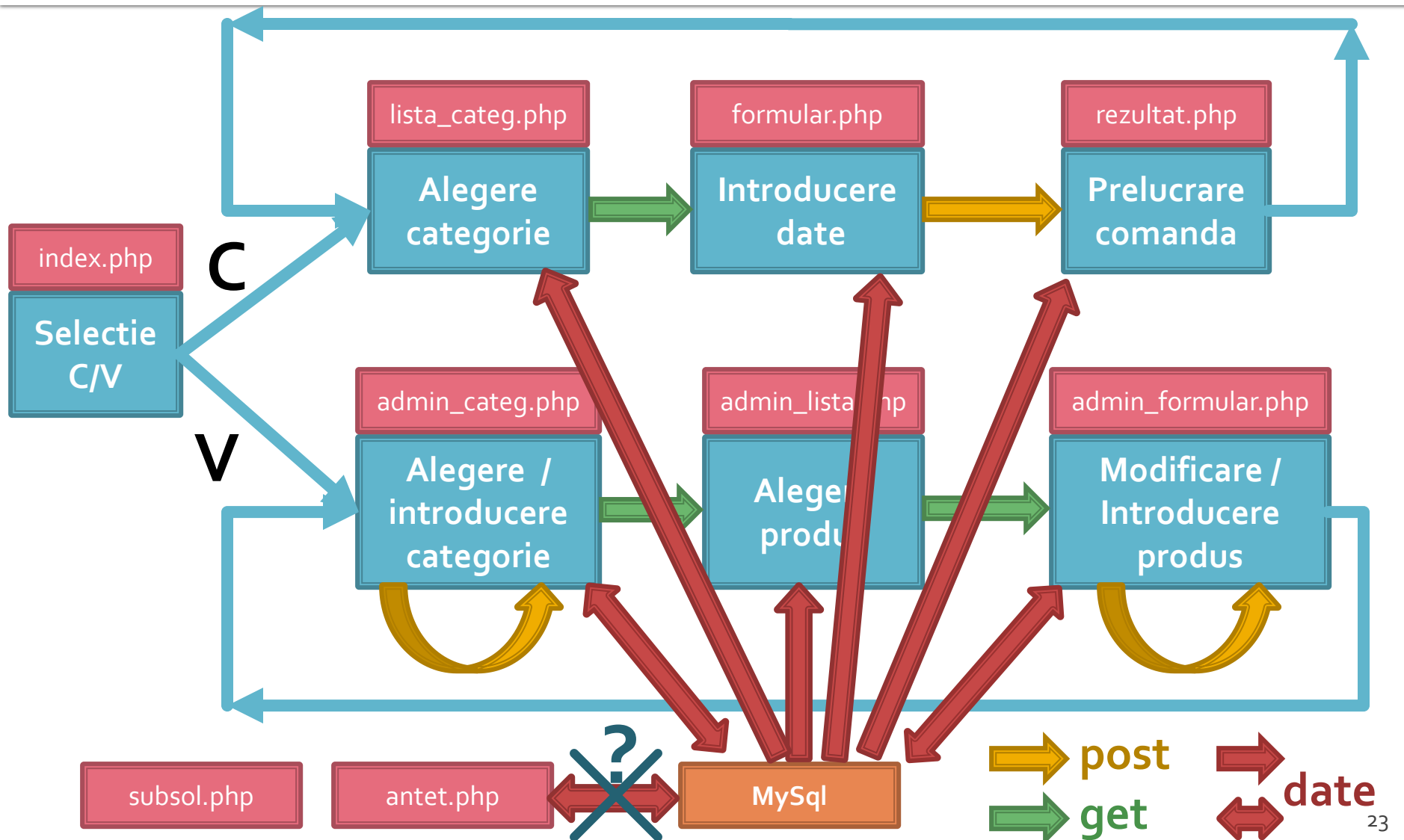
# MySQL – eficienta

- eficienta unei aplicatii web
  - 100% - **toate prelucrarile "mutate" in RDBMS**
  - PHP **doar** afisarea datelor
- eficienta unei aplicatii MySQL
  - 25% **alegerea corecta a tipurilor de date**
  - 25% **crearea indecsilor necesari in aplicatii**
  - 25% **normalizarea corecta a bazei de date**
  - 20% **cresterea complexitatii interogarilor pentru a "muta" prelucrarile pe server-ul de baze de date**
  - 5% **scrierea corecta a interogarilor**

# Plan aplicatie - laborator



# Plan aplicatie - optim



# Laborator 7

# Activitate suplimentara -> 2016

- Exemplul prezentat in sursele de pe site (laborator) este inefficient
- Suplimentar ascunde o **greseala de logica** care impiedica functionarea corecta a programului
  - programul nu este protejat, nu verifica faptul ca in casuta in care se asteapta numere nu se introduc siruri de text
  - **greseala de logica** presupune utilizatorul **cooperant si educat**, introduce ceea ce se asteapta de la el sa introduca, dar chiar in aceste conditii apare o abatere de la functionarea corecta

# Recompensa activitate suplimentara

- Raspunsul corect va fi recompensat cu:
  - **2p** in plus la nota de laborator (se pot compensa astfel eventuale absente)
  - **2p** in plus la nota de la testarea finala (examen)
- Nota de la proiect
  - Nu este influentata
- Nota finala se obtine prin medie ponderata **dupa** aplicarea suplimentelor amintite mai sus

**Nu se aplica din 2015/2016**

# Regulament recompensa

- Raspunsul si codul de corectie trebuie trimise individual prin email
- Codul trebuie sa fie functional
- Maxim **2** incercari pentru fiecare student
- Studentii pot discuta intre ei **dar**
- Oricare **doua raspunsuri identice se elimina reciproc**

**Nu se aplica din 2015/2016**

# Activitate suplimentara

- Aplicatia folosita la curs / laborator nu este optima
- De asemenea este incompleta
  - o cerinta obligatorie intr-o aplicatie reala dar neacoperita in exemplu este **verificarea** datelor introduse
    - in browser la introducere (HTML 5)
    - in browser dupa introducere – Javascript
    - pe server dupa primirea datelor – PHP
  - se pot gasi usor combinatii de date introduse care sa duca la incompatibilitati browser-PHP-MySQL



# Greseala de logica

- Provine de la citirea initiala a intregii baze de date intr-un tablou in "antet.php" care apoi este folosita de celelalte fisiere.

```
$query = "SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p  
LEFT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)";  
$result = mysql_query($query, $conex) or die(mysql_error());  
$row_result = mysql_fetch_assoc($result);  
$totalRows_result = mysql_num_rows($result);  
  
do {  
    $produse[$row_result['nume_categ']][$row_result['nume']] = array ("descr" =>  
$row_result['detalii'], "pret" => $row_result['pret'], "cant" => $row_result['cant']);  
}  
while ($row_result = mysql_fetch_assoc($result));
```

# Greseala de logica

- se manifesta la introducerea unei noi categorii

SQL Query Area

```
1 SELECT * FROM categorii c;
```

id_categ	nume	detalii
1	papetarie	NULL
2	instrumente	NULL
3	audio-video	NULL
4	jucarii	pentru copii

/ Area

```
ECT * FROM produse p;
```

id_produc	id_categ	nume	detalii	cant	pret
1	1	carte	mai multe pagini scrise legate	0	100
2	1	caiet	mai multe pagini goale legate	0	75
3	1	hartie scris a	mai multe pagini goale NElegate	5	55
4	2	penar	loc de depozitat instrumente de scris	0	150
5	2	stilou	instrument de scris albastru	0	125
6	2	creion	instrument de scris gri	0	25
7	3	cd	canta	0	50
8	3	dvd	vizual	0	100
9	3	blue ray	vizual extrem	0	500
10	3	video cd	cd cu material video	10	75

# Greseala de logica

- Introducerea unei noi categorii se traduce prin aparitia unei linii noi in tabelul categorii ("jucarii"), fara produse asociate in tabelul de produse
- Realizarea unei selectii si uniri de tip "LEFT JOIN" are ca efect ignorarea categoriei vide in rezultat, ca urmare categoria "jucarii" nu va aparea in tabloul **\$produse** pe care se bazeaza aplicatia mai departe

# LEFT JOIN

SQL Query Area

```
1 SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p
2 LEFT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)
```

id_produș	id_categ	nume	detalii	cant	pret	nume_categ
1	1	carte	mai multe pagini scrise legate	0	100	papetarie
2	1	caiet	mai multe pagini goale legate	0	75	papetarie
3	1	hartie scris a	mai multe pagini goale NElegate	5	55	papetarie
4	2	penar	loc de depozitat instrumente de scris	0	50	instrumente
5	2	stilou	instrument de scris albastru	0	125	instrumente
6	2	creion	instrument de scris gri	0	25	instrumente
7	3	cd	canta	0	50	audio-video
8	3	dvd	vizual	0	100	audio-video
9	3	blue ray	vizual extrem	0	500	audio-video
10	3	video cd	cd cu material video	10	75	audio-video

# Greseala de logica

- Urmarea ar fi ca o categorie vida nu va mai putea fi populata cu produse si nici macar afisata pentru ca nu se regaseste in rezultat
- In codul utilizat acest lucru este partial corectat prin modificarea tabloului `$produse` la introducerea unei noi categorii
  - `$produse[$_POST["nou_nume"]]=array();`
- Aceasta corectie are doar efect temporar
  - in noua categorie se pot introduce produse doar la pasul imediat urmator
  - daca se introduce macar un singur produs la pasul urmator aplicatia **pare** sa functioneze corect
  - acest lucru mascheaza functionarea gresita deoarece utilizarea tipica este:
    - categorie noua → produs in acea categorie → **pare** ca functioneaza corect

# Greseala de logica

- corectie "temporara" in "admin\_categ.php"
- are efect doar in functionarea in continuare a scriptului, **imediat** dupa introducerea categoriei
  - se afiseaza noua categorie
  - se pot introduce produse

```
if (isset($_POST["c_nou"]))
    //categorie noua introdusa
    $query = "INSERT INTO `categorii` (`nume`, `detalii`) VALUES
('".$_POST["nou_nume"]."', '".$_POST["nou_desc"]."')";
    echo $query;//util in perioada de testare
    $result = mysql_query($query, $conex) or die(mysql_error());
    $record=mysql_insert_id();//obtinerea id-ului nou
    $produse[$_POST["nou_nume"]]=array(); // update matrice produse
    echo "<p>Categoria '".$_POST["nou_nume"]."' adaugata! Are id = ".$record."</p>";
}
```

# Corectii

- Corect: asa cum a fost prezentat anterior
  - Citirea datelor in fiecare fisier in parte
  - Citirea numai a datelor necesare
- In acest mod "admin\_categ.php" va citi date doar din tabelul "categorii" pentru afisarea listei, cu identificarea tuturor categoriilor, inclusiv a celor vide
- Numararea produselor din fiecare categorie se poate face (si mult mai eficient) prin utilizarea functiei "aggregate" COUNT in MySql

# Minimal - RIGHT JOIN

- Alternativa minimala, pe scheletul existent, compatibil in urma (se repeta - **ineficient**)
- Utilizarea unei selectii RIGHT JOIN care permite evidentierea liniilor din tabelul categorii fara corespondent in tabelul produse

SQL Query Area

```
1 SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p
2 RIGHT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)
```

id_produș	id_categ	nume	detalii	cant	pret	nume_categ
1	1	carte	mai multe pagini scrise legate	0	100	papetarie
2	1	caiet	mai multe pagini goale legate	0	75	papetarie
3	1	hartie scris a	mai multe pagini goale NElegate	5	55	papetarie
4	2	penar	loc de depozitat instrumente de scris	0	150	instrumente
5	2	stilou	instrument de scris albastru	0	125	instrumente
6	2	creion	instrument de scris gri	0	25	instrumente
7	3	cd	canta	0	50	audio-video
8	3	dvd	vizual	0	100	audio-video
9	3	blue ray	vizual extrem	0	500	audio-video
10	3	video cu	cd cu material video	10	75	audio-video
NULL	NULL	NULL	NULL	NULL	NULL	jucarii



# Minimal - RIGHT JOIN

- Linia cu valori NULL in dreptul produsului poate avea efecte neplacute in aplicatie
  - apare un produs fictiv in categoria "jucarii" cu valori nule
  - acest produs nu poate fi modificat dar se rezolva dupa introducerea unui alt produs in categoria "jucarii"

## Magazin online Firma X SRL

### Categorii Produse

Alegeti categoria:

Nr.	Categorie	Total Produse
1	<a href="#">Papetarie</a>	3
2	<a href="#">Instrumente</a>	3
3	<a href="#">Audio-video</a>	4
4	<a href="#">Jucarii</a>	1

Total produse: 11

## Magazin online Firma X SRL

### Lista produse in categoria Jucarii

Nr.	Produs	Descriere	Pret	Cantitate	Actiuni
1					<a href="#">modifica</a>
-	Produs nou				<a href="#">adauga</a>

# Minimal - RIGHT JOIN

- Rezolvarea minimala (**ineficienta**) e completa cu introducerea unui test pentru identificarea liniilor nule

```
do {  
    $produce[$row_result['nume_categ']][$row_result['nume']]=array ("descr" =>  
$row_result['detalii'], "pret" => $row_result['pret'], "cant" => $row_result['cant']);  
}  
while ($row_result = mysql_fetch_assoc($result));
```

```
do {  
    if (empty($row_result['nume']))  
        $produce[$row_result['nume_categ']]=array();  
    else  
        $produce[$row_result['nume_categ']][$row_result['nume']]=array ("descr" =>  
$row_result['detalii'], "pret" => $row_result['pret'], "cant" => $row_result['cant']);  
}  
while ($row_result = mysql_fetch_assoc($result));
```



# Minimal - RIGHT JOIN

## Magazin online Firma X SRL

### Categorii Produse

Alegeti categoria:

Nr.	Categorie	Total Produse
1	<a href="#">Papetarie</a>	3
2	<a href="#">Instrumente</a>	3
3	<a href="#">Audio-video</a>	4
4	<a href="#">Jucarii</a>	1
5	<a href="#">Test</a>	0

Total produse: 11

## Magazin online Firma X SRL

### Lista produse in categoria Test

Nr.	Produs	Descriere	Pret	Cantitate	Actiuni
	Produs nou				<a href="#">adauga</a>

# Project

# Proiect

- Teme in **echipa**: 2/3 membri
- Evaluare **individuala**
- Variabile ca dificultate (cu note diferite)

# PROIECT (final)

- Tema de nota **8**
  - Tema unica pentru fiecare student
  - Baza de date cu care se lucreaza contine minim **20** de inregistrari in tabelul cel mai "voluminos«
- Tema de nota **9**
  - Conditiiile de la tema de nota 8 **si in plus**
  - Necesitatea conlucrarii intre **2 studenti** cu doua teme "pereche"
  - Se accepta ca un student sa realizeze ambele puncte
  - Numar **minim** de pagini dinamice (php+mysql) in aplicatie **4 = 2 X 2**
  - Baza de date cu care se lucreaza contine minim **50** de inregistrari in tabelul cel mai "voluminos"

# PROIECT (final)

- Tema de nota **10**
  - Condițiile de la tema de nota 9 **si in plus**
  - Necesitatea conlucrării între 2 studenti cu teme "pereche"
  - Tema se preda/trimite cu macar 1 zi înainte **sustinerii** ei
  - Numar **minim** de pagini dinamice (php+mysql) in aplicatie **6 = 3 X 2**
  - Baza de date cu care se lucreaza sa contina minim 100 de inregistrari in tabelul cel mai "voluminos".

