



Primera Escuela de la Red Temática SVO.  
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# SQL básico

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# Qué es SQL

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El lenguaje de consulta estructurado (SQL) es un **lenguaje de base de datos** normalizado, utilizado por los diferentes motores de bases de datos para realizar determinadas operaciones sobre los datos o sobre la estructura de los mismos.



# Mysql: un gestor de BD

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- Un gestor de base de datos.
  - Sencillo
  - Gratuito
  - Rápido y eficiente.
  - Para linux/windows

```
carlos@carlos-desktop:~$  
carlos@carlos-desktop:~$ mysql -u root -p svows  
Enter password:  
Reading table information for completion of table and column names  
You can turn off this feature to get a quicker startup with -A  
  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 46 to server version: 5.0.22-Debian_0ubuntu6.06.2-log  
  
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.  
  
mysql> █
```

# Una base de datos

- Un conjunto de tablas relacionadas entre sí:
  - Una peña de un equipo de fútbol en internet.

pais_id	nombre
1	España
2	Portugal
3	Andorra
4	Bélgica
5	Holanda
6	Francia
7	Gran Bretaña
8	Irlanda
9	Islandia
10	Dinamarca

provincia_id	nombre
1	Pontevedra
2	Orense
3	La Coruña
4	Lugo
5	Asturias
6	Cantabria
7	Guipúzcoa
8	Vitoria
9	Vizcaya
10	Teruel

socio_id	nombre	email	pais_id	provincia_id
57	Mateo Byler.	Mbyler@worldonline.es	1	23
58	Sergio Lan.	slan@conncoll.edu	61	0
59	Tomaás de Jesús Alvarez Aja.		61	0
60	Jesús Alvarez Arenas.		61	0
61	Amando Rio Loano	amando@lagloria.com.mx	61	0
62	Alvaro Fuentes García.		1	42
63	Sergio Sánchez Valencia.		1	41
64	Gabriela de la Peña Astorga.		61	0
65	Jorge García Nuñez de Cáceres.		61	0
66	Jorge Alvarez Arreola.	jalvarez@campus.mty.itesm.mx	61	0



# Consultar la base de datos

---

```
SELECT ... FROM ... WHERE ... etc
```

```
SELECT (campos) FROM (tablas) WHERE (condiciones) ...
```



# Consultar la base de datos

---

SELECT

[ALL | DISTINCT | DISTINCTROW ]

select\_expr, ...

[FROM table\_references

[WHERE where\_condition]

[GROUP BY {col\_name | expr | position}]

[HAVING where\_condition]

[ORDER BY {col\_name | expr | position}

[ASC | DESC], ...]

[LIMIT {[offset,] row\_count | row\_count OFFSET offset}]

[INTO OUTFILE 'file\_name' export\_options]



# SELECT: ejemplos

SELECT socio\_id,nombre,email FROM socios WHERE **pais\_id=14;**

```
mysql> SELECT socio_id,nombre,email FROM socios WHERE pais_id=14;
+-----+-----+-----+
| socio_id | nombre | email |
+-----+-----+-----+
| 1179 | Martin Putz. | pum@advge.magwien.gv.at |
| 1471 | Antonio J. Salgado Alonso. | |
| 2628 | Martin Wohlfart | wohlfart@gmx.at |
| 3529 | Christian Jochum | |
| 3618 | Guillermo Ludwig Sanz-Orrio | willi.ludwig@aon.at |
| 5206 | Marco Antonio Bernal | marco.bernal@chello.at |
+-----+-----+-----+
6 rows in set (0.05 sec)
```

SELECT socio\_id,nombre,email FROM socios WHERE nombre **like** 'Alicia%';

```
+-----+-----+-----+
| socio_id | nombre | email |
+-----+-----+-----+
| 2662 | Alicia Rubio Espinosa. | |
| 2971 | Alicia Pedraz | |
| 3311 | Alicia Blanco Serrano | aliblan@arrakis.es |
| 3933 | Alicia Peretoca | Alisorlino@Hotmail.Com |
| 5089 | Alicia Ma.Lema Costa | olivosbaire@sinctis.com.ar |
| 5293 | Alicia Pérez Blázquez | cuca_@mixmail.com |
+-----+-----+-----+
6 rows in set (0.01 sec)
```

