

Server side scripting and databases

How Web Applications interact with server side databases - part 2

Example table

student

student

kuid	char
lastname	char
money	int

student table

The screenshot shows a database management interface for a 'student' table. At the top, it displays the path 'Student Webserver > db_ku12492 > student'. Below this is a toolbar with buttons for 'Browse', 'Structure', 'SQL', 'Search', 'Insert', 'Export', 'Import', and 'Operations'. A status bar indicates 'Showing rows 0 - 3 (4 total, Query took 0.0002 sec)'. A SQL query editor shows the query:

```
SELECT * FROM 'student' LIMIT 0, 30
```

. Below the query editor, there are controls for 'Show : 30 row(s) starting from record # 0' and 'in horizontal mode and repeat headers after 100 cells'. A '+ Options' section is visible. The main area displays a table with the following data:

	kuid	lastname	money
<input type="checkbox"/>	k1234567	smith	1000
<input type="checkbox"/>	k4564778	patel	1234
<input type="checkbox"/>	k7689690	russell	45678
<input type="checkbox"/>	k6578583	avery	3000

At the bottom, there are controls for 'Check All / Uncheck All With selected:' and another 'Show : 30 row(s) starting from record # 0' and 'in horizontal mode and repeat headers after 100 cells'.

Connecting and using mySQL from PHP

PHP provides many mySQL specific functions

mysql_connect	Open a link/connection to a mysql database
mysql_select_db	Choose a specific database on a mySQL server
mysql_query	run an SQL statement on an opened database
mysql_fetch_array	process a result set
mysql_close	Close a mySQL connection

Recap Using PHP mysql functions

```
$link = mysql_connect($dbAddress,$dbUsername,$dbPassword);

if (!$link) {
    die("Could not connect");
};

print "Connected to the database server";

$db_selected = mysql_select_db($dbDatabasename,$link);
if (!$db_selected) {
    die("Could not use the database");
};

print "selected a DB";

$result = mysql_query(' . . . . ');
if (!$result) {
    die('Invalid query: ' . mysql_error());
}

print "run a query against the DB";

mysql_close($link);
```

Recap Using PHP mysql functions

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print "run a query against the DB";

mysql_close($link);
```

Create connection to DB server

Recap Using PHP mysql functions

```
$link = mysql_connect($dbAddress,$dbUsername,$dbPassword);

if (!$link) {
    die("Could not connect");
};

print "Connected to the database server";

$db_selected = mysql_select_db($dbDatabasename,$link);
if (!$db_selected) {
    die("Could not use the database");
};

print "selected a DB";

$result = mysql_query(' . . . . ');
if (!$result) {
    die('Invalid query: ' . mysql_error());
}

print "run a query against the DB";

mysql_close($link);
```

Choose database on the server

Recap Using PHP mysql functions

```
$link = mysql_connect($dbAddress,$dbUsername,$dbPassword);

if (!$link) {
    die("Could not connect");
};

print "Connected to the database server";

$db_selected = mysql_select_db($dbDatabasename,$link);
if (!$db_selected) {
    die("Could not use the database");
};

print "selected a DB";

$result = mysql_query(' . . . . ');
if (!$result) {
    die('Invalid query: ' . mysql_error());
}

print "run a query against the DB";

mysql_close($link);
```

Run query against database

Recap Using PHP mysql functions

```
$link = mysql_connect($dbAddress,$dbUsername,$dbPassword);  
  
if (!$link) {  
    die("Could not connect");  
};  
  
print "Connected to the database server";  
  
$db_selected = mysql_select_db($dbDatabasename,$link);  
if (!$db_selected) {  
    die("Could not use the database");  
};  
  
print "selected a DB";  
  
$result = mysql_query(' . . . ');  
if (!$result) {  
    die('Invalid query: ' . mysql_error());  
}  
  
print "run a query against the DB";  
  
mysql_close($link);
```

Close database server connection

inserting, deleting and updating

SQL for inserting, deleting and updating

insert into student (kuid, lastname, money) values ("kui23456", "HARRIS", 10);

delete from student where kuid="xxxx";

update student set lastname="JONES" where lastname="xxx";

update student set money=money*2 where lastname="xxx";

These return True or False (do they succeed or not..)

selecting

SQL for selecting

**select *
from student**

Running a SQL statement against the database

Use mysql_query

```
$result = mysql_query('select * from ...');  
if (!$result) {  
    die('Invalid query: ' . mysql_error());  
}
```

In this case \$result is a resource which points to the result set (i.e. the select result) - structure that may have many records

So how can we process it?

To process a returned results

Use `mysql_fetch_array`

`mysql_fetch_array` (PHP 4, PHP 5)

Fetch a result row as an associative array, a numeric array, or both

Description
array `mysql_fetch_array` (resource `$result` [, int `$result_type`])

Returns an array that corresponds to the fetched row and moves the internal data pointer ahead.

Returns the next row in the structure, until there are none left (when it returns false)

To process a returned results

Use `mysql_fetch_array`

```
$result = mysql_query("select * from student");
```

```
while ($row = mysql_fetch_array($result) {  
    process the row  
}
```

As there are 0 or more rows in `$result`, use a while loop to extract each row, process it and then get the next row...

To process a returned results

`$row` becomes an associative array

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
122	AVERY	22500
124	MITCHELL	26000
127	WEBB	22000

	kuid	lastname	money
<code>\$row</code>	120	SMITH	22000

To process a returned results

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
122	AVERY	22500
124	MITCHELL	26000
127	WEBB	22000

	kuid	lastname	money
<code>\$row</code>	121	JONES	23000

To process a returned results

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
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	kuid	lastname	money
\$row	122	AVERY	22500

To process a returned results

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
122	AVERY	22500
124	MITCHELL	26000
127	WEBB	22000

	kuid	lastname	money
\$row	124	MITCHELL	26000

To process a returned results

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
122	AVERY	22500
124	MITCHELL	26000
127	WEBB	22000

	kuid	lastname	money
\$row	127	WEBB	22000

To process a returned results

```
$row = mysql_fetch_array($result)
```

kuid	lastname	money
120	SMITH	22000
121	JONES	23000
122	AVERY	22500
124	MITCHELL	26000
127	WEBB	22000

\$row false ← **\$row becomes false when there are no more rows**

Local version

Use `mysql_fetch_array`

```
$result = mysql_query("SELECT * from student");  
while ($row = mysql_fetch_array($result)){  
    print $row["kuid"]." ".$row["lastname"]." ".$row["money"]."<br />";  
};
```

Prints out the records

User defined functions

Useful for pieces of code that we use to reuse

Pass values into
the function here

```
function name(args){  
    ...code for function  
    return arg;  
}
```

Return value out
of the function
here

User defined functions

Useful for pieces of code that we use to reuse

Pass values into
the function here

```
function name(args){  
    ...code for function  
    return arg;  
}
```

Return value out
of the function
here

ONLY ONE!

Example

simple multiplication

```
function multiply($number1, $number2){  
    $result=$number1*$number2;  
    return($result);  
};
```

```
$num1=3;  
$num2=10;
```

```
$answer=multiply($num1,$num2);
```