# PROIECT (final)

- Tema de nota **10+**
  - Condițiile de la tema de nota 10 **si in plus**
  - Numar **minim** de pagini dinamice (php+mysql) in aplicatie **8 = 4 X 2**
  - Baza de date cu care se lucreaza contine minim **300** de inregistrari in tabelul cel mai "voluminos"
  - Necesitatea investigarii posibilitatilor de **imbunatatire** a aplicatiei si adaugarii de functionalitate (**obligatoriu**)
  - nota individuala la proiect va depinde intr-o mica masura (in limita a 1p) de nota minima a colegilor din echipa
  - **+1p la nota de examen**



# PROIECT (final)

- In caz de necesitate, pentru completarea echipei cadrul didactic poate fi membru al echipelor (9/10/10+). Conditii:
  - metoda de comunicare in echipa sa fie prin email sau direct
  - latentă de raspuns: ~ 1 zi
  - reactiv
  - nota implicita 10 ( 😊 )
  - nu lucreaza noaptea, si in special nu in noaptea dinaintea predarii ( 😊 )
- dezavantaj asumat: "spion" in echipa

# PROIECT (final)

- Tema bonus (>5, in general **offline**)
  - Conditiiile de la tema de nota 10+ **si in plus:**
  - **3 studenti/CD**
  - Baza de date cu care se lucreaza contine minim **500** de inregistrari in tabelul cel mai "voluminos"
  - Numar **minim** de pagini dinamice (php+mysql) in aplicatie **15 = 5 X 3**
  - Tema care face apel la controlul **sesiunii** client/server
  - Necesitatea utilizarii **Javascript** in **aplicatie** (aplicatie libera dar cu efect tehnic nu estetic)
  - Forma paginii controlata dual prin CSS, desktop/phone
  - Facilitati in ceea ce priveste nota (**DACA** toate celelalte conditii sunt indeplinite), la alegere:
    - prezenta la laborator: N → P = **66%**, L = **0%**, E = 33%
    - **+2p la nota de examen**

# PROIECT (final)

- proiectul se **sustine individual** (oral si practic)
- fiecare membru al unei echipe (la temele de nota 9 si 10) trebuie sa sustina in aceeasi zi proiectul
- nota individuala la proiect va depinde intr-o mica masura (in limita a 1p) de nota medie a colegilor din echipa (numai la temele de 10+)
  - $N-\min(E)=1 \rightarrow -0\text{ p}$
  - $N-\min(E)=2 \rightarrow -0.5\text{ p}$
  - $N-\min(E)=3 \rightarrow -1\text{ p}$

# Notare proiect 2020/2021

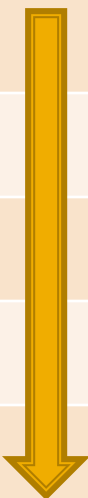
- 1p – functionalitate ✓
- 1p – aplicatia ruleaza pe server-ul CentOS/Ubuntu ✓
- numar de pagini dinamice ✓
- numar de inregistrari in baza de date ✓
- 1p – planul aplicatiei ✓
- 2p – prezentare in Teams a proiectului ✓

# Notare 2024 (final)

- 1p – **functionalitate**
- 1p – mutarea **personala** a site-ului (restaurare backup + setare server) pe un server de referinta CentOS/Ubuntu/**Debian**
- 1p – cunoasterea **codului**
  - raspunsul la intrebari de genul: "unde ai facut aceasta", "ce face acest cod"
- 1p – **planul aplicatiei**
- Teme "de nota 10,10+"
  - Initiativa. Investigarea posibilitatilor de imbunatatire
  - Explicatii relativ la functionarea unei anumite secvente de cod
  - Utilizare sesiune, Javascript, **CSS media**

# Notare 2024

- numar de pagini dinamice ✓
- numar de inregistrari in baza de date ✓
  - se verifica indeplinirea conditiilor corespunzatoare si se realizeaza **de-clasificarea** temei pana cand **ambele** conditii sunt indeplinite

Tema de nota ...	Pagini	Inregistrari
 bonus	$15 = 5 \times 3$	500
10+	$8 = 4 \times 2$	300
10	$6 = 3 \times 2$	100
9	$4 = 2 \times 2$	50
8	$1 = 1 \times 1$	20

# Exemplu

- 1. Galerie de imagini in care imaginile sunt ordonate dupa categorii.

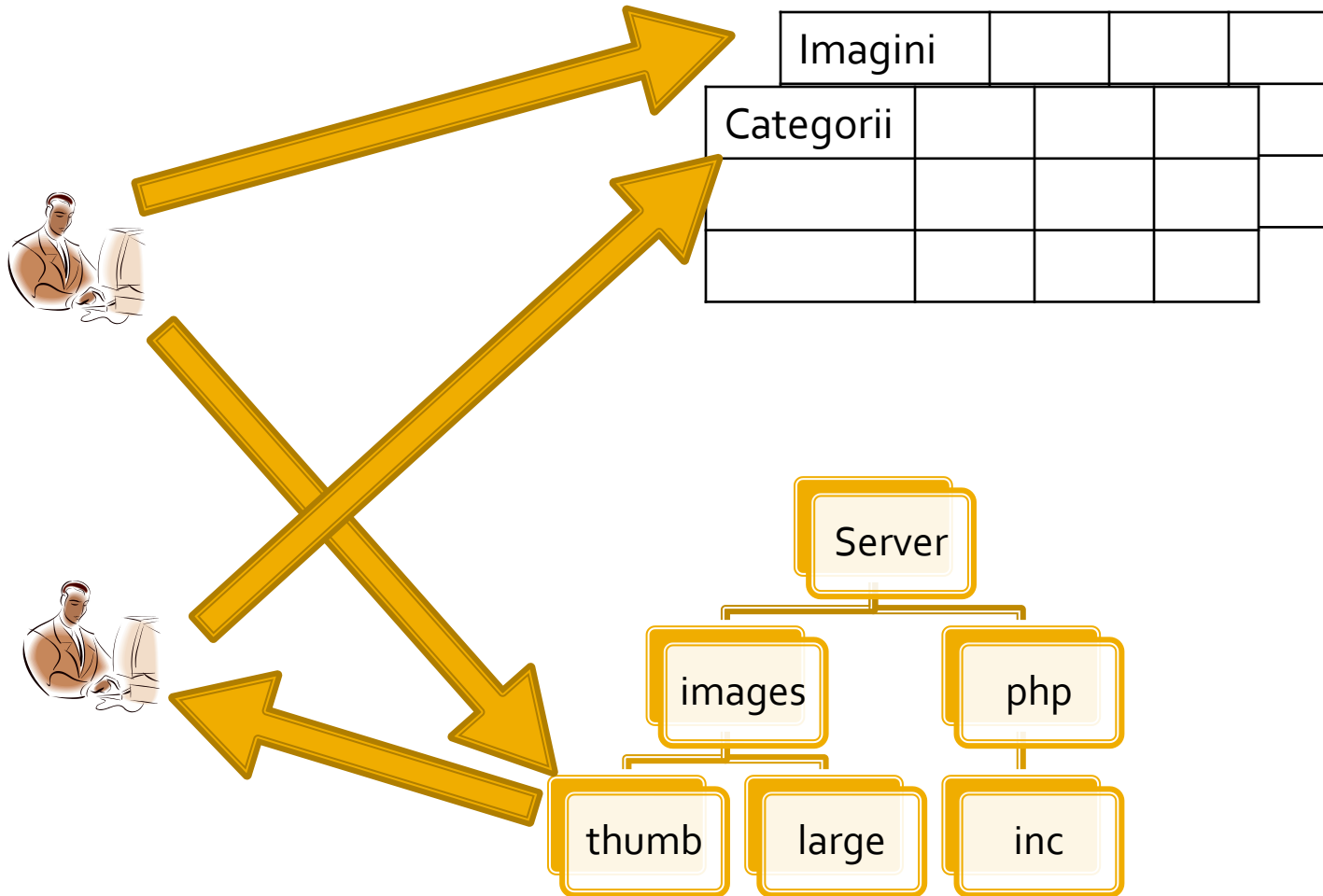


a. aplicatia pentru adaugarea de categorii si afisare a imaginilor (cu alegerea prealabila a categoriei si afisarea listei de imagini format mic)



b. aplicatia pentru adaugare de imaginilor (cu alegerea prealabila a categoriei si generarea prealabila a imaginii format mic)

# Exemplu





# “Examen” Alocare teme proiect

- **Alocare teme**
  - tema aleasa (optiune principala) - **necesar**
  - nume coechipier - **necesar**
  - tema alternativa (rezerva 1)
  - tema alternativa (rezerva 2)
  - punctul ales (a/b) - **necesar**
- Primul venit, primul servit
  - **ambii** parteneri finalizeaza examenul

# “Examen” Predare proiect

- Predare proiect
- Chiar daca unele fisiere sunt comune, **ambii** coechipieri trebuie sa finalizeze depunerea
- Predare 3 fisiere
  - un fișier **\*.pdf/\*.jpg** cu **planul aplicației**
  - un fișier **\*.sql** cu backup-ul bazei de date de care are nevoie aplicația pentru a funcționa (**nr. linii!!**)
  - un fișier cu arhiva directorului conținând aplicația (fișiere \*.php, \*.jpg, structură de directoare etc., arhivate: **\*.zip, \*.7z** etc.) (**nr. pagini!!**)

# Server referinta LAMP 2024

- 3 variante acceptate
  - CentOS 7.1
  - Ubuntu 20.04
  - Debian 12.5

# Server referinta LAMP

- Centos 7.1
  - PHP 5.4.16
  - MariaDB 5.5.44 / root:masterrc
  - Apache 2.4.6
  - PhpMyAdmin/4.4.15
  - **root**/student:masterrc
  - Python 2.7.5
  - creat: Workstation Player 12.x (**12**)

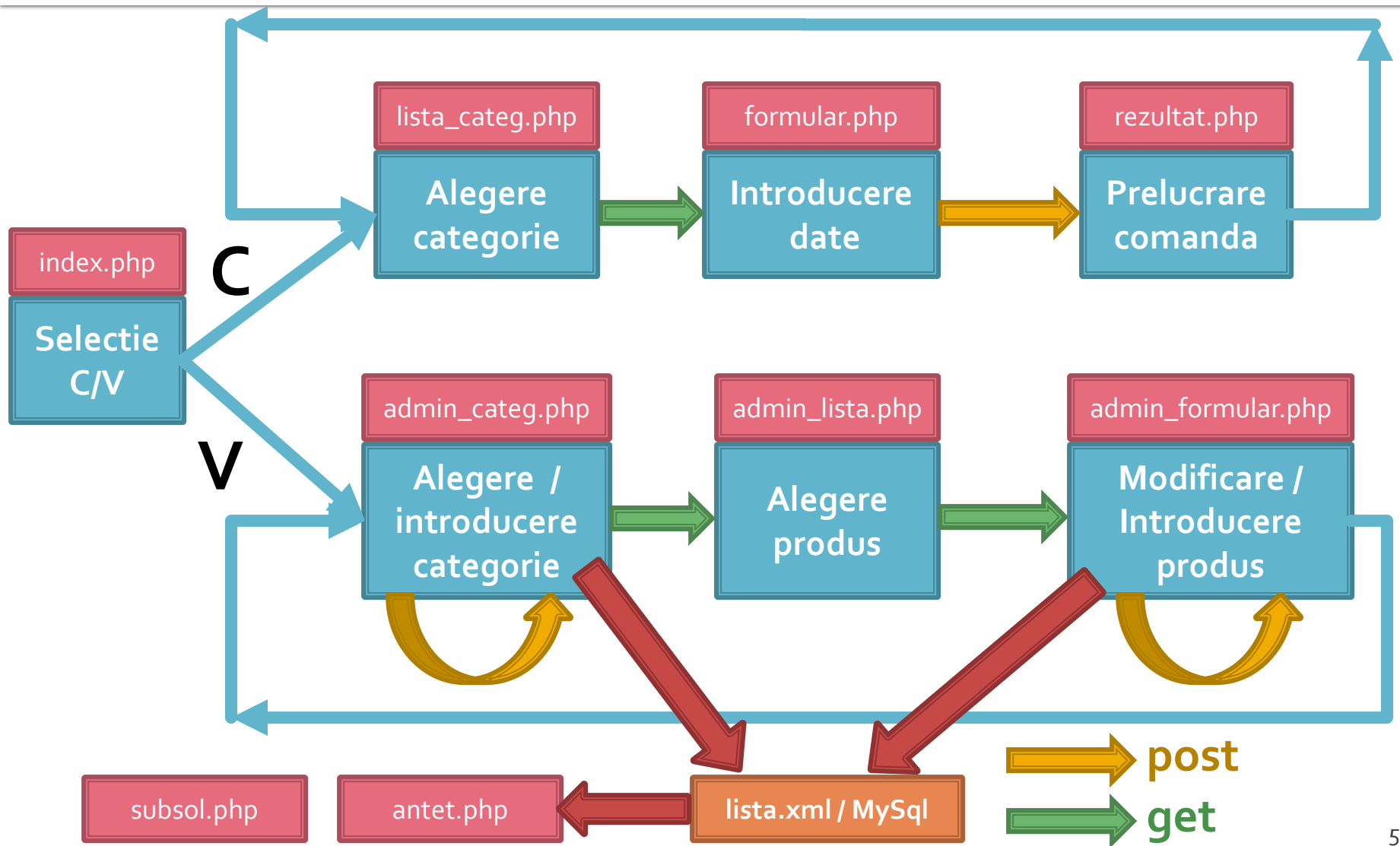
# Server referinta LAMP

- Ubuntu 20.04
  - PHP 7.4.3
  - MariaDB 10.3.31 / root:masteretti
  - Apache 2.4.41
  - **paw/student:masteretti**
  - necesar suplimentar pentru **acces FTP user paw:**
    - sudo usermod -a -G upload paw
    - sudo chmod -R 775 /var/www
  - Python 3.8.10
  - creat: Workstation Player 15.x (**16**)

# Server referinta LAMP

- Debian 12.5
  - PHP 8.2.7
  - MariaDB 10.11.6 / root:masteretti
  - Apache 2.4.57
  - PhpMyAdmin/5.2.1 deb
  - **root/paw/student:masteretti**
  - Python 3.11.2
  - creat: Workstation Player 17.5 (**21**)

# Plan aplicatie



# Examen

- **fizic**
- probleme
- fiecare student are subiect propriu
- toate materialele permise
- tehnica de calcul **nu** este necesara dar este permisa



# Examen

- Oricare din temele de proiect (sau asemenea) poate constitui una din problemele de examen
  - se va cere realizarea planului / structurii logice a aplicatiei
- Se poate cere scrierea unui cod pentru realizarea anumitor operatii, fara necesitatea corectitudinii tehnice absolute (";", nume corect al functiilor, parametri functie etc.)
- Se poate cere interpretarea unui cod php/MySql cu identificarea efectului

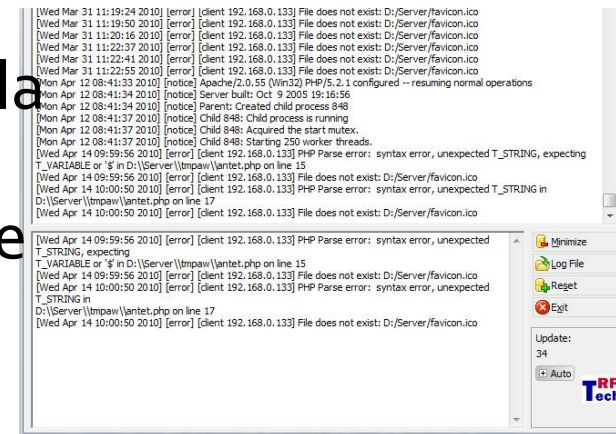
# Aspecte practice recomandate in realizarea aplicatiilor web

# Metode de lucru recomandate 1

- Daca nu aveti acces simplu la “log-urile” server-ului **MySQL** puteti vedea cum ajung efectiv interogarile la el afisand temporar textul interogarii
  - `$query = "SELECT * FROM `produse` AS p WHERE `id_categ` = ".$row_result_c['id_categ'];  
echo $query; //util in perioada de testare`
  - Textul prelucrat de PHP al interogarii va fi afisat in clar pe pagina facand mai usoara depanarea programului
  - Aceste linii **trebuie** eliminate in forma finala a programului ca masura de securitate