# SELECT: ejemplos

```
SELECT count(*) FROM socios;
```

```
+-----+
| count(*) |
+-----+
|      6447 |
+-----+
1 row in set (0.00 sec)
```

```
SELECT pais_id,count(*) as nsocios FROM socios
group by pais_id order by nsocios desc limit 10;
```

```
+-----+-----+
| pais_id | nsocios |
+-----+-----+
|      1 |    3828 |
|    173 |     464 |
|     61 |     460 |
|     52 |     288 |
|      7 |     139 |
|     43 |     101 |
|     12 |     100 |
|     59 |      99 |
|      6 |      86 |
|      5 |      61 |
+-----+-----+
10 rows in set (0.00 sec)
```



# SELECT: ejemplos

**SELECT socio\_id,nombre,email,pais\_id FROM socios WHERE nombre like 'Alicia%';**

socio_id	nombre	email	pais_id
2662	Alicia Rubio Espinosa.		1
2971	Alicia Pedraz		1
3311	Alicia Blanco Serrano	aliblan@arrakis.es	1
3933	Alicia Peretoca	Alisorlino@Hotmail.Com	43
5089	Alicia Ma.Lema Costa	olivosbaires@sinectis.com.ar	43
5293	Alicia Pérez Blázquez	cuca_@mixmail.com	1

6 rows in set (0.00 sec)

**SELECT s.socio\_id, s.nombre, s.email, p.nombre as pais  
FROM socios s, paises p  
WHERE p.pais\_id=s.pais\_id and s.nombre like 'Alicia%';**

socio_id	nombre	email	pais
2662	Alicia Rubio Espinosa.		España
2971	Alicia Pedraz		España
3311	Alicia Blanco Serrano	aliblan@arrakis.es	España
3933	Alicia Peretoca	Alisorlino@Hotmail.Com	Argentina
5089	Alicia Ma.Lema Costa	olivosbaires@sinectis.com.ar	Argentina
5293	Alicia Pérez Blázquez	cuca_@mixmail.com	España

6 rows in set (0.06 sec)



# SELECT: ejemplos

```
SELECT pais_id,count(*) as nsocios
FROM socios
group by pais_id
order by nsocios desc
limit 10;
```

pais_id	nsocios
1	3828
173	464
61	460
52	288
7	139
43	101
12	100
59	99
6	86
5	61

10 rows in set (0.00 sec)

```
SELECT p.nombre as pais,count(*) as nsocios
FROM socios s, países p
WHERE p.pais_id=s.pais_id
group by p.pais_id
order by nsocios desc
limit 10;
```

pais	count(*)
España	3828
Portugal	26
Andorra	13
Bélgica	40
Holanda	61
Francia	86
Gran Bretaña	139
Irlanda	6
Dinamarca	18
Alemania	54

10 rows in set (0.00 sec)



# SELECT: ejemplos

```
SELECT p.nombre as pais,count(*) as nsocios
FROM socios s, paises p
WHERE p.pais_id=s.pais_id
group by p.pais_id
HAVING nsocios between 10 and 20
order by nsocios desc
limit 10;
```

pais	nsocios
Honduras	20
Dinamarca	18
Japón	15
República Dominicana	14
Andorra	13
Noruega	12
Finlandia	11
Ecuador	10

8 rows in set (0.10 sec)



# Cambiar los datos

---

UPDATE ... SET ... WHERE ...

UPDATE (tabla) SET (campo=valor) WHERE (condiciones) ...



# Cambiar los datos

---

```
UPDATE tbl_name  
  SET col_name1=expr1 [, col_name2=expr2 ...]  
  [WHERE where_condition]  
  [ORDER BY ...]  
  [LIMIT row_count]
```

# UPDATE: ejemplos

```
mysql> select * from socios where socio_id=1;
+-----+-----+-----+-----+-----+
| socio_id | email          | pais_id | provincia_id | nombre          |
+-----+-----+-----+-----+-----+
|      1 | crb@laeff.esa.es |      1 |      28 | Carlos Rodrigo Blanco |
+-----+-----+-----+-----+-----+
1 row in set (0.16 sec)
```

**UPDATE** socios **SET** pais\_id=162 **WHERE** socio\_id=1;

```
mysql> update socios set pais_id=162 where socio_id=1;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from socios where socio_id=1;
+-----+-----+-----+-----+-----+
| socio_id | email          | pais_id | provincia_id | nombre          |
+-----+-----+-----+-----+-----+
|      1 | crb@laeff.esa.es |     162 |      28 | Carlos Rodrigo Blanco |
+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)
```



# UPDATE: ejemplos

---

**UPDATE** socios **SET** email=**LOWER**(email);

```
mysql> UPDATE socios SET email=LOWER(email);  
Query OK, 716 rows affected (0.58 sec)  
Rows matched: 6447  Changed: 716  Warnings: 0
```

