



Learning Outcomes

- Create a database
- Select a database to use
- Create a table
- List the tables in a database or columns in a table
- Insert records into a table
- Properly use quotation marks in queries
- Fetch records from a table
- Use conditionals
- Recognize the MySQL operators



Learning Outcomes

- Perform LIKE and NOT LIKE queries
- Sort query results
- Limit query results
- Update existing data
- Delete existing table rows
- Make and use aliases
- Invoke MySQL functions
- Recognize many commonly used MySQL functions



Creating & Selecting Databases

```
CREATE DATABASE databasename
```

```
USE databasename
```

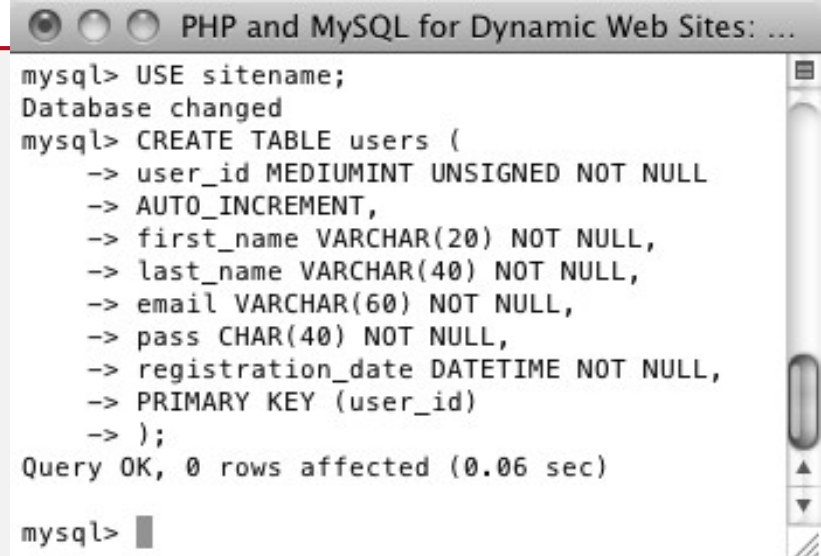
```
CREATE DATABASE sitename;
```

```
USE sitename;
```



Creating Tables

```
CREATE TABLE tablename (  
  column1name description,  
  column2name description  
...)  
  
CREATE TABLE users (  
  user_id MEDIUMINT UNSIGNED NOT NULL  
  AUTO_INCREMENT,  
  first_name VARCHAR(20) NOT NULL,  
  last_name VARCHAR(40) NOT NULL,  
  email VARCHAR(60) NOT NULL,  
  pass CHAR(40) NOT NULL,  
  registration_date DATETIME NOT NULL,  
  PRIMARY KEY (user_id)  
);
```



```
mysql> USE sitename;  
Database changed  
mysql> CREATE TABLE users (  
  -> user_id MEDIUMINT UNSIGNED NOT NULL  
  -> AUTO_INCREMENT,  
  -> first_name VARCHAR(20) NOT NULL,  
  -> last_name VARCHAR(40) NOT NULL,  
  -> email VARCHAR(60) NOT NULL,  
  -> pass CHAR(40) NOT NULL,  
  -> registration_date DATETIME NOT NULL,  
  -> PRIMARY KEY (user_id)  
  -> );  
Query OK, 0 rows affected (0.06 sec)  
  
mysql>
```