# Metode de lucru recomandate 2

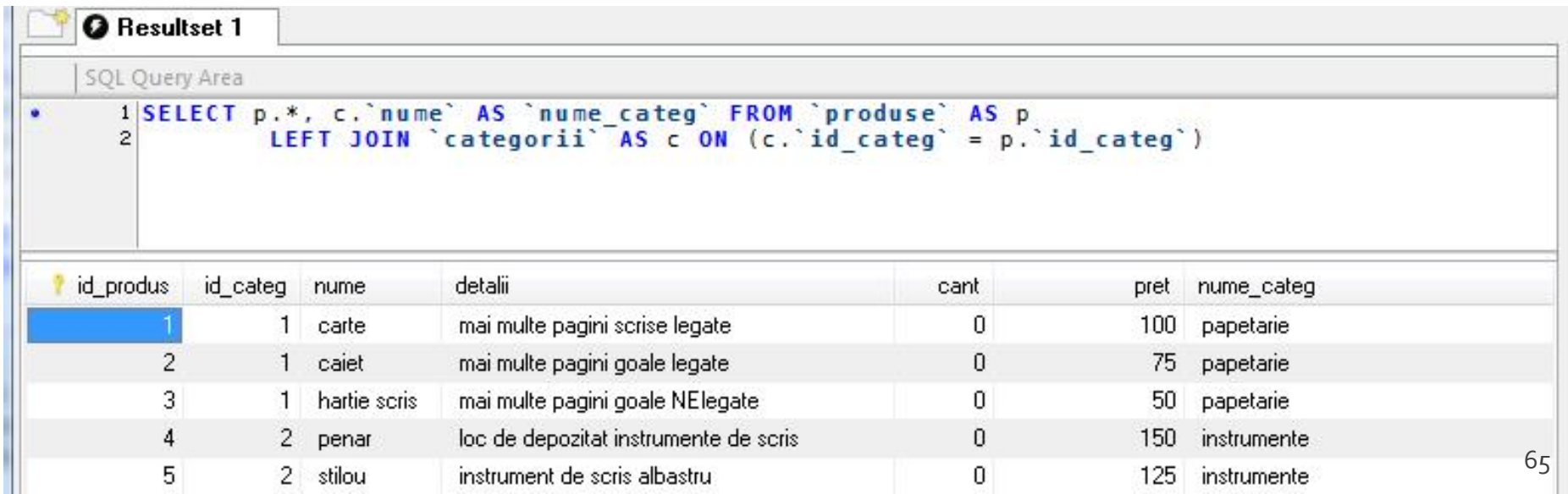
- Verificarea “log-ului” de erori al server-ului Apache ramane principala metoda de depanare a codului PHP.
  - W2000: Utilizarea aplicatiei prezentata la laborator este mai comoda datorita automatizarii dar orice alta varianta este utila
  - Centos/Ubuntu/Debian
    - putty → nano /var/log/httpd/error\_log
    - <http://192.168.30.5/logfile.php> (nonstandard)
    - tema suplimentara (php.ini + log PHP **recomandat**)



```
[Wed Mar 31 11:19:50 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Wed Mar 31 11:20:16 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Wed Mar 31 11:22:37 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Wed Mar 31 11:22:41 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Wed Mar 31 11:22:55 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Mon Apr 12 08:41:33 2010] [notice] Apache/2.0.55 (Win32) PHP/5.2.1 configured -- resuming normal operations
[Mon Apr 12 08:41:34 2010] [notice] Server built: Oct 9 2005 19:16:56
[Mon Apr 12 08:41:34 2010] [notice] Parent: Created child process 848
[Mon Apr 12 08:41:37 2010] [notice] Child 848: Child process is running
[Mon Apr 12 08:41:37 2010] [notice] Child 848: Acquired the start mutex.
[Mon Apr 12 08:41:37 2010] [notice] Child 848: Starting 250 worker threads.
[Wed Apr 14 09:59:56 2010] [error] [client 192.168.0.133] PHP Parse error: syntax error, unexpected T_STRING, expecting
T_VARIABLE or '$' in D:\Server\Impaw\antet.php on line 15
[Wed Apr 14 10:00:50 2010] [error] [client 192.168.0.133] PHP Parse error: syntax error, unexpected T_STRING in
D:\Server\Impaw\antet.php on line 17
[Wed Apr 14 10:00:50 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
[Wed Apr 14 09:59:56 2010] [error] [client 192.168.0.133] PHP Parse error: syntax error, unexpected
T_STRING, expecting
T_VARIABLE or '$' in D:\Server\Impaw\antet.php on line 15
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[Wed Apr 14 10:00:50 2010] [error] [client 192.168.0.133] PHP Parse error: syntax error, unexpected
T_STRING in
D:\Server\Impaw\antet.php on line 17
[Wed Apr 14 10:00:50 2010] [error] [client 192.168.0.133] File does not exist: D:\Server\favicon.ico
```

# Metode de lucru recomandate 3

- In perioada de definitivare a formei interogarilor MySql este de multe ori benefic sa se utilizeze mai intai **MySql Workbench/PhpMyAdmin** pentru incercarea interogarilor, urmand ca apoi, cand sunteti multumiti de rezultat, sa transferati interogarea SQL in codul PHP



The screenshot shows the MySQL Workbench interface. At the top, there is a tab labeled "Resultset 1". Below it is the "SQL Query Area" containing the following SQL query:

```
1 SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p
2 LEFT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)
```

Below the query area is a table displaying the results of the query. The table has the following columns: id\_produc, id\_categ, nume, detalii, cant, pret, and nume\_categ. The first row is highlighted in blue.

id_produc	id_categ	nume	detalii	cant	pret	nume_categ
1	1	carte	mai multe pagini scrise legate	0	100	papetarie
2	1	caiet	mai multe pagini goale legate	0	75	papetarie
3	1	hartie scris	mai multe pagini goale NElegate	0	50	papetarie
4	2	penar	loc de depozitat instrumente de scris	0	150	instrumente
5	2	stilou	instrument de scris albastru	0	125	instrumente

# Metode de lucru recomandate 3

MySQL Query Browser - Connection: root@server / tmpaw

File Edit View Query Script Tools Window Help

Transaction Explain Compare

Resultset 1

SQL Query Area

```
1 SELECT p.*, c.`nume` AS `nume_categ` FROM `produse` AS p
2 LEFT JOIN `categorii` AS c ON (c.`id_categ` = p.`id_categ`)
```

id_produș	id_categ	nume	detalii	cant	pret	nume_categ
1	1	carte	mai multe pagini scrise legate	0	100	papetarie
2	1	caiet	mai multe pagini goale legate	0	75	papetarie
3	1	hartie scris	mai multe pagini goale NElegate	0	50	papetarie
4	2	penar	loc de depozitat instrumente de scris	0	150	instrumente
5	2	stilou	instrument de scris albastru	0	125	instrumente
6	2	creion	instrument de scris gri	0	25	instrumente
7	3	cd	canta	0	50	audio-video
8	3	dvd	vizual	0	100	audio-video
9	3	blue ray	vizual extrem	0	500	audio-video

9 rows fetched in 0.0035s (0.0016s)

Edit Apply Changes Discard Changes First Last Search

1: 1

# Metode de lucru recomandate 4

- eficienta unei aplicatii web
  - 100% - **toate prelucrarile "mutate" in RDBMS**
  - PHP **doar** afisarea datelor
- eficienta unei aplicatii MySql
  - 25% **alegerea corecta a tipurilor de date**
  - 25% **crearea indecsilor necesari in aplicatii**
  - 25% **normalizarea corecta a bazei de date**
  - 20% **cresterea complexitatii interogarilor pentru a "muta" prelucrarile pe server-ul de baze de date**
  - 5% **scrierea corecta a interogarilor**

# Metode de lucru recomandate 5a

- La implementarea unei aplicatii noi (proiect)
  1. Imaginarea planului aplicatiei (ex: S56)
    - "cum as vrea eu sa lucrez cu o astfel de aplicatie"
    - hartie/creion/timp – esentiale
  2. Identificarea datelor/transmisia de date intre pagini
    - get/post/fisier unic colectare-prelucrare
    - baza de date read/write
  3. Identificarea structurii logice a datelor utilizate
    - "clase" de obiecte/fenomene tratate identic
    - se are in vedere scalabilitatea (posibilitatea de crestere a numarului de elemente dintr-o clasa)



# Metode de lucru recomandate 5b

- La implementarea unei aplicatii noi (proiect)
  4. Realizarea structurii bazei de date
    - In general un tabel pentru fiecare clasa logica distincta **DAR...**
    - se are in vedere scalabilitatea (daca aplicatia creste sa **NU** apara cresterea numarului de clase/tabele) **SI...**
    - normalizare
  5. Identificarea tipului de date necesar pentru coloane
    - de preferat numerele intregi in orice situatie care presupune ordonare
    - dimensiunea campurilor nu mai mare decat e necesar (poate fi fortata prin atributul "size" in eticheta HTML "input")
  6. Imaginarea formei fizice a paginilor
    - "am mai vazut asa si mi-a placut" (Don't make me think!)
    - investigarea posibilitatii de a introduce functionalitate template

# Metode de lucru recomandate 5c

- La implementarea unei aplicatii noi (proiect)
  7. Popularea manuala a bazei de date cu date initiale
    - MySql Query Browser (sau PhpMyAdmin) / automat / imprumut
    - programarea individuala a paginilor are nevoie de prezenta unor date
  8. Programare individuala a paginilor
    - In general in ordinea din planul aplicatiei (de multe ori o pagina asigura datele necesare pentru urmatoarea din plan)
    - modul "verbose" activ pentru PHP (adica: `echo $a; print_r($matr)`)
  9. Pregatirea pentru distributie/mutare
    - testare detaliata (eventual un "cobai")
    - eliminarea adaosurilor "verbose"
    - backup
    - generarea unui eventual install/setup

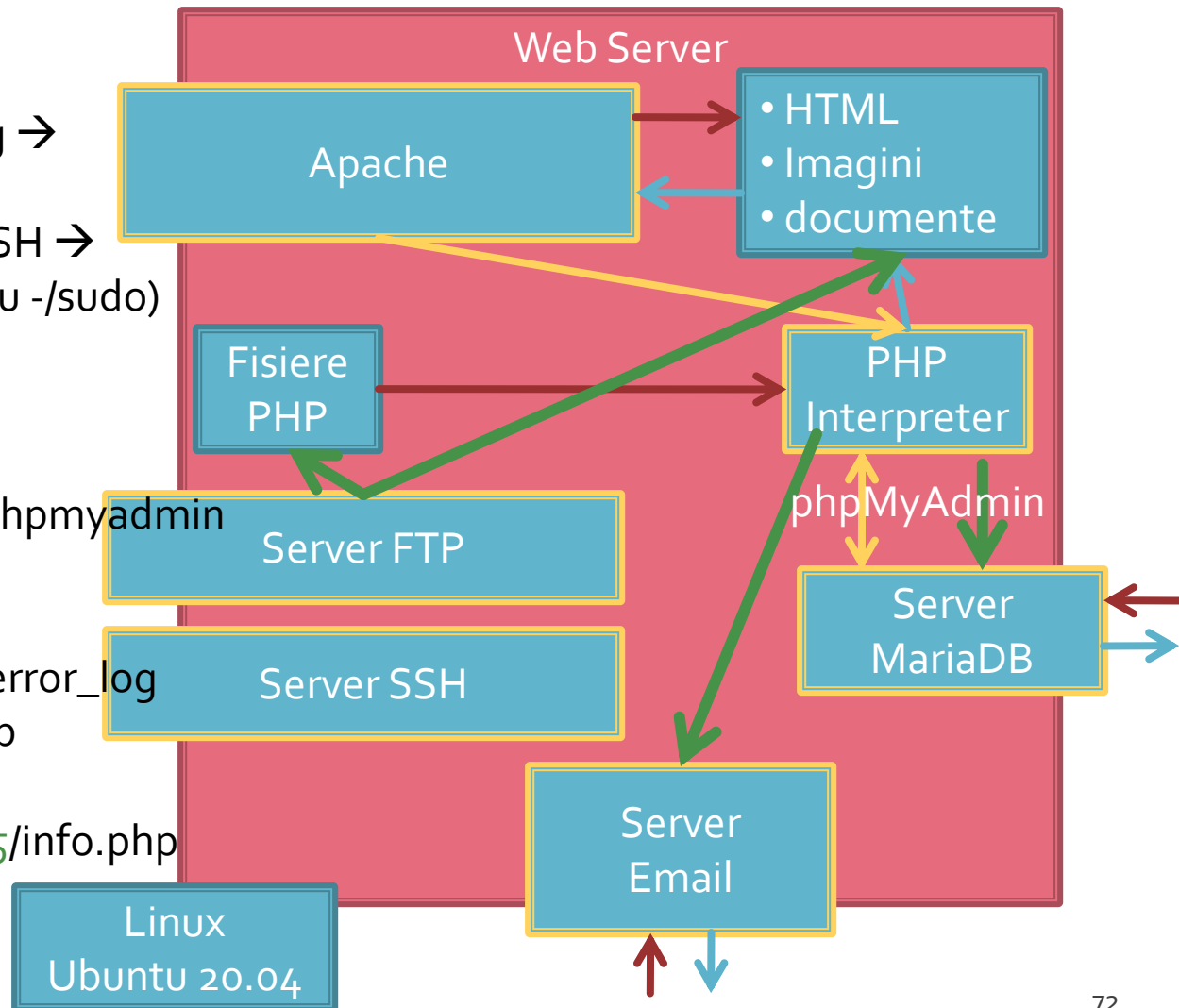
# Faza de verificare/depanare

- Se recomanda utilizarea posibilitatii vizualizarii matricilor
  - In fisierul care receptioneaza datele
  - temporar pina la definitivarea codului
- utilizarea de cod "verbose" (manual) in etapele initiale de scriere a surselor PHP poate fi extinsa si la alte tipuri de date
  - singura (aproape) metoda de depanare(debug) in PHP
  - `<p>temp <?php echo "a=";echo $a; ?> </p>`

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

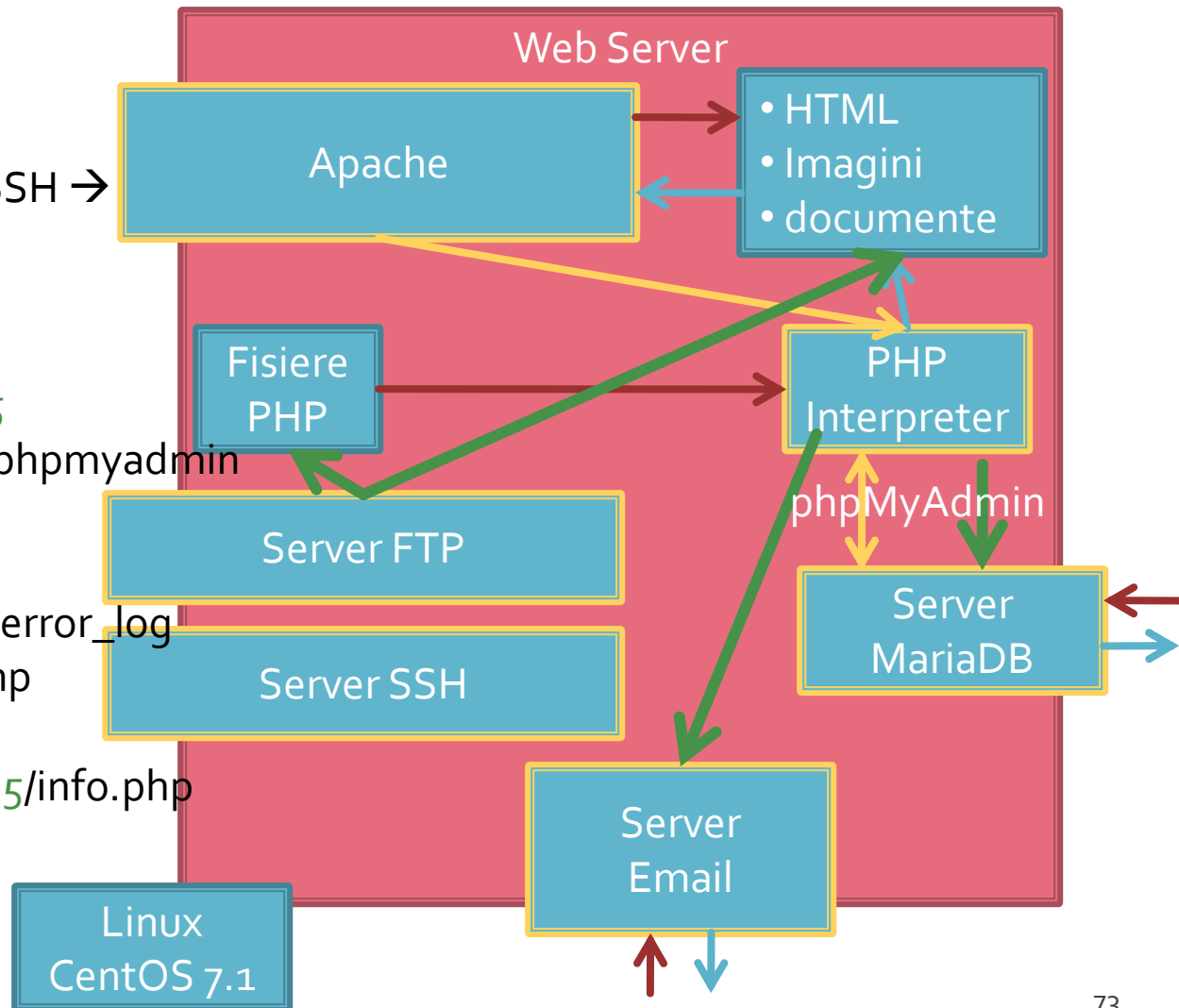
# Utilizzare LAMP Ubuntu/Debian

1. login → **paw**:masteretti
2. (su - + **root**:masteretti) ifconfig → 192.168.30.5
3. putty.exe → 192.168.30.5 → SSH → **paw**:masteretti (remote login + su -/sudo)
4. [alte comenzi linux dorite]
5. FTP → Winscp → SFTP → student:masterrc@192.168.30.5
6. MySql → http://192.168.30.5/phpmyadmin → **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



