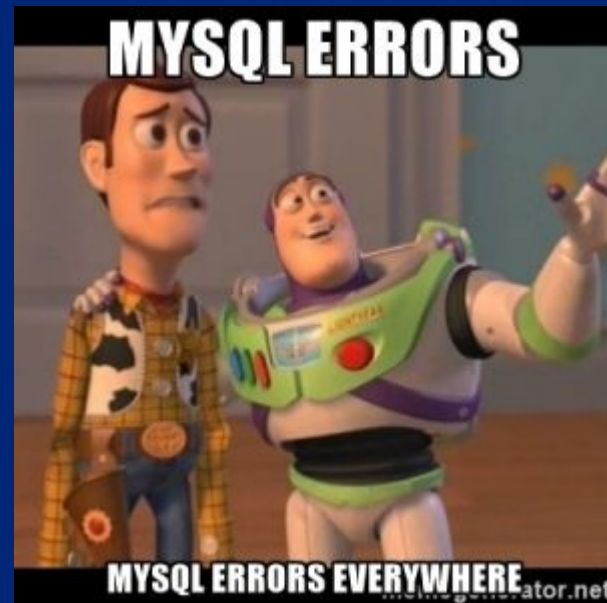
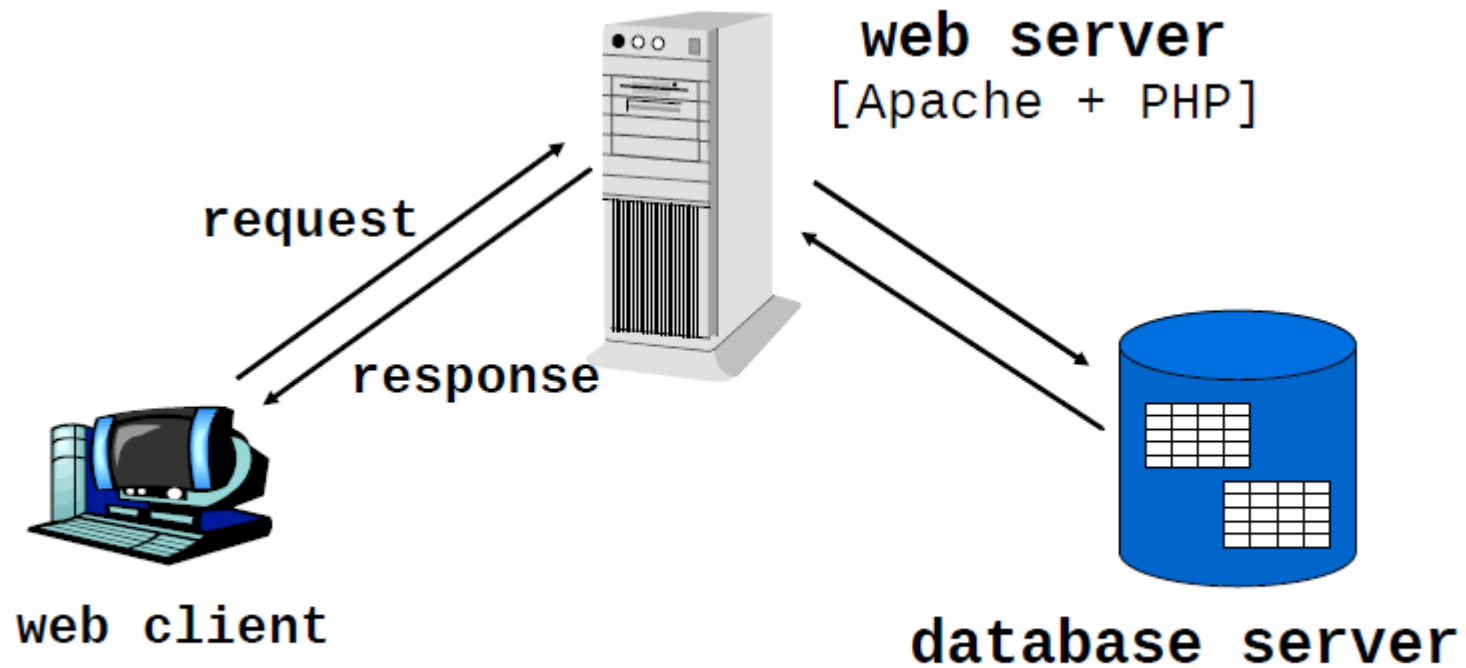


# PHP (6)



# Interazione con il database

2



# Interazione con il database

3

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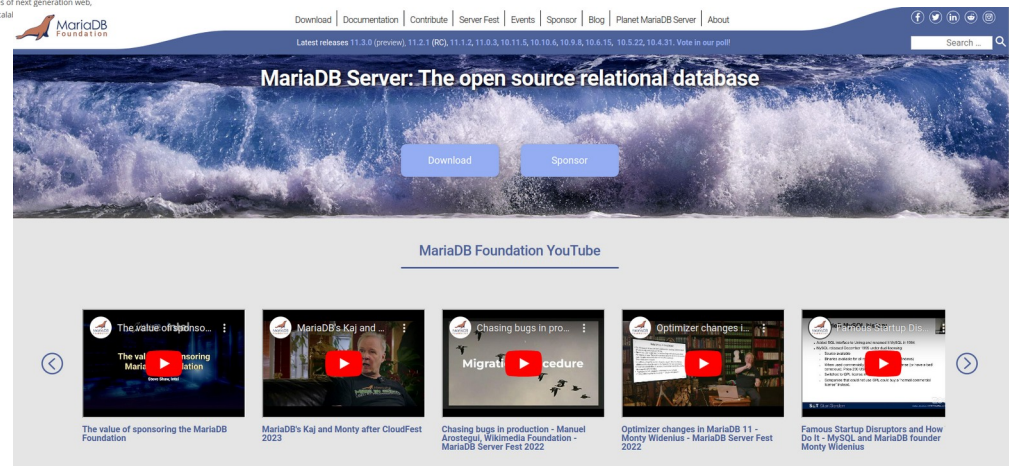
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Latest releases 11.3.0 (preview), 11.2.1 (RC), 11.1.2, 11.0.3, 10.11.5, 10.10.6, 10.9.8, 10.6.15, 10.5.22, 10.4.31. [Vote in our poll!](#)