Showing Tables

```
SHOW TABLES;  
SHOW COLUMNS FROM users;
```

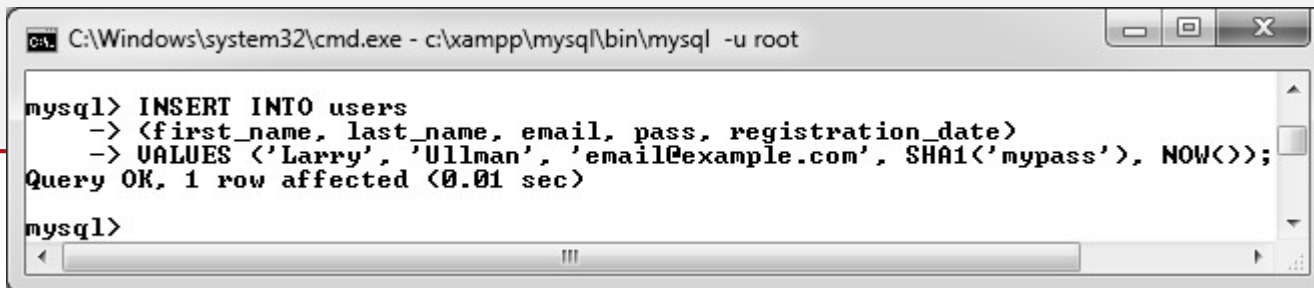
The screenshot shows a Windows command prompt window titled "C:\Windows\system32\cmd.exe - c:\xampp\mysql\bin\mysql -u root". The MySQL command prompt is open, and the following commands and outputs are shown:

```
mysql> SHOW TABLES;  
+-----+  
| Tables_in_sitename |  
+-----+  
| users               |  
+-----+  
1 row in set (0.00 sec)  
  
mysql> SHOW COLUMNS FROM users;  
+-----+-----+-----+-----+-----+-----+  
| Field          | Type                | Null | Key | Default | Extra          |  
+-----+-----+-----+-----+-----+-----+  
| user_id        | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |  
| first_name     | varchar(20)          | NO   |     | NULL    |                 |  
| last_name      | varchar(40)          | NO   |     | NULL    |                 |  
| email          | varchar(60)          | NO   |     | NULL    |                 |  
| pass           | char(40)             | NO   |     | NULL    |                 |  
| registration_date | datetime             | NO   |     | NULL    |                 |  
+-----+-----+-----+-----+-----+-----+  
6 rows in set (0.00 sec)  
  
mysql> _
```



Inserting Records

```
INSERT INTO tablename (column1, column2...) VALUES (value1, value2 ...)  
INSERT INTO tablename (column4, column8) VALUES (valueX, valueY)  
INSERT INTO tablename VALUES (value1, NULL, value2, value3, ...)  
  
INSERT INTO users  
  (first_name, last_name, email, pass, registration_date)  
VALUES ('Larry', 'Ullman', 'email@example.com', SHA1('mypass'), NOW());  
INSERT INTO users VALUES  
(NULL, 'Zoe', 'Isabella', 'email2@example.com', SHA1('mojito'), NOW());
```



```
C:\Windows\system32\cmd.exe - c:\xampp\mysql\bin\mysql -u root  
  
mysql> INSERT INTO users  
-> (first_name, last_name, email, pass, registration_date)  
-> VALUES ('Larry', 'Ullman', 'email@example.com', SHA1('mypass'), NOW());  
Query OK, 1 row affected (0.01 sec)  
  
mysql>
```



Quotes in Queries

- Numeric values should not be quoted
- String values must be quoted
- Date and time values must be quoted
- Functions cannot be quoted
- The word NULL must not be quoted



Selecting Data

```
SELECT which_columns FROM which_table
SELECT * FROM tablename
SELECT column1, column3 FROM tablename

SELECT * FROM users;
SELECT first_name, last_name
FROM users;
```

The screenshot shows a MySQL command window titled "PHP and MySQL for Dynamic ...". The prompt is "mysql>". The command entered is "SELECT first_name, last_name -> FROM users;". The results are displayed in a table with two columns: "first_name" and "last_name". The table contains 26 rows of data. Below the table, it says "26 rows in set (0.00 sec)". The prompt "mysql>" is visible at the bottom.

first_name	last_name
Larry	Ullman
Zoe	Isabella
John	Lennon
Paul	McCartney
George	Harrison
Ringo	Starr
David	Jones
Peter	Tork
Micky	Dolenz
Mike	Nesmith
David	Sedaris
Nick	Hornby
Melissa	Bank
Toni	Morrison
Jonathan	Franzen
Don	DeLillo
Graham	Greene
Michael	Chabon
Richard	Brautigan
Russell	Banks
Homer	Simpson
Marge	Simpson
Bart	Simpson
Lisa	Simpson
Maggie	Simpson
Abe	Simpson



Using Conditionals

```
SELECT which_columns FROM which_table WHERE condition(s)
SELECT name FROM people WHERE birth_date = '2011-01-26';
SELECT * FROM items WHERE (price BETWEEN 10.00 AND 20.00) AND (quantity > 0);
SELECT * FROM cities WHERE (zip_code = 90210) OR (zip_code = 90211);
SELECT first_name FROM users WHERE last_name = 'Simpson';
SELECT * FROM users WHERE email IS NULL;
SELECT user_id, first_name, last_name FROM users WHERE pass = SHA1('mypass');
```