# Utilizare LAMP CentOS

1. login → root:masterrc
2. ifconfig → 192.168.30.5
3. putty.exe → 192.168.30.5 → SSH → root:masterrc (remote login)
4. [alte comenzi linux dorite]
5. FTP → Winscp → SFTP → student:masterrc@192.168.30.5
6. MySql → http://192.168.30.5/phpmyadmin → root:masterrc
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



# Client / Server

```
<input name="nume" ....>
```

```
echo $_POST['nume']; //ceva  
echo $_GET['nume']; //ceva  
echo $_REQUEST['nume']; //ceva
```

ceva

Trimite

get  
post

Interpretor PHP primeste  
\$\_POST  
\$\_GET  
\$\_REQUEST

# Depanare

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

```
<p>temp <?php echo  
"a=";echo $a; ?> </p>
```

MySql – Server Ubuntu/Debian

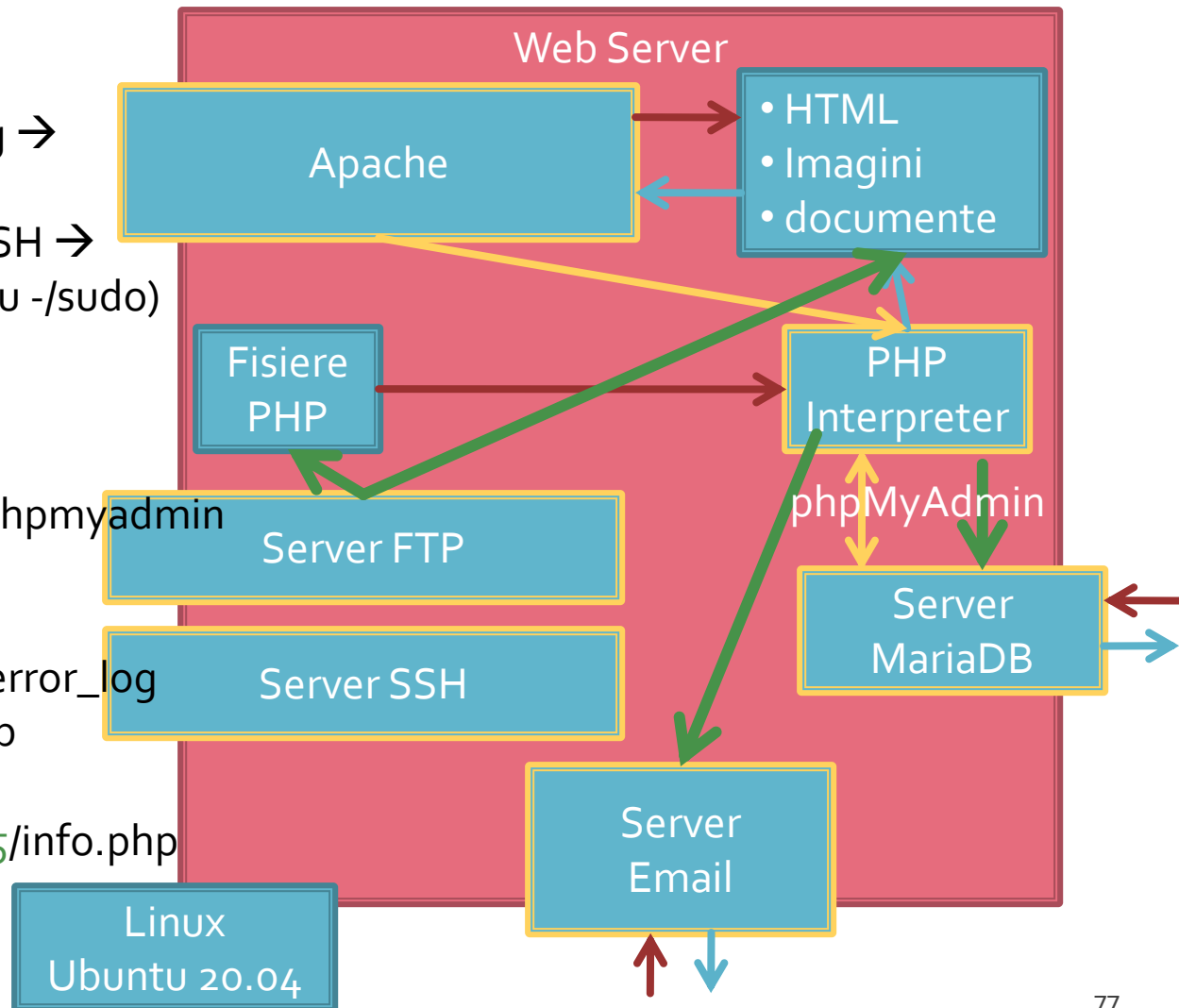
# Mini – Indrumar practic

## Lucru cu bazele de date



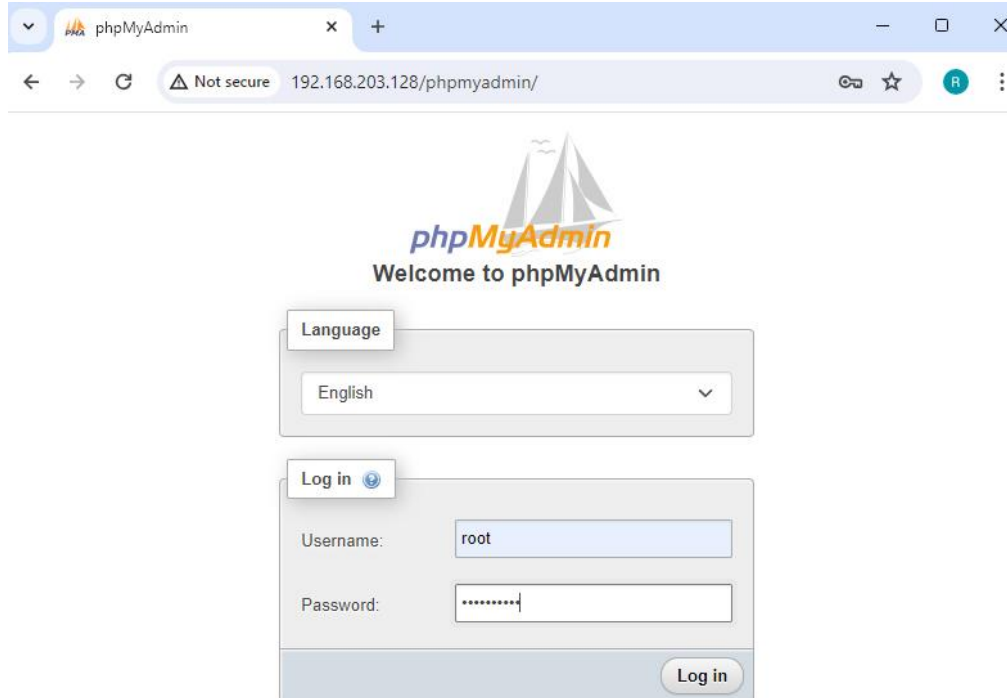
# Utilizzare LAMP Ubuntu/Debian

1. login → **paw**:masteretti
2. (su - + **root**:masteretti) ifconfig → 192.168.30.5
3. putty.exe → 192.168.30.5 → SSH → **paw**:masteretti (remote login + su -/sudo)
4. [alte comenzi linux dorite]
5. FTP → Winscp → SFTP → student:masterrc@192.168.30.5
6. MySql → http://192.168.30.5/phpmyadmin → **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



# PhpMyAdmin

- `http://192.168.30.5/phpmyadmin`
  - root
  - parola administrator **MySQL/MariaDB** (masteretti)



phpMyAdmin

Welcome to phpMyAdmin

Language

English

Log in

Username: root

Password: .....

Log in

# PhpMyAdmin

The screenshot displays the PhpMyAdmin web interface in a browser window. The address bar shows the URL `192.168.203.128/phpmyadmin/index.php?route=/&route=%2F`. The interface includes a top navigation bar with tabs for Databases, SQL, Status, User accounts, Export, Import, Settings, Replication, Variables, Charsets, and More. A left sidebar shows a tree view of databases: information\_schema, mysql, performance\_schema, phpmyadmin, sys, and world. The main content area is divided into several panels:

- General settings:** Includes a "Change password" link, a "Server connection collation" dropdown set to "utf8mb4\_unicode\_ci", and a "More settings" link.
- Appearance settings:** Includes a "Language" dropdown set to "English" and a "Theme" dropdown set to "pmahomme" with a "View all" button.
- Database server:** Lists server details:
  - Server: Localhost via UNIX socket
  - Server type: MariaDB
  - Server connection: SSL is not being used
  - Server version: 10.11.6-MariaDB-0+deb12u1 - Debian 12
  - Protocol version: 10
  - User: root@localhost
  - Server charset: UTF-8 Unicode (utf8mb4)
- Web server:** Lists web server details:
  - Apache/2.4.57 (Debian)
  - Database client version: libmysql - mysqlnd 8.2.7
  - PHP extension: mysqli, curl, mbstring, sodium
  - PHP version: 8.2.7
- phpMyAdmin:** Lists version and resource information:
  - Version information: 5.2.1deb1
  - Documentation
  - Official Homepage
  - Contribute
  - Get support
  - List of changes
  - License

# Creare Baza de Date

- Databases → "nume" → Create

The screenshot shows the phpMyAdmin interface for creating a new database. The 'Databases' tab is selected and highlighted with a red circle. Below the navigation bar, the 'Create database' form is visible. The 'Name' field contains 'lab' and the 'Collation' field contains 'utf8mb4\_general\_ci', both highlighted with red circles. The 'Create' button is also highlighted with a red circle. Below the form, there is a table of existing databases.

Database	Collation	Action
<input type="checkbox"/> information_schema	utf8mb3_general_ci	<a href="#">Check privileges</a>
<input type="checkbox"/> mysql	utf8mb4_general_ci	<a href="#">Check privileges</a>
<input type="checkbox"/> performance_schema	utf8mb3_general_ci	<a href="#">Check privileges</a>
<input type="checkbox"/> phpmyadmin	utf8mb4_general_ci	<a href="#">Check privileges</a>
<input type="checkbox"/> sys	utf8mb3_general_ci	<a href="#">Check privileges</a>
<input type="checkbox"/> world	utf8mb4_general_ci	<a href="#">Check privileges</a>

Total: 6

# Creare tabelle in baza de date

- Baza de date (in lista) → Structure → div Create new table → nume/coloane → Create

The screenshot shows the phpMyAdmin interface. The browser address bar indicates the URL: `192.168.203.128/phpmyadmin/index.php?route=/database/structure&db=lab`. The interface is for the database 'lab' on 'localhost:3306'. The 'Structure' tab is selected, and a message states 'No tables found in database.' Below this, the 'Create new table' button is highlighted. The 'Table name' field contains 'categorii' and the 'Number of columns' field contains '3'. The 'Create' button is also highlighted. The left sidebar shows a tree view of databases, with 'lab' selected and highlighted.

phpMyAdmin

Recent Favorites

Server: localhost:3306 Database: lab

Structure SQL Search Query Export Import

No tables found in database.

Create new table

Table name	Number of columns	
<input type="text" value="categorii"/>	<input type="text" value="3"/>	<input type="button" value="Create"/>

information\_schema lab mysql performance\_schema phpmyadmin sys

# Introducere coloane, tabel categorii

- (eventual) Adaugare coloane / Stabilire nume
- Name / Type / Length / Default

The screenshot shows the phpMyAdmin interface for a database named 'lab'. The table 'categorii' is selected, and the 'Structure' tab is active. The table structure is displayed as follows:

Name	Type	Length/Values	Default	Collation	Attributes	Null	Index	Comments
d_categ	INT		None			<input type="checkbox"/>	PRIMARY	<input checked="" type="checkbox"/>
nume	VARCHAR	45	As defined:			<input type="checkbox"/>	---	<input type="checkbox"/>
detalii	VARCHAR	150	None			<input checked="" type="checkbox"/>	---	<input type="checkbox"/>

At the top of the interface, the 'Table name:' field contains 'categorii', and the 'Add' button is set to '1 column(s)'. The 'Storage Engine' is set to 'InnoDB'.

# Introducere coloane

- (eventual) NOT NULL / Index / Auto Increment

Server: localhost:3306 » Database: lab

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Tracking More

Table name: categorii Add 1 column(s) Go

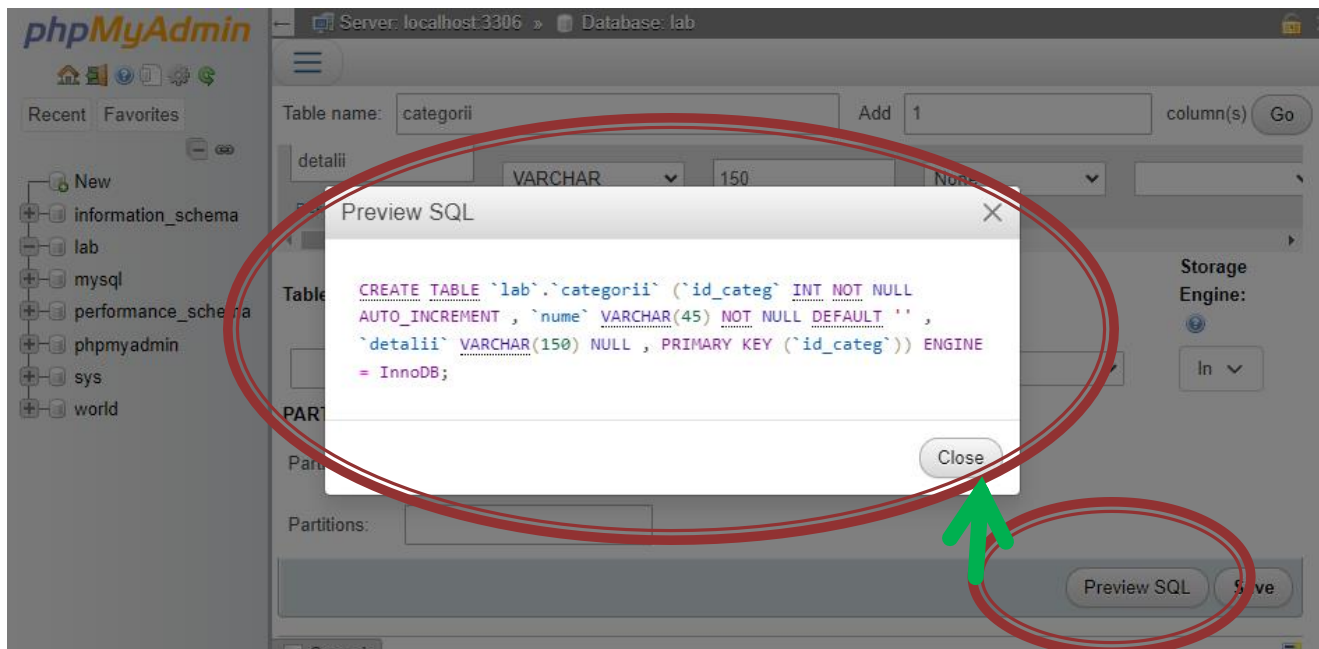
Name	Type	Length/Values	Default	Collation	Attributes	Null	Index	Comments
id_categ	INT		None			<input type="checkbox"/>	PRIMARY	<input checked="" type="checkbox"/>
nume	VARCHAR	45	As defined:			<input type="checkbox"/>	---	
detalii	VARCHAR	150	None			<input checked="" type="checkbox"/>	---	

Table comments: Collation: Storage Engine: InnoDB



# Preview SQL

- in aproape toate etapele in PhpMyAdmin
  - exemplu de cod SQL/schelet utilizabil (copy/paste) in aplicatia PHP
  - modificari de finete absente din interfata
    - copy → Sectiune "SQL" in interfata → paste → modificare





# Introducere coloane, tabel produse

- New → Nume → Add Columns → ...