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Famous Startup Disruptors and How Do It - MySQL and MariaDB founder Monty Widenius



# MySQL: client

4

```
marina@:~$ mysql -h localhost -u username -p
```

```
Enter password:
```

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
```

```
Your MySQL connection id is 6
```

```
Server version: ...
```

```
...
```

```
...
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
mysql> use mysite;
```

```
Reading table information for completion of table and column names
```

```
You can turn off this feature to get a quicker startup with -A
```

```
Database changed
```

```
mysql>
```

Permette di interagire con il server MySQL da **linea di comando**

# MySQL: client



Welcome to phpMyAdmin

Language

English

Log in

Username:

sawuser

Password:

Go

marina@:~\$

Enter password:

Welcome to the MySQL client  
Your MySQL connection information is  
Server version: ...

...

...

Type 'help;' or '\h' for help.

mysql> use mysitedb

Reading table information for  
You can turn off this

Database changed

mysql>

Permette di interagire con il server MySQL **via web**

# MySQL: tabelle InnoDB e MyISAM

6

- *“Storage engines are MySQL components that handle the SQL operations for different table types.”*
- *“**InnoDB is the default** and most general-purpose storage engine, and Oracle recommends using it for tables except for specialized use cases.”*
- *“MyISAM is optimized for environments with heavy read operations, and few writes, or none at all.”*

# MySQL: tabelle InnoDB e MyISAM

7

- *InnoDB has row-level locking, MyISAM can only do full table-level locking*
- *InnoDB has better crash recovery*
- *InnoDB implements transactions, foreign keys and relationship constraints, MyISAM does not*

# MySQL: utenti

8

- Un server MySQL può gestire **più utenti e più database**
- L'utente **root** deve essere usato solo per l'amministrazione del DBMS
- Al momento dell'**installazione** si deve specificare la **password per l'utente root!**
- Per ogni utente che deve usare il sistema (ancora meglio, per ogni database) si dovrebbe definire **un utente MySQL**



# Privilegi su database e tabelle

9

“ ... principle of **Least Privilege**: a user (or process) should have the lowest level of privilege required in order to perform his task assigned ...”

# MySQL: controllo dell'accesso

10

- Il controllo dell'accesso in MySQL si svolge in due passi
  1. Controllo delle **credenziali** dell'utente MySQL (authentication)
  2. Se le credenziali sono OK, per ogni istruzione SQL il server MySQL verifica se l'utente ha i **privilegi** sufficienti (authorization)

# MySQL: privilegi

11

“ ... A privilege is the right to perform a particular action on a particular object, and is associated with a particular user.

You can create a user within MySQL, you **grant** her a set of privileges to specify what she can and cannot do within the system ...”

“Internally, the server stores privilege information in the **grant tables** of the **mysql** database ...”

# MySQL: privilegi

12

- MySQL fornisce **4 livelli di privilegi**:
  - Global, Database, Table, Column
- Per **assegnare** (cancellare) un privilegio ad un utente si usa il comando **GRANT** (REVOKE)

**GRANT** <privileges>

**ON** <item>

**TO** <username> [**IDENTIFIED BY** '<password>']

[**WITH GRANT OPTION**];

# MySQL: privilegi

13

- MySQL permette di definire privilegi per l'utente generico, privilegi per l'amministratore, e dei privilegi speciali
- Per l'utente generico si possono ad esempio specificare i seguenti privilegi
  - **SELECT, INSERT, UPDATE, DELETE, INDEX, ALTER, CREATE, DROP**

# Creazione utente/db

14

- Sul server del corso

```
CREATE USER '<sawuser>'@'localhost' IDENTIFIED BY '<sawpwd>';  
CREATE DATABASE <sawdb>;  
GRANT ALL PRIVILEGES ON <sawdb>.* TO '<sawuser>'@'localhost';  
FLUSH PRIVILEGES;
```

# Hands on...

15

```
marina@XPS-13-9360: ~  
marina:~$ mysql -u marina -p  
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 701  
Server version: 8.0.22-0ubuntu0.20.04.2 (Ubuntu)  
  
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affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current  
statement.  
mysql>
```

The screenshot shows the phpMyAdmin web interface in a browser window. The address bar displays 'localhost/phpmyadmin/index.php'. The page features the phpMyAdmin logo and the text 'Welcome to phpMyAdmin'. Below this, there is a 'Language' dropdown menu set to 'English'. A 'Log In' button is visible, followed by input fields for 'Username' (containing 'root') and 'Password'. A 'Go' button is located at the bottom right of the login section.