MySQL Operators

Operator	Meaning
=	Equals
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
!=	Not equal to
IS NOT NULL	Has a value
IS NULL	Has no known value
IS TRUE	Has a true value
IS FALSE	Has a false value



MySQL Operators

Operator	Meaning
BETWEEN	Within a range
NOT BETWEEN	Outside of a range
IN	Found within a list of values
NOT IN	Not found within a list of values
OR	Where at least one of two conditionals is true
AND	Where both conditionals are true
NOT	Where the condition is not true
XOR	Where only one of two conditionals is true



Using LIKE and NOT LIKE

```
SELECT * FROM users
WHERE last_name LIKE 'Smith%'
SELECT * FROM users
WHERE last_name LIKE 'Bank%'
SELECT first_name, last_name
FROM users WHERE
email NOT LIKE '%@authors.com'
```

PHP and MySQL for Dynamic Web Sites: Visual QuickPro Guide

```
mysql> SELECT * FROM users
-> WHERE last_name LIKE 'Bank%';
```

user_id	first_name	last_name	email	pass	registration_date
13	Melissa	Bank	melissa@authors.com	15ac6793642add347cbf24b8884b97947f637091	2011-03-31 21:16:47
20	Russell	Banks	russell@authors.com	6bc4056557e33f1e209870ab578ed362f8b3c1b8	2011-03-31 21:16:47

```
2 rows in set (0.00 sec)
```

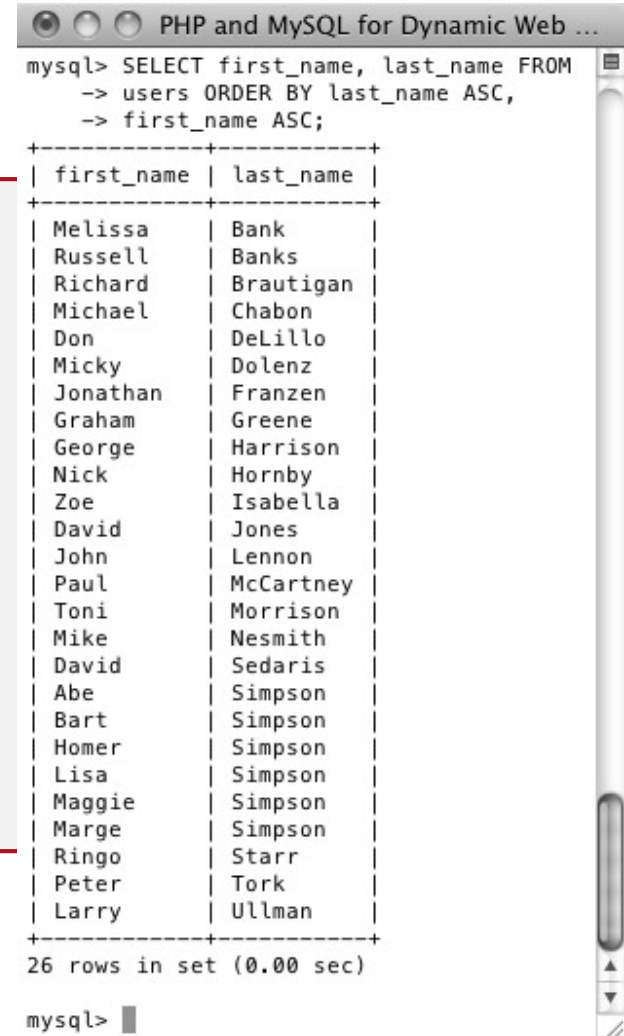
```
mysql> █
```



Sorting Query Results

```
SELECT * FROM tablename ORDER BY column
SELECT * FROM orders ORDER BY total
SELECT * FROM tablename ORDER BY column DESC
SELECT * FROM tablename ORDER BY column1, column2
SELECT * FROM tablename WHERE conditions
ORDER BY column
SELECT first_name, last_name FROM users
ORDER BY last_name;

SELECT first_name, last_name FROM
users ORDER BY last_name ASC,
first_name ASC;
```