The screenshot shows the phpMyAdmin interface with the 'Add Columns' dialog open for a table named 'produse'. The dialog has a 'Table name' field containing 'produse' and an 'Add' button next to a text input field containing '1', followed by 'column(s)' and a 'Go' button. The main table structure is visible below, with columns: id\_produc (INT, PRIMARY), id\_categ (INT), nume (VARCHAR, 45), detalii (VARCHAR, 150), cant (INT), and pret (FLOAT). The 'id\_produc' column is highlighted as the primary key. The 'New' button in the left sidebar is also highlighted.

Name	Type	Length/Values	Default	Collation	Attributes	Null	Index	Comments
id_produc	INT		None			<input type="checkbox"/>	PRIMARY	<input checked="" type="checkbox"/>
id_categ	INT		None			<input type="checkbox"/>	---	<input type="checkbox"/>
nume	VARCHAR	45	As defined:			<input type="checkbox"/>	---	<input type="checkbox"/>
detalii	VARCHAR	150	None			<input checked="" type="checkbox"/>	---	<input type="checkbox"/>
cant	INT		None			<input checked="" type="checkbox"/>	---	<input type="checkbox"/>
pret	FLOAT		None			<input checked="" type="checkbox"/>	---	<input type="checkbox"/>

# Introducere date initiale (interfata)

- Tabel → Insert → Completare → Go

The screenshot shows the phpMyAdmin interface for the 'lab' database, specifically the 'categorii' table. The 'Insert' button is circled in red. The 'name' field is filled with 'papetarie' and circled in red. The 'Insert as new row' dropdown is circled in red. The 'Go' button is circled in red. The 'Continue insertion with' field is set to '1' and circled in red.

Column	Type	Function	Null	value
id_categ	int(11)			
nume	varchar(45)			papetarie
detalii	varchar(150)		<input checked="" type="checkbox"/>	

Insert as new row and then Insert another new row

Continue insertion with 1 rows

# Vizualizare date existente

- Tabel → Browse → salt la pagina (numar de linii pe pagina)

The screenshot shows the phpMyAdmin interface for a MySQL database named 'lab'. The table 'categoriasii' is selected. The 'Browse' button is circled in red. The table name 'categoriasii' in the left sidebar is also circled in red. The table data is displayed as follows:

	id_categ	nume	descriere
<input type="checkbox"/>	1	papetarie	NULL
<input type="checkbox"/>	2	instrumente	NULL
<input type="checkbox"/>	3	audio-video	NULL

# Introducere date initiale (SQL)

- Tabel → SQL → completare → Go

The screenshot shows the phpMyAdmin interface for the 'produse' table. The 'SQL' tab is selected, and the 'Run SQL query/queries on database: lab' window is open. The SQL query editor contains the following INSERT statement:

```
1 INSERT INTO `produse` (`id_produș`, `id_categ`, `nume`, `detalii`, `cant`, `pret`) VALUES
2 (1, 'carte', 'mai multe pagini scrise legate', 0, 100),
3 (2, 1, 'caiet', 'mai multe pagini goale legate', 0, 75),
4 (3, 1, 'hartie scris', 'mai multe pagini goale NElegate', 0, 50),
5 (4, 2, 'penar', 'loc de depozitat instrumente de scris', 0, 150),
6 (5, 2, 'stilou', 'instrument de scris albastru', 0, 125),
7 (6, 2, 'creion', 'instrument de scris gri', 0, 25),
8 (7, 3, 'cd', 'canta', 0, 50),
9 (8, 3, 'dvd', 'vizual', 0, 100),
10 (9, 3, 'blue ray', 'vizual extrem', 0, 500);
```

The 'Go' button at the bottom right of the interface is circled in red, indicating the next step in the process.

# Tabel produse

The screenshot shows the phpMyAdmin interface for a MySQL database named 'lab'. The current view is the 'produse' table. The 'Browse' button in the top navigation bar and the 'produse' entry in the left sidebar are circled in red. The table displays 9 rows of product data with columns for ID, category, name, details, quantity, and price.

Showing rows 0 - 8 (9 total, Query took 0.0003 seconds.)

```
SELECT * FROM `produse`
```

Profiling [ [Edit inline](#) ] [ [Edit](#) ] [ [Explain SQL](#) ] [ [Create PHP code](#) ] [ [Refresh](#) ]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

				id_produc	id_categ	nume	detalii	cant	pret
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	1	1	carte	mai multe pagini scrise legate	0	100
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	2	1	caiet	mai multe pagini goale legate	0	75
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	3	1	hartie scris	mai multe pagini goale NElegate	0	50
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	4	2	penar	loc de depozitat instrumente de scris	0	150
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	5	2	stilou	instrument de scris albastru	0	125
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	6	2	creion	instrument de scris gri	0	25
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	7	3	cd	canta	0	50
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	8	3	dvd	vizual	0	100
<input type="checkbox"/>	<a href="#">Edit</a>	<a href="#">Copy</a>	<a href="#">Delete</a>	9	3	blue ray	vizual extrem	0	500



# Adaugare utilizator

- Server → User accounts → Add user account

The screenshot shows the phpMyAdmin interface. The top navigation bar includes 'Server: localhost:3306', 'Database: lab', and 'Table: produse'. The 'Server' text is circled in red. Below the navigation bar, the 'User accounts' menu item is circled in red. The main content area displays the 'User accounts overview' table. At the bottom of the page, the 'Add user account' button is circled in red.

User name	Host name	Password	Global privileges	User group	Grant	Action
<input type="checkbox"/> mariadb.sys	localhost	No	USAGE		No	<a href="#">Edit privileges</a> <a href="#">Export</a> <a href="#">Unlock</a>
<input type="checkbox"/> mysql	localhost	Yes	ALL PRIVILEGES	Yes	Yes	<a href="#">Edit privileges</a> <a href="#">Export</a> <a href="#">Lock</a>
<input type="checkbox"/> phpmyadmin	localhost	Yes	USAGE	No	No	<a href="#">Edit privileges</a> <a href="#">Export</a> <a href="#">Lock</a>
<input type="checkbox"/> root	localhost	Yes	ALL PRIVILEGES	Yes	Yes	<a href="#">Edit privileges</a> <a href="#">Export</a> <a href="#">Lock</a>
<input type="checkbox"/> web	%	Yes	USAGE	No	No	<a href="#">Edit privileges</a> <a href="#">Export</a> <a href="#">Lock</a>

# Adaugare utilizator

- Nu e recomandabil/**posibil** sa se utilizeze user-ul MySql "root" pentru aplicatii

The screenshot shows the phpMyAdmin interface for adding a new user account. The browser address bar indicates the URL: 192.168.203.128/phpmyadmin/index.php?route=/server/privileges&adduser=1. The page title is "Add user account". The form is titled "Login Information" and contains the following fields:

- User name: A text input field containing "lab\_user".
- Host name: A dropdown menu set to "Any host".
- Password: A text input field with masked characters (dots).
- Re-type: A second text input field for password confirmation, also masked.
- Authentication plugin: A dropdown menu set to "Native MySQL authentication".
- Generate password: A button labeled "Generate" and an empty text input field.

Three red circles are drawn around the "User name" field, the "Host name" dropdown, and the "Password" field, highlighting these specific input areas.

# Drepturi de acces

- Server → User accounts → Edit Privileges

The screenshot shows the phpMyAdmin interface for a MySQL server at localhost:3306. The navigation path is highlighted with red circles: 'Server: localhost:3306' in the top bar, 'User accounts' in the main menu, and 'Edit privileges' in the action column of the user accounts table.

**User accounts overview**

	User name	Host name	Password	Global privileges	User group	Grant	Action
<input type="checkbox"/>	lab_user	%	Yes	USAGE		No	Edit privileges  Export  Lock
<input type="checkbox"/>	mariadb.sys	localhost	No	USAGE		No	Edit privileges  Export  Unlock
<input type="checkbox"/>	mysql	localhost	Yes	ALL PRIVILEGES	Yes		Edit privileges  Export  Lock
<input type="checkbox"/>	phpmyadmin	localhost	Yes	USAGE	No		Edit privileges  Export  Lock
<input type="checkbox"/>	root	localhost	Yes	ALL PRIVILEGES	Yes		Edit privileges  Export  Lock
<input type="checkbox"/>	web	%	Yes	USAGE	No		Edit privileges  Export  Lock

↑  Check all With selected: Export



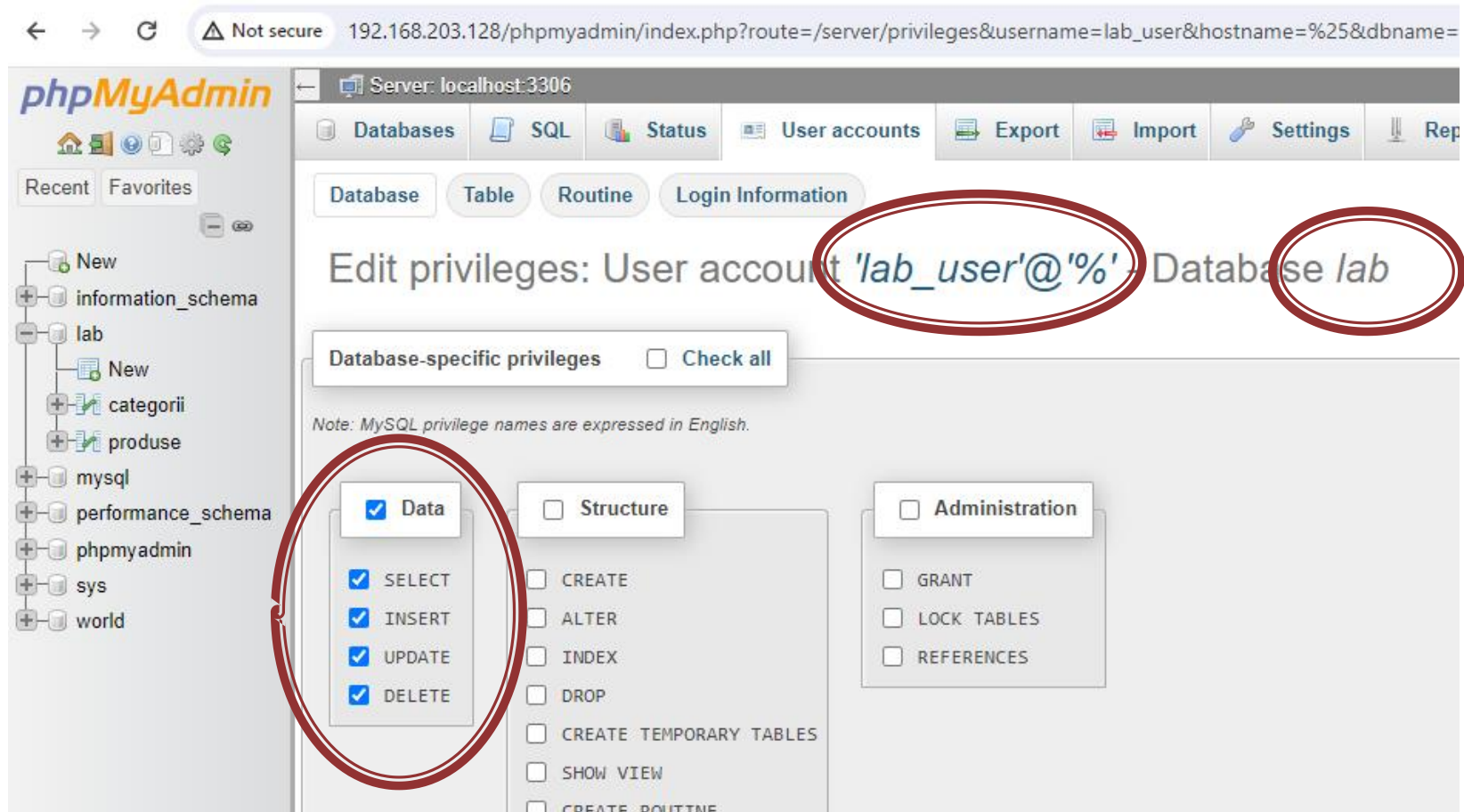
# Drepturi de acces

- Database → nume → Go

The screenshot displays the phpMyAdmin interface for editing privileges for the user account 'lab\_user'. The top navigation bar includes buttons for 'Databases', 'SQL', 'Status', 'User accounts', and 'Export'. The 'Database' button is circled in red. Below the navigation bar, the page title is 'Edit privileges: User account 'lab\_user'@'. The main content area shows a section for 'Database-specific privileges' with a table that has columns for 'Database', 'Privileges', 'Grant', 'Table-specific privileges', and 'Action'. The table contains one row with 'None' in the 'Action' column. A dropdown menu is open, showing a list of databases: 'lab', 'mysql', 'phpmyadmin', and 'sys', with 'lab' selected and circled in red. At the bottom of the page, the 'Go' button is circled in red.

# Drepturi de acces

- Se alocă drepturile SELECT + INSERT + UPDATE + DELETE asupra bazei de date create



The screenshot shows the phpMyAdmin interface for editing privileges. The browser address bar shows the URL: `192.168.203.128/phpmyadmin/index.php?route=/server/privileges&username=lab_user&hostname=%25&dbname=`. The page title is "Edit privileges: User account 'lab\_user'@'%' Database lab". The "Database-specific privileges" section is active, and the "Check all" checkbox is unchecked. The "Data" category is selected, and the following privileges are checked: SELECT, INSERT, UPDATE, and DELETE. The "Structure" and "Administration" categories are not selected.

Category	Privilege	Checked
Data	SELECT	<input checked="" type="checkbox"/>
	INSERT	<input checked="" type="checkbox"/>
	UPDATE	<input checked="" type="checkbox"/>
	DELETE	<input checked="" type="checkbox"/>
Structure	CREATE	<input type="checkbox"/>
	ALTER	<input type="checkbox"/>
	INDEX	<input type="checkbox"/>
	DROP	<input type="checkbox"/>
	CREATE TEMPORARY TABLES	<input type="checkbox"/>
	SHOW VIEW	<input type="checkbox"/>
	CREATE ROUTINE	<input type="checkbox"/>
	ALTER ROUTINE	<input type="checkbox"/>
	EXECUTE	<input type="checkbox"/>
	TRIGGER	<input type="checkbox"/>
Administration	GRANT	<input type="checkbox"/>
	LOCK TABLES	<input type="checkbox"/>
	REFERENCES	<input type="checkbox"/>

# Drepturi de acces, verificare

- Nume → Privileges
- Marea majoritate a aplicatiilor **nu** au nevoie de drepturi de acces la structura/administrare

Server: localhost:3306 » Database: lab

Structure SQL Search Query Export Import Operations **Privileges** Re

Users having access to "lab"

User name	Host name	Type	Privileges	Grant	Action
<input type="checkbox"/> lab_user	%	database-specific	SELECT, INSERT, UPDATE, DELETE	No	Edit privileges Export
<input type="checkbox"/> mysql	localhost	global	ALL PRIVILEGES	Yes	Edit privileges Export
<input type="checkbox"/> root	localhost	global	ALL PRIVILEGES	Yes	Edit privileges Export

Check all With selected: Export

New

# Index

- Adaugare index e esentiala pentru viteza
  - exemplu, produse grupate pe categorii, selectia produselor dintr-o categorie se face cu :
    - `SELECT * FROM `produse` WHERE `id_categ` = 1`
- Tabel → Structure → Index / Selectare + Index

The screenshot shows the phpMyAdmin interface for a table named 'produse' in a database named 'lab'. The 'Structure' tab is active, displaying the table's schema. A green message at the top indicates that the SQL query to add an index on the 'id\_categ' column was executed successfully. The table structure table shows the following columns:







#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id_produs	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	id_categ	int(11)			No	None			Change Drop More
3	nume	varchar(45)	utf8mb4_general_ci		No				Change Drop More
4	detalii	varchar(150)	utf8mb4_general_ci		Yes	NULL			Change Drop More
5	cant	int(11)			Yes	NULL			Change Drop More
6	pret	float			Yes	NULL			Change Drop More

At the bottom of the interface, the 'Index' button is highlighted with a green circle, indicating the next step in the process.