**UPDATE** socios **SET** puntos=puntos+2 **WHERE** puntos < 2;

```
mysql> UPDATE socios set puntos=puntos+2 where puntos <8;  
ERROR 1054 (42S22): Unknown column 'puntos' in 'where clause'  
mysql> █
```

# Insertar Datos

---

```
INSERT INTO ... (...,...) VALUES (...,...)
```

```
INSERT INTO (tabla) (campo1,...,campoN) VALUES  
(valor1,...,valorN) ...
```

```
INSERT INTO ... SET ...
```

```
INSERT INTO (tabla) SET  
campo1=valor1,...,campoN=valorN
```





# Insertar Datos

```
INSERT INTO socios  
(socio_id, email, pais_id, provincia_id, nombre)  
VALUES (7000,'pepe@austria.com',14,0,'Pepe Martínez');
```

```
mysql> insert into socios (socio_id,email,pais_id,provincia_id,nombre) values (7000,'pepe@austria.com',14,0,'Pepe Martínez');  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from socios where socio_id=7000;  
+-----+-----+-----+-----+-----+  
| socio_id | email           | pais_id | provincia_id | nombre       |  
+-----+-----+-----+-----+-----+  
|      7000 | pepe@austria.com |      14 |           0 | Pepe Martínez |  
+-----+-----+-----+-----+-----+  
1 row in set (0.01 sec)
```



# Borrar Datos

---

DELETE FROM ...WHERE ...

DELETE FROM tabla WHERE conditions

**DELETE FROM** socios WHERE socio\_id=7000;

```
mysql> delete from socios where socio_id=7000;  
Query OK, 1 row affected (0.01 sec)
```



# Ver la estructura de la Base de Datos

## SHOW TABLES

```
mysql> show tables;
+-----+
| Tables_in_svows |
+-----+
| paises           |
| provincias       |
| socios           |
+-----+
3 rows in set (0.22 sec)
```



# Ver la estructura de la Base de Datos

## DESC tabla

```
mysql> desc socios;
```

Field	Type	Null	Key	Default	Extra
socio_id	int(7)	NO		0	
email	char(69)	NO		NULL	
pais_id	int(4)	NO		0	
provincia_id	int(4)	NO		0	
nombre	char(255)	NO		NULL	

5 rows in set (0.02 sec)

# Crear una tabla

---

CREATE TABLE ... (...)

```
CREATE TABLE [IF NOT EXISTS] tbl_name (  
    col_name1 data_type options ,  
    ...  
    col_nameN data_type options ,  
);
```



# Crear una tabla

---

- data\_type:
  - INT[(length)] [UNSIGNED] [ZEROFILL]
  - DOUBLE[(length,decimals)] [UNSIGNED] [ZEROFILL]
  - DATE
  - TIMESTAMP
  - VARCHAR(length)
  - TEXT
  - BLOB
  - ENUM(value1,value2,value3,...)



# Crear una tabla

---

- Options:
  - [NOT NULL | NULL]
  - [DEFAULT default\_value]
  - [AUTO\_INCREMENT]
  - [UNIQUE [KEY] | [PRIMARY] KEY]
  - [COMMENT 'string']



# Crear una tabla

---

```
CREATE TABLE socios (  
    socio_id int(7) NOT NULL AUTO_INCREMENT,  
    nombre char(255) NOT NULL default "",  
    email char(69) NOT NULL default "",  
    pais_id int(4) NOT NULL default '0',  
    provincia_id int(4) NOT NULL default '0',  
);
```



# Cambiar una tabla

---

ALTER TABLE ... [...]

ALTER TABLE table name ...

ADD [COLUMN] column\_definition

CHANGE [COLUMN] old\_col\_name column\_definition

DROP [COLUMN] col\_name

RENAME [TO] new\_tbl\_name

...

ADD {INDEX|KEY} [index\_name] [index\_type]

(index\_col\_name,...)

ADD PRIMARY KEY [index\_type] (index\_col\_name,...)

ADD UNIQUE [INDEX|KEY] [index\_name] [index\_type]

(index\_col\_name,...)



# Eliminar una tabla

---

DROP TABLE ...

~~DROP TABLE~~ [IF EXISTS] table name ...



# Mysql: aplicaciones

---

```
carlos@carlos-desktop:~$  
carlos@carlos-desktop:~$ mysqldump -u root -p svows > svows.dump  
Enter password:  
carlos@carlos-desktop:~$  
carlos@carlos-desktop:~$ mysqladmin -u root -p create svonew  
Enter password:  
carlos@carlos-desktop:~$  
carlos@carlos-desktop:~$ mysql -u root -p svonew < svows.dump  
Enter password:  
carlos@carlos-desktop:~$ █
```