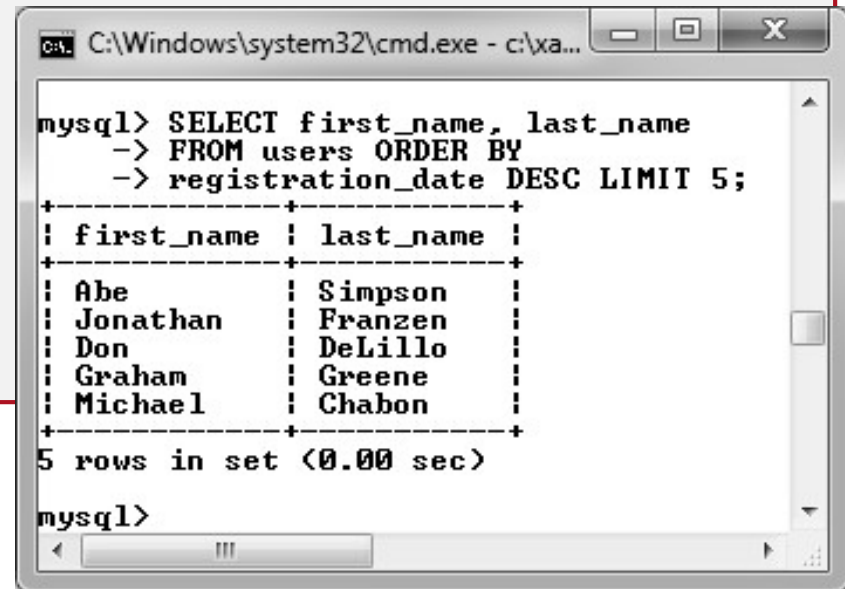
The screenshot shows a MySQL command window titled "PHP and MySQL for Dynamic Web ...". The command entered is: `mysql> SELECT first_name, last_name FROM users ORDER BY last_name ASC, first_name ASC;`. The results are displayed in a table with two columns: `first_name` and `last_name`. The table contains 26 rows of data, sorted by last name in ascending order, and then by first name in ascending order for each last name. The results are: Melissa Bank, Russell Banks, Richard Brautigan, Michael Chabon, Don DeLillo, Micky Dolenz, Jonathan Franzen, Graham Greene, George Harrison, Nick Hornby, Zoe Isabella, David Jones, John Lennon, Paul McCartney, Toni Morrison, Mike Nesmith, David Sedaris, Abe Simpson, Bart Simpson, Homer Simpson, Lisa Simpson, Maggie Simpson, Marge Simpson, Ringo Starr, Peter Tork, and Larry Ullman. At the bottom of the window, it says "26 rows in set (0.00 sec)" and the prompt "mysql> " is visible.

first_name	last_name
Melissa	Bank
Russell	Banks
Richard	Brautigan
Michael	Chabon
Don	DeLillo
Micky	Dolenz
Jonathan	Franzen
Graham	Greene
George	Harrison
Nick	Hornby
Zoe	Isabella
David	Jones
John	Lennon
Paul	McCartney
Toni	Morrison
Mike	Nesmith
David	Sedaris
Abe	Simpson
Bart	Simpson
Homer	Simpson
Lisa	Simpson
Maggie	Simpson
Marge	Simpson
Ringo	Starr
Peter	Tork
Larry	Ullman



Limiting Query Results

```
SELECT * FROM tablename LIMIT x
SELECT * FROM tablename LIMIT 3
SELECT * FROM tablename LIMIT x, y
SELECT * FROM tablename LIMIT 10, 10
SELECT which_columns FROM tablename WHERE
conditions ORDER BY column LIMIT x
SELECT first_name, last_name
FROM users ORDER BY
registration_date DESC LIMIT 5;
SELECT first_name, last_name
FROM users ORDER BY
registration_date ASC LIMIT 1, 1;
```



The screenshot shows a Windows command prompt window titled "C:\Windows\system32\cmd.exe - c:\xa...". Inside the window, a MySQL command prompt is active, showing the following query and results:

```
mysql> SELECT first_name, last_name
-> FROM users ORDER BY
-> registration_date DESC LIMIT 5;
```

first_name	last_name
Abe	Simpson
Jonathan	Franzen
Don	DeLillo
Graham	Greene
Michael	Chabon

```
5 rows in set (0.00 sec)

mysql>
```