# Verificare/Stergere index

- Zona Indexes, vizualizare/control lista de indecsi

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
 Edit  Rename  Drop	PRIMARY	BTREE	Yes	No	id_produs	9	A	No	
 Edit  Rename  Drop	id_categ	BTREE	No	No	id_categ	9	A	No	

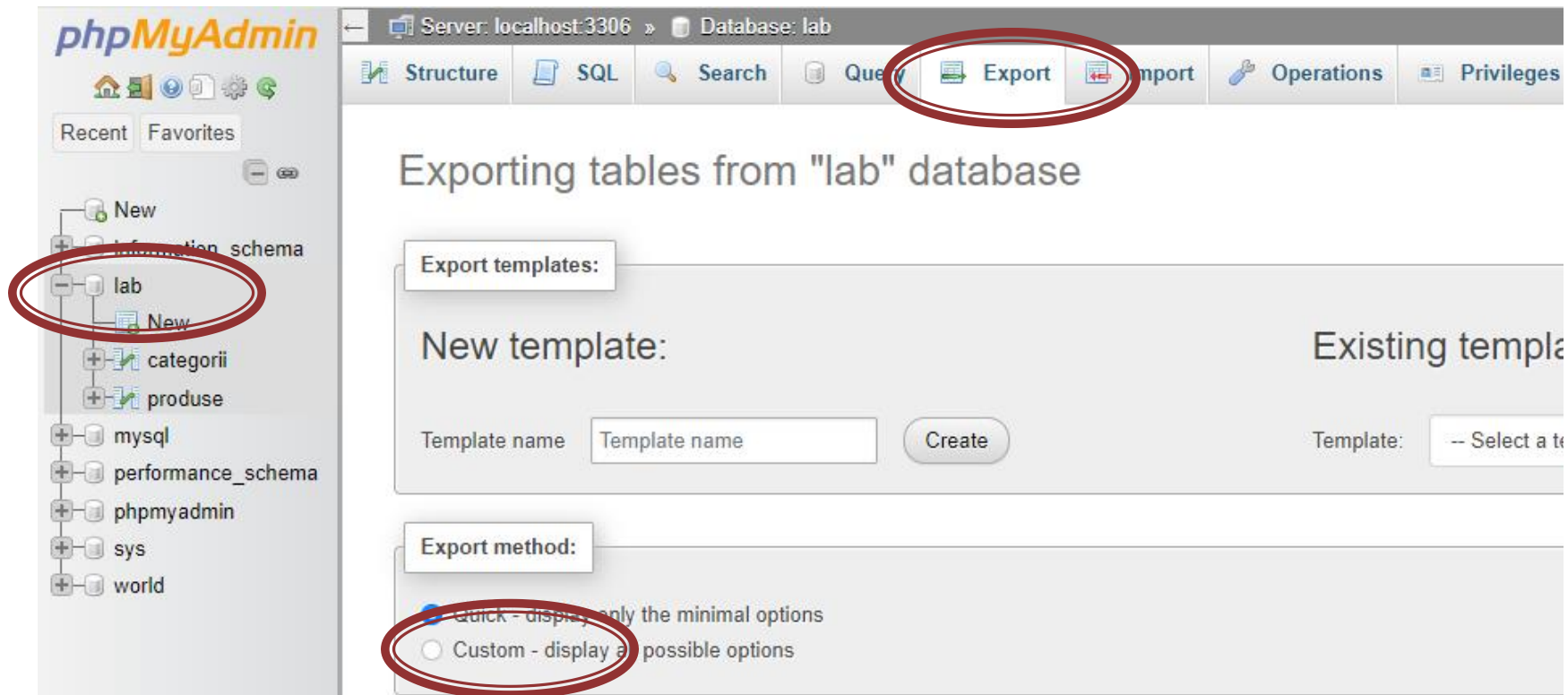
# Backup, Restore

- Ca și în cazul Windows 2000 facilitatea de Backup realizează un script SQL care conține structura și datele exprimate sub forma de interogări SQL
- O deosebire între PhpMyAdmin și aplicațiile specifice MySQL (aceleși de pe Windows 2000 sau MySQL Workbench) este absența liniilor de creare a bazei de date
  - CREATE DATABASE IF NOT EXISTS lab;
  - USE lab;
- La utilizarea PhpMyAdmin trebuie să se creeze manual baza de date înaintea restaurării



# Backup

- Nume (tabel sau baza de date) → Export
  - Custom: exista optiunea Add CREATE DATABASE / USE statement



The screenshot displays the phpMyAdmin interface for a MySQL server at localhost:3306, connected to the 'lab' database. The 'Export' menu item in the top navigation bar is circled in red. In the left sidebar, the 'lab' database folder is also circled in red. The main content area shows the 'Exporting tables from "lab" database' dialog. The 'Export method' section has the 'Custom - display all possible options' radio button selected and circled in red. The 'Export templates' section includes a 'New template' form with a 'Template name' input field and a 'Create' button, and an 'Existing template' dropdown menu.

# Restore

- Se creaza in avans baza de date
- Nume → Import → Browse (alegere fisier backup)
- fisierele SQL pot fi compresate gzip, bzip2, zip

The screenshot displays the phpMyAdmin interface. On the left sidebar, the 'lab' database is selected and circled in red. The main window shows the 'Import' dialog for the 'lab' database. The 'Import' button in the top toolbar is also circled in red. The dialog includes a 'File to import:' section with instructions on file formats and a 'Browse your computer:' section where the file 'lab.sql' is selected and circled in red. The 'Choose File' button is also circled in red.

Structure SQL Search Query Export **Import** Operat

### Importing into the database "lab"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.  
A compressed file's name must end in `.[format].[compression]`. Example: `.sql.zip`

Browse your computer: (Max: 2,048KiB)

**Choose File** lab.sql

You may also drag and drop a file on any page.

Character set of the file:



MySQL Workbench

# Mini – Indrumar practic

## Lucru cu bazele de date

# MySQL Workbench CE

- <https://dev.mysql.com/downloads/workbench/>

General Availability (GA) Releases Archives Info

## MySQL Workbench 8.0.36

Select Operating System:  
Microsoft Windows

Recommended Download:

**MySQL Installer for Windows**  
All MySQL Products. For All Windows Platforms. In One Package.

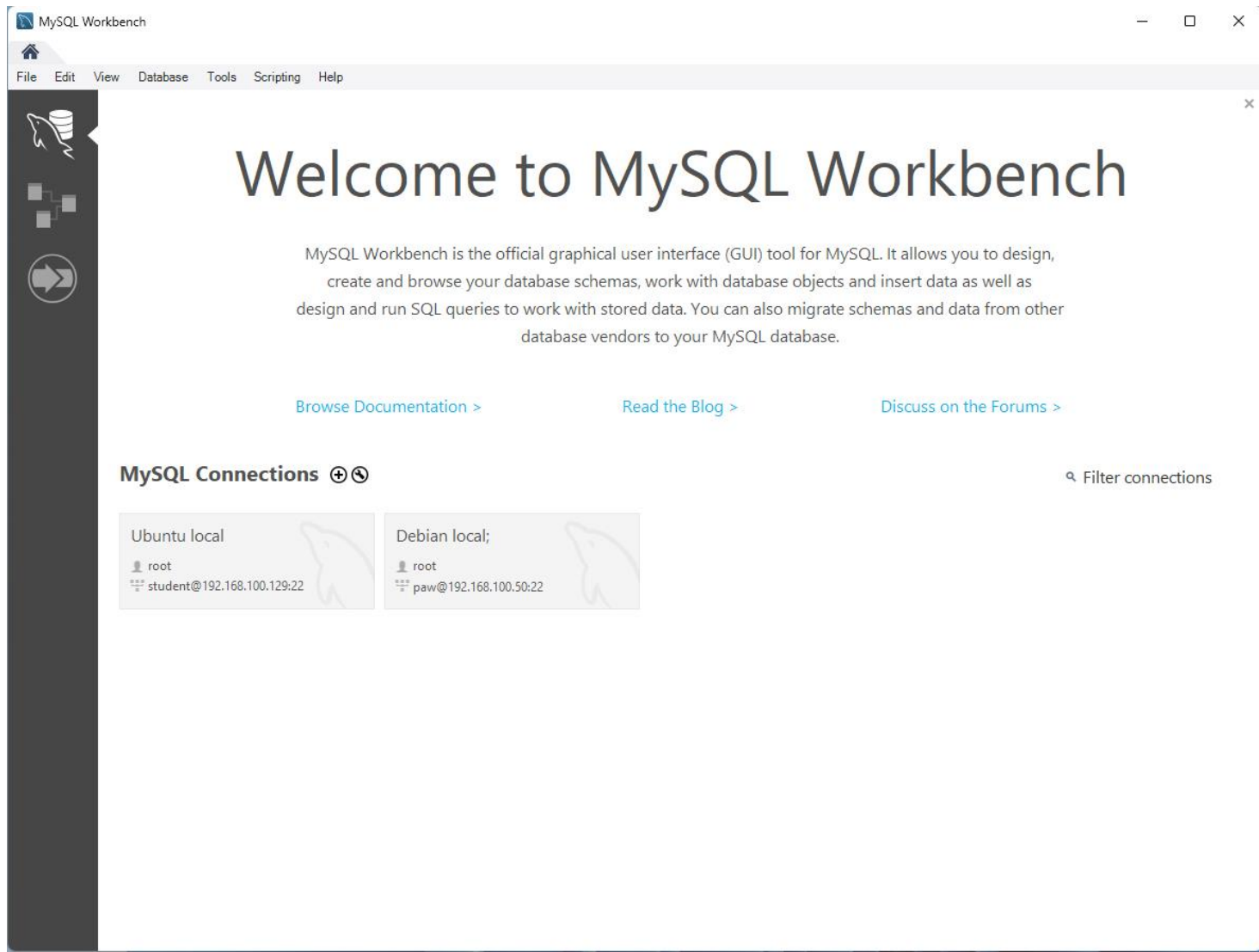
Starting with MySQL 5.6 the MySQL Installer package replaces the standalone MSI packages.

Windows (x86, 32 & 64-bit), MySQL Installer MSI [Go to Download Page >](#)

Other Downloads:

Windows (x86, 64-bit), MSI Installer (mysql-workbench-community-8.0.36-winx64.msi)	8.0.36	42.0 MB	<a href="#">Download</a>
	MD5: 2156fe0cb6f5ed83908e4631066390a		Signature

# MySQL Workbench CE



# Conexiune

welcom

MySQL Workbench i  
create and brows  
design and run SQL q

[Browse Documentat...](#)

MySQL Connections  

Setup New Connection

Connection Name: Debian Paw Type a name for the connection

Connection Method: Standard TCP/IP over SSH Method to use to connect to the RDBMS

Parameters SSL Advanced

SSH Hostname: 192.168.203.128:22 SSH server hostname, with optional port number.

SSH Username: paw Name of the SSH user to connect with.

SSH Password: Store in Vault ... Clear SSH user password to connect to the SSH tunnel.

SSH Key File: Path to SSH private key file.

MySQL Hostname: 127.0.0.1 MySQL server host relative to the SSH server.

MySQL Server Port: 3306 TCP/IP port of the MySQL server.

Username: root Name of the user to connect with.

Password: Store in Vault ... Clear The MySQL user's password. Will be requested later if not set.

Default Schema: The schema to use as default schema. Leave blank to select it later.

Configure Server Management... Test Connection Cancel OK

Store Password For Connection

Please enter password for the following service:

Service: sch@192.168.203.128:22

User: paw

Password: \*\*\*\*\*

OK Cancel

# Conexiune

The image shows a sequence of steps in MySQL Workbench for setting up a new connection:

- Setup New Connection:** The main window shows fields for SSH Hostname (192.168.203.128:22), SSH Username (paw), SSH Password (Store in Vault ...), SSH Key File, MySQL Hostname (127.0.0.1), MySQL Server Port (3306), Username (root), and Password (Store in Vault ...). The Connection Method is set to "Standard TCP/IP over SSH".
- Authentication Dialog:** A dialog box prompts for a password for the service. The User is "root" and the Password is masked with asterisks. Both fields are circled in red.
- Test Connection:** A "Test Connection" button at the bottom of the Setup New Connection window is circled in red. An arrow points from this button to the "Store in Vault ..." button in the Password field.
- SSH Tunnel Error:** A "Could not connect the SSH Tunnel" dialog box appears, stating: "The authenticity of host '192.168.203.128' can't be established. Server key fingerprint is 85:d3:81:76:a6:5a:0e:22:07:c3:89:16:59:d5:c5:6a:00:b...:36. Are you sure you want to continue connecting?". The "Ok" button is circled in red.
- Connection Warning:** A "Connection Warning" dialog box appears with a yellow warning icon, stating: "Incompatible/nonstandard server version or connection protocol detected (10.11.6). A connection to this database can be established but some MySQL Workbench features may not work properly since the database is not fully compatible with the supported versions of MySQL. MySQL Workbench is developed and tested for MySQL Server versions 5.6, 5.7 and 8.0." The "Continue Anyway" button is circled in red.
- Successful Connection:** A final dialog box states: "Successfully made the MySQL connection". This message is circled in red.

# Configurare

[browse Documentation >](#)

[read the blog >](#)

[Discuss on the Forum](#)

## MySQL Connections

Ubuntu local

root  
student@192.168.100.129:22

Debian local;

root  
paw@192.168.100.50:22

Debian Paw

root  
paw@192.168.203.128:22

# welcom

MySQL Workbench i  
create and brows  
design and run SQL q

[Browse Documentatic](#)

MySQL Connections 

Manage Server Connections

MySQL Connections

- Ubuntu local
- Debian local;
- Debian Paw

Connection Name: Debian Paw

Connection: Remote Management System Profile

Connection Method: Standard TCP/IP over SSH Method to use to connect to the RDBMS

Parameters SSL Advanced

SSH Hostname: 192.168.203.128:22 SSH server hostname, with optional port number.

SSH Username: paw Name of the SSH user to connect with.

SSH Password: Store in Vault ... Clear SSH user password to connect to the SSH tunnel.

SSH Key File: ... Path to SSH private key file.

MySQL Hostname: 127.0.0.1 MySQL server host relative to the SSH server.

MySQL Server Port: 3306 TCP/IP port of the MySQL server.

Username: root Name of the user to connect with.

Password: Store in Vault ... Clear The MySQL user's password. Will be requested later if not set.

Default Schema: The schema to use as default schema. Leave blank to select it later.

New Delete Duplicate Move Up Move Down Test Connection Close



# Configurare

The image displays two screenshots of the 'Manage Server Connections' dialog box in Red Hat Workbench, illustrating the configuration process for a new connection.

**Left Screenshot: Selection of Management Method**

- Connection Name:** Debian Paw
- Connection Type:** Remote Management, System Profile
- Management Options:**
  - Do not use remote management
  - Native Windows remote management (only available on Windows)
  - SSH login based management
- Host Information:**
  - Hostname: 192.168.203.128
  - Port: [empty]
  - Username: paw
  - Password: [Store in Vault ...]
  - SSH Key Path: [empty]

**Right Screenshot: Configuration Details**

- Connection Name:** Debian Paw
- Connection Type:** Remote Management, System Profile
- System Type:** Linux
- Installation Type:** Ubuntu Linux (sysvinit, Vendor Package)
- Configuration File:** /etc/mysql/my.cnf
- Configuration File Section:** mysqld
- MySQL Management:**
  - Start MySQL: /etc/init.d/mysql start
  - Stop MySQL: /etc/init.d/mysql stop
  - Run as administrator and write configuration data
- Override sudo command line:** [empty]

# Administrare/Control

The screenshot displays the MySQL Workbench Administration Dashboard. The interface includes a top menu bar (File, Edit, View, Query, Database, Server, Tools, Scripting, Help) and a sidebar with navigation options. The main dashboard area is divided into several sections:

- MANAGEMENT:** Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, Data Import/Restore.
- INSTANCE:** Startup / Shutdown, Server Logs, Options File.
- Performance:** Dashboard, Performance Reports, Performance Schema Setup.
- Administration:** Schemas.

The main dashboard content includes:

- Network Status:** Incoming Network Traffic (Bytes/Second) showing 8.00 B/s receiving and 5.27 KB/s sending. Outgoing Network Traffic (Bytes/Second) showing 5.27 KB/s sending. Client Connections (Total) showing 4 connections out of a limit of 151.
- MySQL Status:** Table Open Cache Efficiency at 63%. SQL Statements Executed (#) showing SELECT (0/s), INSERT (0/s), UPDATE (0/s), DELETE (0/s), CREATE (0/s), ALTER (0/s), and DROP (0/s).
- InnoDB Status:** InnoDB Buffer Pool Usage at 4%. InnoDB Disk Writes showing 0 B/s data written and 0 #/s writes. InnoDB Disk Reads showing 0.00 B/s reading. Redo Log showing 0 B/s data written and 0 #/s writes. Doublewrite Buffer showing 0 #/s writes.

Red circles highlight the 'Dashboard' and 'Administration' options in the sidebar.



# Administrare/Control

MySQL Workbench

Debian Paw - Warning - not s...

File Edit View Query Database Server Tools Scripting Help

Navigator: Query 1 produse produse - Table Administration - Server Status

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

**INSTANCE**

- Startup / Shutdown
- Server Logs
- Options File

**PERFORMANCE**

- Dashboard
- Performance Reports
- Performance Schema Setup

Administration Schemas

No object selected

Object Info Session

Connection Name: **Debian Paw**

Host: pawetti  
Socket: /run/mysqld/mysqld.sock  
Port: 3306  
Version: 10.11.6-MariaDB-0+deb12u1 (Debian 12)  
Compiled For: debian-linux-gnu (x86\_64)  
Configuration File: /etc/mysql/my.cnf  
Running Since: Mon Apr 15 14:21:29 2024 (0:55)

Refresh

**Available Server Features**

Performance Schema:	<input type="radio"/> Off	PAM Authentication:	<input type="radio"/> Off
Thread Pool:	<input type="radio"/> n/a	Password Validation:	<input type="radio"/> n/a
Memcached Plugin:	<input type="radio"/> n/a	Audit Log:	<input type="radio"/> n/a
Semisync Replication Plugin:	<input type="radio"/> Off	Firewall:	<input type="radio"/> n/a
SSL Availability:	<input checked="" type="radio"/> On	Firewall Trace:	<input type="radio"/> n/a

**Server Directories**

Base Directory: /usr  
Data Directory: /var/lib/mysql/  
Disk Space in Data Dir: 16G of 19G available  
Plugins Directory: /usr/lib/mysql/plugin/  
Tmp Directory: /tmp  
Error Log:  Off  
General Log:  Off  
Slow Query Log:  Off

: this server is not a replica in a replication setup

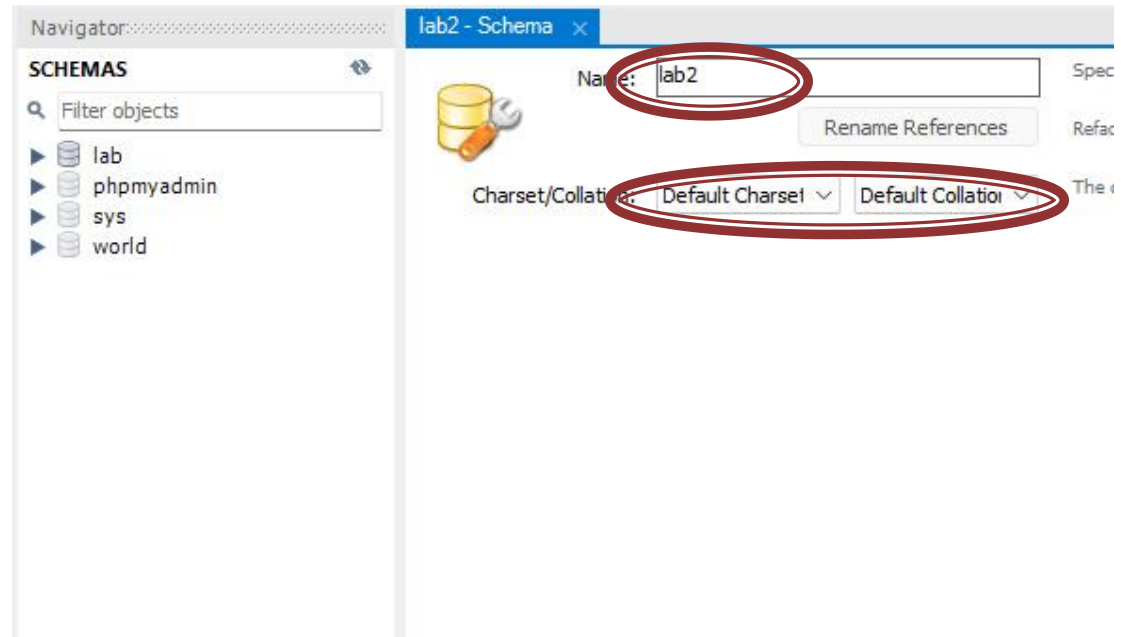
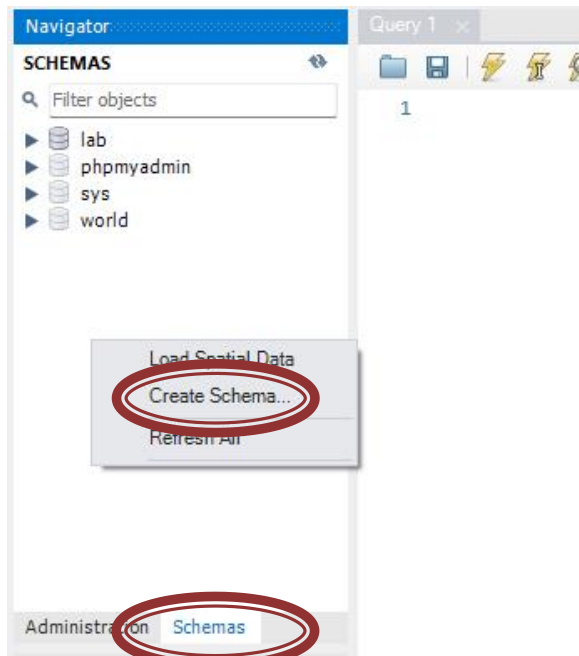
SHA256 Password Private Key:  n/a  
SHA256 Password Public Key:  n/a

SSL CA: n/a  
SSL CA Path: n/a  
SSL Cert: n/a

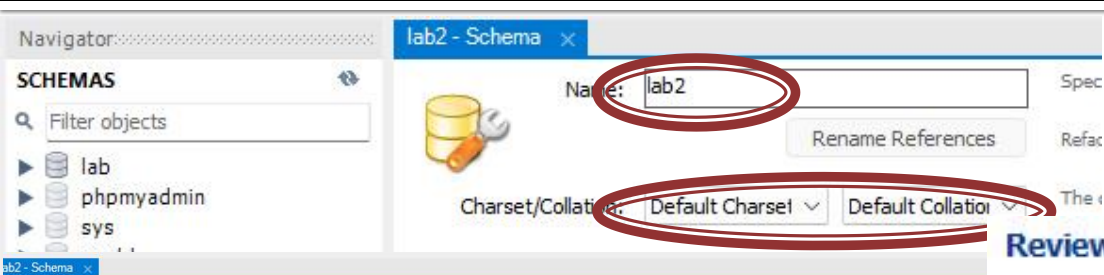
Server Status: Running  
CPU/Load: 0.0  
Connections: 4  
Traffic: 19.10 KB/s  
Key Efficiency: 0.0%  
Selects per Second: 0  
InnoDB Buffer Usage: 4.8%  
InnoDB Reads per Second: 0  
InnoDB Writes per Second: 0

# Realizarea bazei de date

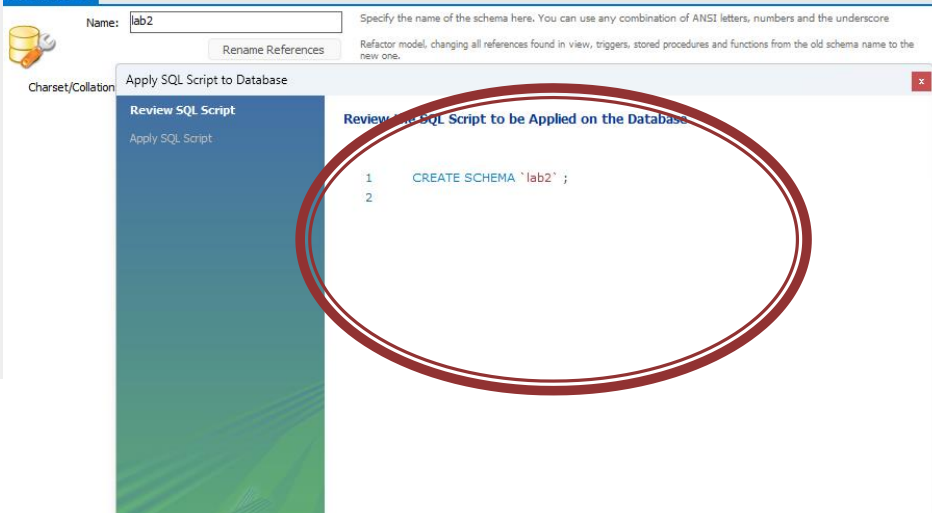
- se creaza o noua baza de date:
  - in lista "Schemas" – Right click – Create New Schema
- se activeaza ca baza de date curenta noua "schema" – Dublu click pe numele ales



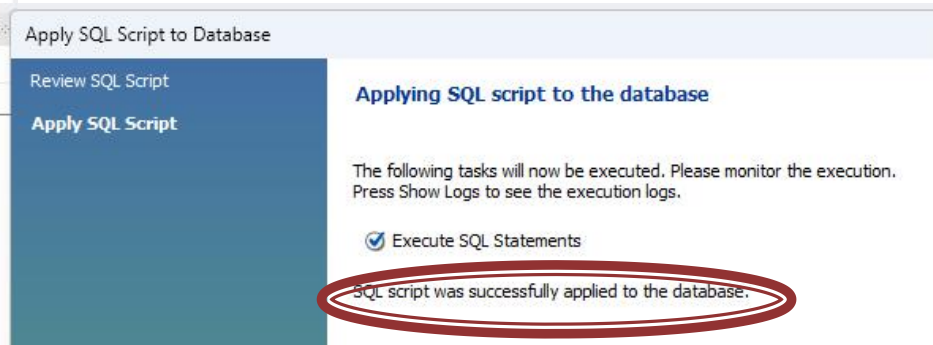
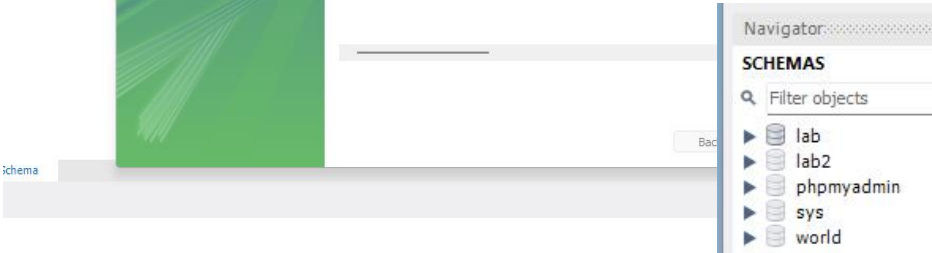
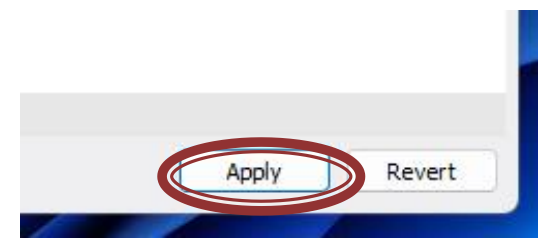
# Realizarea bazei de date



Review the SQL Script to be Applied on the Database

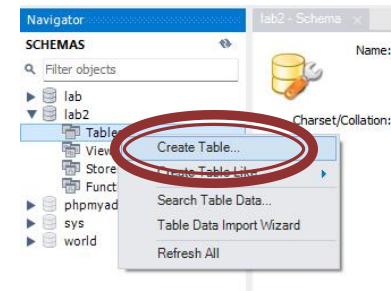


```
1 CREATE SCHEMA `lab2` ;
2
```



# Introducere tabele

- Introducere tabel – Click sageata langa numele bazei de date – Tables – Right Click – Create Table
- se defineste structura tabelului
  - nume coloane
  - tip de date
  - NOT NULL – daca se accepta ca acea coloana sa ramana fara date (NULL) sau nu
  - AUTOINC – daca acea coloana va fi de tip intreg si va fi incrementata automat de server (util pentru crearea cheilor primare)
  - Default value – valoarea implicita care va fi inserata daca la introducerea unei linii noi nu se mentioneaza valoare pentru acea coloana (legat de optiunea NOT NULL)






# Tabel Categorii

Navigator: categoriasii - Table x

Table Name:  Schema: **lab2**

Charset/Collation:   Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
 id_categ	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
 nume	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 detalii	VARCHAR(150)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Apply SQL Script to Database

## Review SQL Script


Apply SQL Script

## Review the SQL Script to be Applied on the Database

```
1 CREATE TABLE `lab2`.`categoriasii` (  
2   `id_categ` INT NOT NULL AUTO_INCREMENT,  
3   `nume` VARCHAR(45) NOT NULL,  
4   `detalii` VARCHAR(150) NULL,  
5   PRIMARY KEY (`id_categ`));  
6
```







# Tabel Prognose

produse - Table x

 Table Name:  Schema: **lat**

Charset/Collation:   Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/E:
 id_produ	INT(11)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
 id_categ	INT(11)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 nume	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	"
 detalii	VARCHAR(150)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 cant	INT(11)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 cost	FLOAT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL

Column Name:  Data T

Charset/Collation:   Del

Comments:  Stor

Columns Indexes Foreign Keys Triggers Partitioning Options



# Introducere date initiale

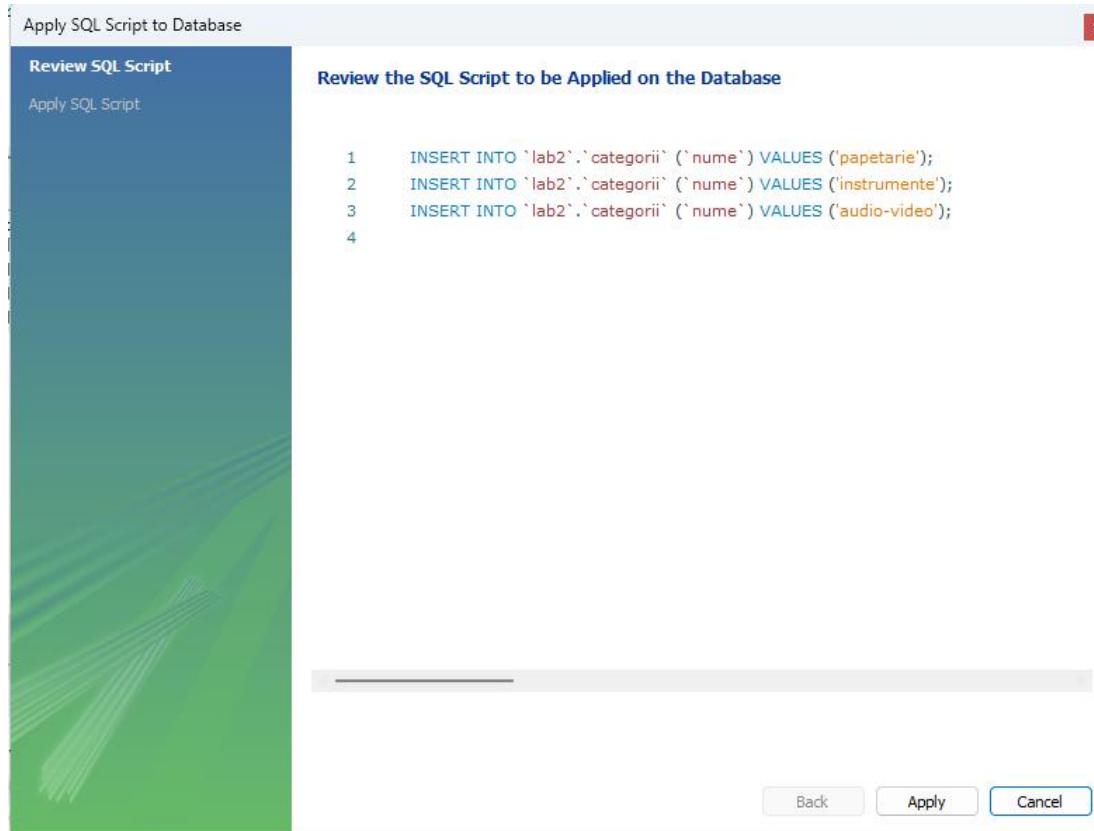
The image illustrates the process of entering initial data into a database table. It shows a screenshot of a database management tool interface with the following components:

- Navigator:** A tree view on the left showing the database structure. The 'lab' schema is expanded to show the 'lab2' database, which contains tables 'categorii' and 'produse', as well as Views, Stored Procedures, and Functions. The 'categorii' table is selected.
- SQL Editor:** The top pane shows the SQL query: `SELECT * FROM lab2.categorii;`. This query is circled in red.
- Result Grid:** The bottom pane shows the results of the query. The first screenshot shows a table with three columns: 'id\_categ', 'nume', and 'detalii', all containing 'NULL'. This table is circled in red. The second screenshot shows the same table with data entered: 'papetarie', 'instrumente', 'audio-video', and 'HULL'. This table is also circled in red.