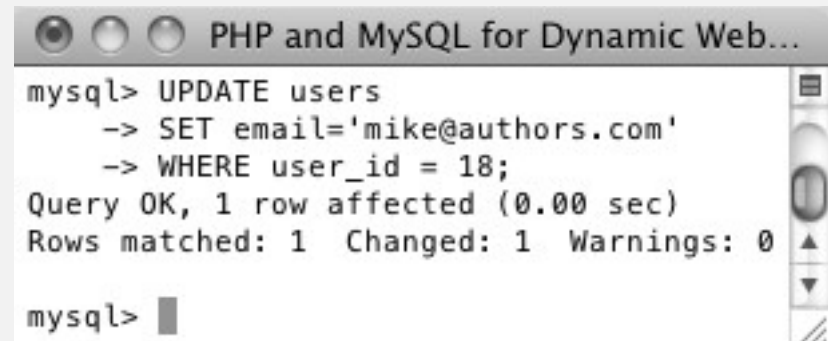
Updating Tables

```
UPDATE tablename SET column=value
```

```
UPDATE tablename SET column1=valueA, column5=valueB
```

```
UPDATE tablename SET column2=value WHERE column5=value
```

```
UPDATE users  
SET email='mike@authors.com'  
WHERE user_id = 18;
```



```
mysql> UPDATE users  
-> SET email='mike@authors.com'  
-> WHERE user_id = 18;  
Query OK, 1 row affected (0.00 sec)  
Rows matched: 1 Changed: 1 Warnings: 0  
  
mysql> █
```



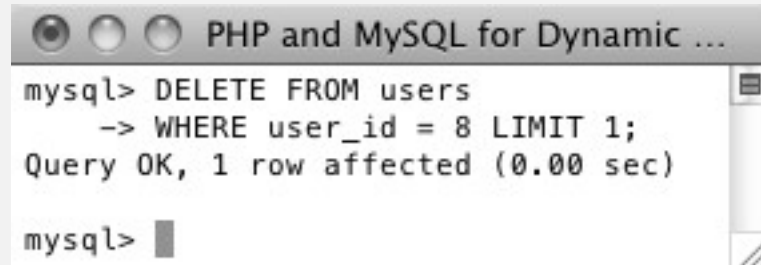
Deleting Rows

```
DELETE FROM tablename
```

```
DELETE FROM tablename WHERE condition
```

```
DELETE FROM users  
WHERE user_id = 8 LIMIT 1;
```

```
TRUNCATE TABLE tablename
```



```
mysql> DELETE FROM users  
-> WHERE user_id = 8 LIMIT 1;  
Query OK, 1 row affected (0.00 sec)  
  
mysql> █
```




Dropping Tables & Databases

```
DROP TABLE tablename
```

```
DROP DATABASE databasename
```



Using Functions

```
SELECT FUNCTION(column) FROM tablename
```

```
SELECT *, FUNCTION(column) FROM tablename
```

```
SELECT column1, FUNCTION(column2), column3 FROM tablename
```



Aliases

```
SELECT registration_date AS reg  
FROM users
```

```
SELECT first_name AS name  
FROM users WHERE name='Sam'
```

A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.exe - c:\xampp\mysql\bin\m...". The window shows a MySQL prompt "mysql>" followed by the command: "SELECT CONCAT(last_name, ' ', first_name) -> AS Name FROM users ORDER BY Name;". The output is a list of names in the format "Last Name, First Name", enclosed in a table-like structure with dashed lines. The names are: Bank, Melissa; Banks, Russell; Brautigan, Richard; Chabon, Michael; DeLillo, Don; Dolenz, Micky; Franzen, Jonathan; Greene, Graham; Harrison, George; Hornby, Nick; Isabella, Zoe; Jones, David; Lennon, John; McCartney, Paul; Morrison, Toni; Nesmith, Mike; Sedaris, David; Simpson, Abe; Simpson, Bart; Simpson, Homer; Simpson, Lisa; Simpson, Maggie; Simpson, Marge; Starr, Ringo; Tork, Peter; Ullman, Larry. Below the list, it says "26 rows in set (0.00 sec)". The prompt "mysql>" is followed by an underscore "_".

```
mysql> SELECT CONCAT(last_name, ' ', first_name)  
-> AS Name FROM users ORDER BY Name;  
+-----+  
| Name                                     |  
+-----+  
| Bank, Melissa                           |  
| Banks, Russell                          |  
| Brautigan, Richard                      |  
| Chabon, Michael                         |  
| DeLillo, Don                           |  
| Dolenz, Micky                           |  
| Franzen, Jonathan                       |  
| Greene, Graham                         |  
| Harrison, George                       |  
| Hornby, Nick                           |  
| Isabella, Zoe                           |  
| Jones, David                           |  
| Lennon, John                           |  
| McCartney, Paul                        |  
| Morrison, Toni                          |  
| Nesmith, Mike                          |  
| Sedaris, David                         |  
| Simpson, Abe                           |  
| Simpson, Bart                           |  
| Simpson, Homer                         |  
| Simpson, Lisa                           |  
| Simpson, Maggie                        |  
| Simpson, Marge                         |  
| Starr, Ringo                           |  
| Tork, Peter                            |  
| Ullman, Larry                           |  
+-----+  
26 rows in set (0.00 sec)  
  
mysql> _
```