Red arrows indicate the flow of data from the SQL query to the Result Grid, and from the first Result Grid to the second Result Grid, showing the progression from an empty table to one with initial data.

# Introducere date initiale

- Completare in rezultat + Buton Apply





# Introducere date prin script

The screenshot displays the SQL Enterprise Manager interface. The main window shows a script with the following SQL code:

```
1 CREATE TABLE `lab2`.`produse` (`id_produs` INT NOT NULL AUTO_INCREMENT, `id_categ` INT NOT NULL, `nume` VARCHAR(255) NOT NULL, `detalii` VARCHAR(255) NOT NULL, `cant` INT NOT NULL, PRIMARY KEY (`id_produs`));
2
3 INSERT INTO `lab2`.`produse` (`id_produs`, `id_categ`, `nume`, `detalii`, `cant`) VALUES
4 (1,1,'carte','mai multe pagini scrise legate',0,100),
5 (2,1,'caiet','mai multe pagini goale legate',0,75),
6 (3,1,'hartie scris','mai multe pagini goale NElegate',0,50),
7 (4,2,'penar','loc de depozitat instrumente de scris',0,150),
8 (5,2,'stilou','instrument de scris albastru',0,125),
9 (6,2,'creion','instrument de scris alb',0,25),
10 (7,3,'cd','canta',0,50),
11 (8,3,'dvd','vizual',0,100),
12 (9,3,'blue ray','vizual extrem',0,500);
```

The 'Output' window at the bottom shows the execution results:

#	Time	Action	Message	Duration
5	15:32:51	Apply changes to categorii	Changes applied	
6	15:35:34	Apply changes to categorii	No changes detected	
7	15:35:34	Apply changes to categorii	No changes detected	
8	15:37:58	CREATE TABLE `lab2`.`produse` (`id_produs` INT NOT NULL AUTO_INCREMENT, `id_categ` INT NOT NULL, `nume` VARCHAR(255) NOT NULL, `detalii` VARCHAR(255) NOT NULL, `cant` INT NOT NULL, PRIMARY KEY (`id_produs`));	0 row(s) affected	0.015 sec
9	15:37:58	INSERT INTO `lab2`.`produse` (`id_produs`,`id_categ`,`nume`,`detalii`,`cant`) VALUES (1,1,'carte','mai multe pagini scrise legate',0,100), (2,1,'caiet','mai multe pagini goale legate',0,75), (3,1,'hartie scris','mai multe pagini goale NElegate',0,50), (4,2,'penar','loc de depozitat instrumente de scris',0,150), (5,2,'stilou','instrument de scris albastru',0,125), (6,2,'creion','instrument de scris alb',0,25), (7,3,'cd','canta',0,50), (8,3,'dvd','vizual',0,100), (9,3,'blue ray','vizual extrem',0,500);	9 row(s) affected Records: 9 Duplicates: 0 Warnings: 0	0.009 sec
10	15:38:24	SELECT * FROM `lab2`.`produse` LIMIT 0, 50000	9 row(s) returned	0.000 sec / 0.000 sec

# Introducere date initiale

The screenshot shows the MySQL Query Browser interface. The main window displays the SQL Query Area with the query: `1 SELECT * FROM produse p;`. Below the query, the Resultset 1 is shown as a table with the following data:

id_produs	id_categ	nume	detalii	cant	pret
1	1	carte	mai multe pagini scrise legate	0	100
2	1	caiet	mai multe pagini goale legate	0	75
3	1	hartie scris	mai multe pagini goale NElegate	0	50
4	2	penar	loc de depozitat instrumente de scris	0	150
5	2	stilou	instrument de scris albastru	0	125
6	2	creion	instrument de scris gri	0	25
7	3	cd	canta	0	50
8	3	dvd	vizual	0	100
9	3	blue ray	vizual extrem	0	500

The interface also includes a Schemata panel on the right showing the database structure, and a Syntax panel at the bottom right with various SQL statement categories.

# Index in tabelul produse

The image shows a database management interface with the following components:

- Navigator:** Shows a tree view of schemas including 'lab', 'lab2', 'produse', 'categorii', 'Views', 'Stored Procedures', 'Functions', 'phpmyadmin', 'sys', and 'world'. A red circle highlights the 'produse' table icon.
- Table Properties (Top):** Shows 'Table Name: produse', 'Schema: lab', 'Charset/Collation: utf8mb4', and 'Engine: InnoDB'.
- Table Structure:** A table listing columns: id\_produc (INT(11), PK, NN), id\_categ (INT(11), NN), nume (VARCHAR(45)), detalii (VARCHAR(150)), cant (INT(11)), and pret (FLOAT).
- Indexes Tab:** A red circle highlights the 'Indexes' tab. Below it, a table shows the index configuration:

Index Name	Type
PRIMARY	PRIMARY
id_categ	INDEX
- Index Definition:** A red circle highlights the 'id\_categ' column in the 'Index Columns' list, which is set to 'ASC' and '1' in order.

# User si drepturi de acces

## ■ Probleme de compatibilitate

Navigation: categoriai Administration - Users and Privil...

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges**
- Status and System Variables
- Data Export
- Data Import/Restore

**INSTANCE**

- Startup / Shutdown
- Server Logs
- Options File

**PERFORMANCE**

- Dashboard
- Performance Reports
- Performance Schema Setup

**Administration** Schemas

Schema: lab

Debian Paw  
**Users and Privileges**

User Accounts

User	From Host
lab_user	%
mariadb.sys	localhost
mysql	localhost
phpmyadmin	localhost
root	localhost
web	%

Select an account to edit or click [ ]

Login	Account Limits	Administrative
Login Name:		
Authentication Type:	unix_soci	
Limit to Hosts Matching:		
Password:		Consider mixed case
Confirm Password:		
Authentication String:		

**Add Account** Delete Refresh

**Details for account newuser@%**

Login Account Limits Administrative Roles Schema Privileges

Login Name: lab2\_user You may create multiple accounts with the to connect from different hosts.

Authentication Type: unix\_socket For the standard password and/or host ba select 'Standard'.

Limit to Hosts Matching: % % and \_ wildcards may be used

Password: \*\*\*\*\* Type a password to reset it.  
**Weak password.**

Confirm Password: \*\*\*\*\* Enter password again to confirm.

Authentication String: Authentication plugin specific parameters.

See the plugin documentation for valid values and details.

# Privilegii

The screenshot shows the MySQL Administration tool interface. The main window is titled "Administration - Users and Privil..." and displays "Users and Privileges" for the user "Debian Paw". The "Details for account newuser@%" tab is active, with sub-tabs for "Login", "Account Limits", "Administrative Roles", and "Schema Privileges". The "Schema Privileges" sub-tab is selected and circled in red. A "New Schema Privilege Definition" dialog box is open in the foreground. It prompts the user to "Select the Schema for which the user 'newuser' will have the privileges you want to define." Under the "Schema" section, the "Selected schema:" option is chosen and circled in red, with the value "lab2" entered in the text box. An "Add Entry..." button is also circled in red. The dialog box includes instructions for schema selection and "Cancel" and "OK" buttons at the bottom.

The screenshot shows the "Details for account lab2\_user@%" tab in the MySQL Administration tool. The "Schema Privileges" sub-tab is active. A table lists the schema "lab2" with the privileges "DELETE, INSERT, SELECT, UPDATE". Below the table, there is a note: "The user 'lab2\_user'@'%' will have the following access rights to the schema...". Under "Object Rights", the following privileges are checked and circled in red: SELECT, INSERT, UPDATE, and DELETE. Under "DDL Rights", the following privileges are listed but unchecked: CREATE, ALTER, REFERENCES, INDEX, CREATE VIEW, CREATE ROUTINE, ALTER ROUTINE, EVENT, and DROP.



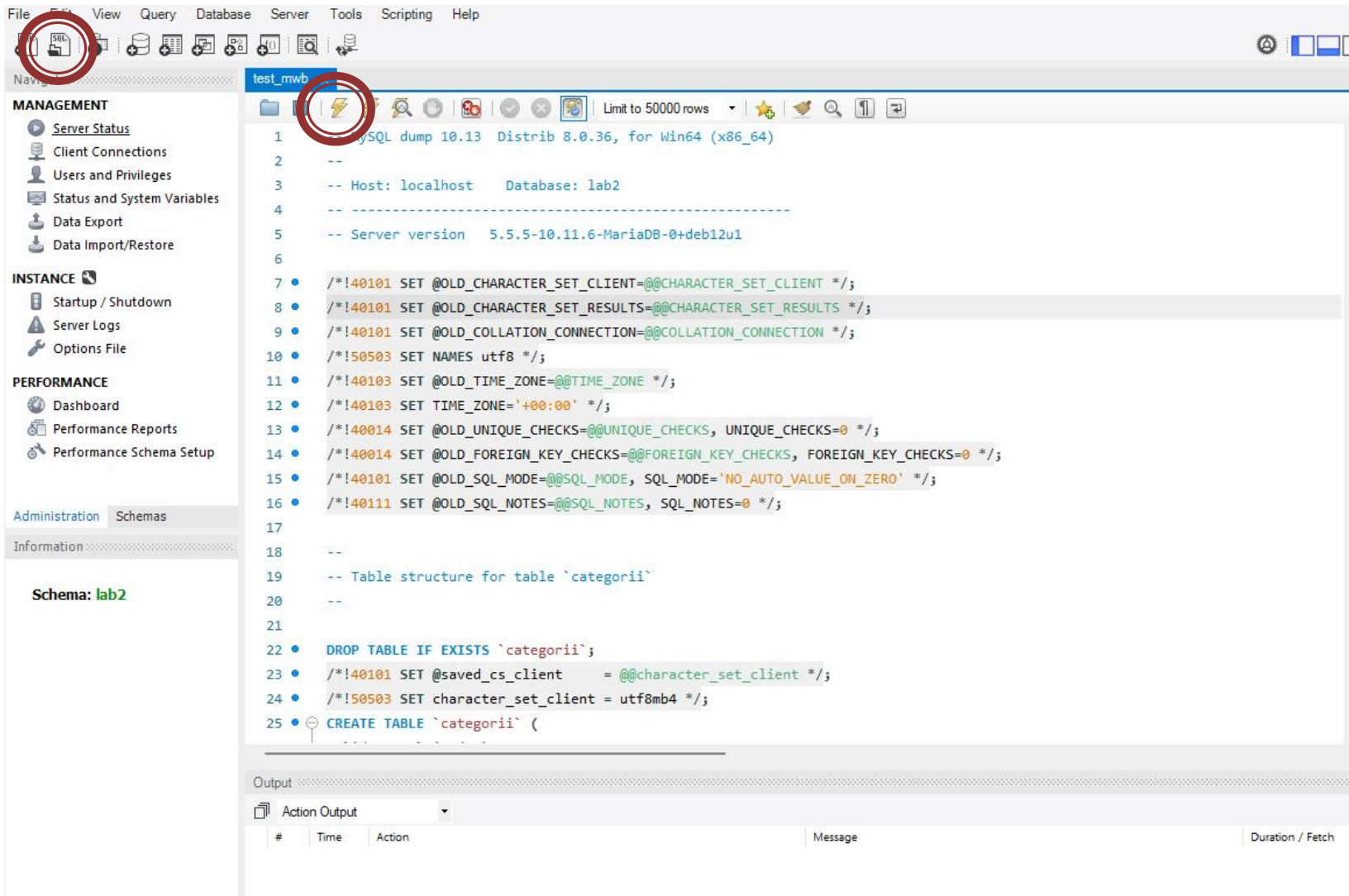
# Backup

The screenshot displays the PostgreSQL Administration interface for a server named 'Debian Paw'. The 'Data Export' window is open, showing the configuration for exporting data from the 'lab2' schema. The interface is divided into several sections:

- Navigation:** The left sidebar shows the 'Data Export' option under the 'MANAGEMENT' section, which is circled in red. Below it, the 'Administration' option is also circled in red.
- Object Selection:** The 'Tables to Export' section shows a list of schemas: 'lab', 'lab2', 'pg\_catalog', 'sys', and 'world'. The 'lab2' schema is selected and circled in red. The 'Schema Objects' section shows 'categorias' and 'produse' tables selected, also circled in red.
- Export Options:** The 'Export Options' section shows the 'Export to Self-Contained File' option selected, with the file path 'E:\Documents\dumps\Dump20240422.sql' entered. This option is circled in red. The 'Include Create Schema' checkbox is also circled in red.
- Buttons:** The 'Start Export' button is circled in red at the bottom right of the window.

Other visible elements include the 'Advanced Options...' button at the top right, the 'Refresh' button, and the '2 tables selected' indicator. The 'Objects to Export' section has three unchecked checkboxes: 'Dump Stored Procedures and Functions', 'Dump Events', and 'Dump Triggers'.

# Restore – rulare script



The screenshot shows the MySQL Workbench interface. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left sidebar contains a 'MANAGEMENT' section with options like Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, and Data Import/Restore. Below that is an 'INSTANCE' section with Startup / Shutdown, Server Logs, and Options File. The 'PERFORMANCE' section includes Dashboard, Performance Reports, and Performance Schema Setup. The bottom left shows 'Administration' and 'Schemas' tabs, with 'Schemas' selected and 'Schema: lab2' displayed.

The main window shows a SQL script for restoring a database. The script is titled 'test\_mwb' and contains the following lines:

```
1 MySQL dump 10.13 Distrib 8.0.36, for Win64 (x86_64)
2 --
3 -- Host: localhost Database: lab2
4 -----
5 -- Server version 5.5.5-10.11.6-MariaDB-0+deb12u1
6
7 /*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;
8 /*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
9 /*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;
10 /*!50503 SET NAMES utf8 */;
11 /*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;
12 /*!40103 SET TIME_ZONE='+00:00' */;
13 /*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0 */;
14 /*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0 */;
15 /*!40101 SET @OLD_SQL_MODE=@@SQL_MODE, SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
16 /*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;
17
18 --
19 -- Table structure for table `categorii`
20 --
21
22 DROP TABLE IF EXISTS `categorii`;
23 /*!40101 SET @saved_cs_client = @@character_set_client */;
24 /*!50503 SET character_set_client = utf8mb4 */;
25 CREATE TABLE `categorii` (
```

The 'Output' section at the bottom shows a table with columns for #, Time, Action, Message, and Duration / Fetch. The table is currently empty.

# Restore - interfata

test\_mwb Administration - Data Import/Res...

Debian Paw  
**Data Import**

Import from **Disk** Import Progress

Import Options

Import from Dump Project Folder E:\Documents\dumps

Select the Dump Project Folder to import. You can do a selective restore.

Load Folder Contents

**Import from Self-Contained File** E:\Documents\Curs PAW\2024\c8\test\_mwb.sql

Select the SQL/dump file to import. Please note that the whole file will be imported.

Default Schema to be Imported To

Default Target Schema: lab2

Select Database Objects to Import (only available for Project Folders)

Imp...	Schema
--------	--------

Table: **categorii**

Columns:

id_categ	int(11) AI PK
nume	varchar(45)
detalii	varchar(150)

Administration Schemas

Navigation: Administration - Data Import/Res...

Debian Paw  
**Data Import**

Import from Disk Import Progress

Press [Start Import] to start...

Status:

Log:



# Script SQL Backup - utilitate

- Poate fi folosit ca un model extrem de bun pentru comenzile necesare pentru crearea programatica (din PHP de exemplu) a bazei de date

```
CREATE DATABASE IF NOT EXISTS tmpaw;  
USE tmpaw;  
  
DROP TABLE IF EXISTS `categorii`;  
CREATE TABLE `categorii` (  
  `id_categ` int(10) unsigned NOT NULL auto_increment,  
  `nume` varchar(45) NOT NULL,  
  `detalii` varchar(150) default NULL,  
  PRIMARY KEY (`id_categ`)  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;  
  
INSERT INTO `categorii` (`id_categ`,`nume`,`detalii`) VALUES  
(1,'papetarie',NULL),  
(2,'instrumente',NULL),  
(3,'audio-video',NULL);
```

# Contact

- Laboratorul de microunde si optoelectronica
- <http://rf-opto.etti.tuiasi.ro>
- [rdamian@etti.tuiasi.ro](mailto:rdamian@etti.tuiasi.ro)