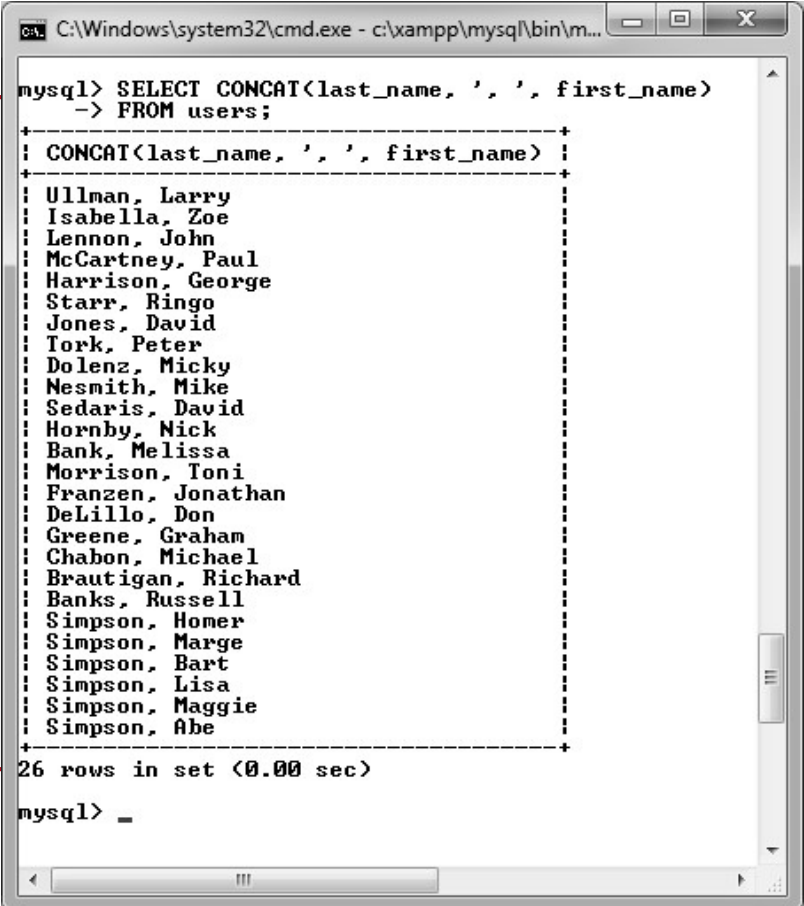


Text Functions

```
SELECT CONCAT(last_name, ', ', first_name)
FROM users;
```

```
SELECT CONCAT(last_name, ', ', first_name)
AS Name FROM users ORDER BY Name;
```

```
SELECT LENGTH(last_name) AS L,
last_name FROM users
ORDER BY L DESC LIMIT 1;
```



The screenshot shows a Windows command prompt window titled "C:\Windows\system32\cmd.exe - c:\xampp\mysql\bin\m...". The prompt is "mysql>". The first command entered is "SELECT CONCAT(last_name, ', ', first_name) -> FROM users;". The output shows a list of names concatenated with a comma and space, enclosed in a dashed box. The second command entered is "SELECT CONCAT(last_name, ', ', first_name) AS Name FROM users ORDER BY Name;". The output shows the same list of names, also enclosed in a dashed box. The third command entered is "SELECT LENGTH(last_name) AS L, last_name FROM users ORDER BY L DESC LIMIT 1;". The output shows the length of the last name and the last name, also enclosed in a dashed box. The prompt is "mysql> _".

```
mysql> SELECT CONCAT(last_name, ', ', first_name)
-> FROM users;
+-----+
| CONCAT(last_name, ', ', first_name) |
+-----+
| Ullman, Larry                       |
| Isabella, Zoe                      |
| Lennon, John                       |
| McCartney, Paul                    |
| Harrison, George                   |
| Starr, Ringo                       |
| Jones, David                       |
| Tork, Peter                        |
| Dolenz, Micky                      |
| Nesmith, Mike                      |
| Sedaris, David                     |
| Hornby, Nick                       |
| Bank, Melissa                      |
| Morrison, Toni                     |
| Franzen, Jonathan                  |
| DeLillo, Don                       |
| Greene, Graham                     |
| Chabon, Michael                    |
| Brautigan, Richard                 |
| Banks, Russell                     |
| Simpson, Homer                     |
| Simpson, Marge                     |
| Simpson, Bart                      |
| Simpson, Lisa                      |
| Simpson, Maggie                    |
| Simpson, Abe                       |
+-----+
26 rows in set (0.00 sec)

mysql> _
```

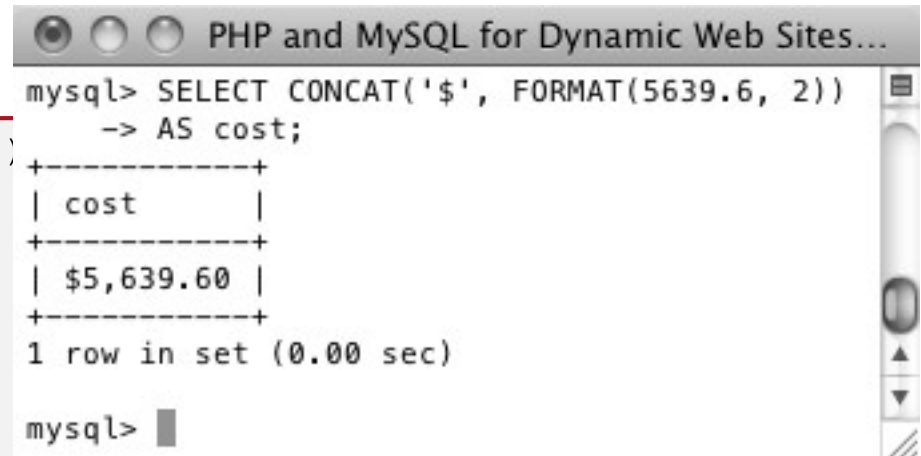


Numeric Functions

```
SELECT CONCAT('$', FORMAT(5639.6, 2))  
AS cost;  
SELECT email FROM users  
ORDER BY RAND() LIMIT 1;
```



```
mysql> SELECT email FROM users  
-> ORDER BY RAND() LIMIT 1;  
+-----+  
| email |  
+-----+  
| graham@authors.com |  
+-----+  
1 row in set (0.00 sec)  
  
mysql>
```

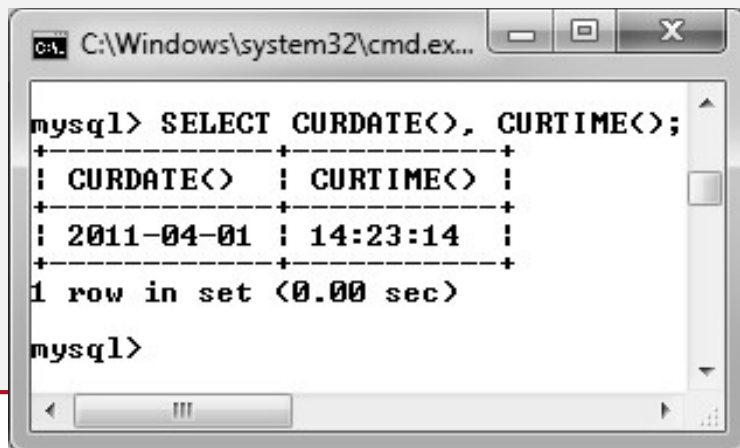


```
mysql> SELECT CONCAT('$', FORMAT(5639.6, 2))  
-> AS cost;  
+-----+  
| cost |  
+-----+  
| $5,639.60 |  
+-----+  
1 row in set (0.00 sec)  
  
mysql>
```



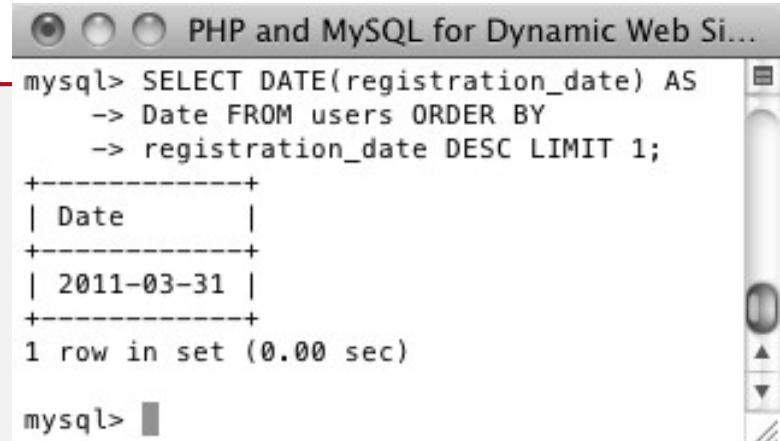
Date & Time Functions

```
SELECT DATE(registration_date) AS  
Date FROM users ORDER BY  
registration_date DESC LIMIT 1;  
SELECT CURDATE(), CURTIME();
```



A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.ex...". It shows the output of a MySQL query. The output is formatted as a table with two columns: CURDATE() and CURTIME(). The first row shows the current date and time as 2011-04-01 and 14:23:14. Below the table, it says "1 row in set (0.00 sec)". The prompt "mysql>" is visible at the bottom.

```
mysql> SELECT CURDATE(), CURTIME();  
+-----+-----+  
| CURDATE() | CURTIME() |  
+-----+-----+  
| 2011-04-01 | 14:23:14 |  
+-----+-----+  
1 row in set (0.00 sec)  
mysql>
```



A screenshot of a window titled "PHP and MySQL for Dynamic Web Si...". It shows the output of a MySQL query. The output is formatted as a table with one column: Date. The first row shows the date as 2011-03-31. Below the table, it says "1 row in set (0.00 sec)". The prompt "mysql>" is visible at the bottom.

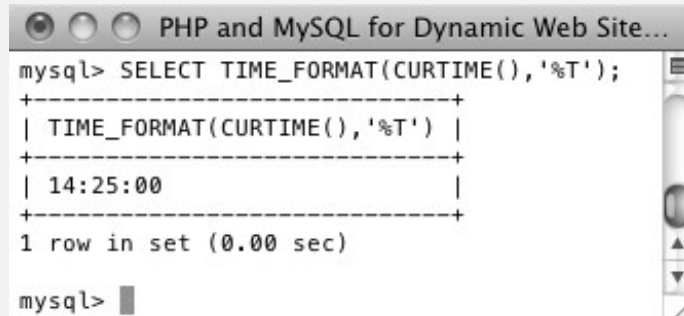
```
mysql> SELECT DATE(registration_date) AS  
-> Date FROM users ORDER BY  
-> registration_date DESC LIMIT 1;  
+-----+  
| Date |  
+-----+  
| 2011-03-31 |  
+-----+  
1 row in set (0.00 sec)  
mysql>
```



Formatting Dates & Times

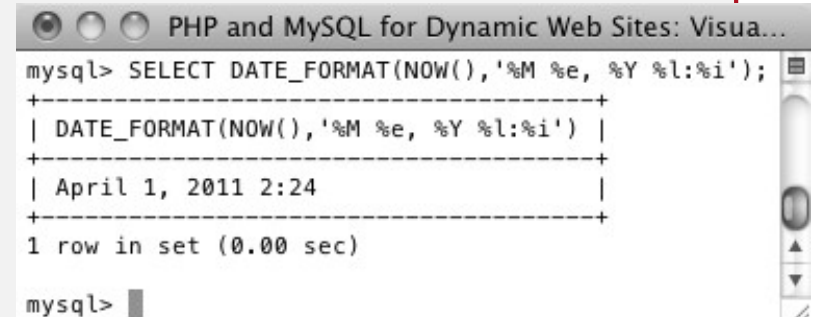
```
SELECT DATE_FORMAT(NOW(), '%M %e, %Y %l:%i');
```

```
SELECT TIME_FORMAT(CURTIME(), '%T');
```



```
PHP and MySQL for Dynamic Web Site...
mysql> SELECT TIME_FORMAT(CURTIME(), '%T');
+-----+
| TIME_FORMAT(CURTIME(), '%T') |
+-----+
| 14:25:00                      |
+-----+
1 row in set (0.00 sec)

mysql>
```



```
PHP and MySQL for Dynamic Web Sites: Visua...
mysql> SELECT DATE_FORMAT(NOW(), '%M %e, %Y %l:%i');
+-----+
| DATE_FORMAT(NOW(), '%M %e, %Y %l:%i') |
+-----+
| April 1, 2011 2:24                  |
+-----+
1 row in set (0.00 sec)

mysql>
```



Other MySQL Functions

- SHA1()
- MD5()
- NOW()