



Computer Science E-75

Building Dynamic Websites

Harvard Extension School

<http://cs75.net/>

Lecture 4: SQL, Continued

David J. Malan
malan@post.harvard.edu



MySQL

<http://dev.mysql.com/doc/refman/5.0/en/>

SQL

- CREATE TABLE
- DROP TABLE
- . . .

MySQL Types

- CHAR
- VARCHAR
- TEXT
- TINYTEXT
- MEDIUMTEXT
- LONGTEXT
- DATE
- DATETIME
- YEAR
- TIME
- TIMESTAMP
- TINYINT
- SMALLINT
- MEDIUMINT
- INT
- BIGINT
- FLOAT
- DOUBLE
- DECIMAL
- TINYBLOB
- BLOB
- MEDIUMBLOB
- LONGBLOB
- BINARY
- VARBINARY
- ENUM
- SET

Indexes, Constraints

- PRIMARY KEY
- INDEX
- UNIQUE
- FULLTEXT

SQL

- SELECT
- INSERT
- UPDATE
- DELETE
- . . .

MySQL Functions

<http://dev.mysql.com/doc/refman/5.0/en/functions.html>

- `AES_ENCRYPT(key,key_str)`
- `DATE_FORMAT(date,format)`
http://dev.mysql.com/doc/refman/5.0/en/date-and-time-functions.html#function_date-format
- `TIME_FORMAT(time,format)`
http://dev.mysql.com/doc/refman/5.0/en/date-and-time-functions.html#function_time-format
- ...

JOIN

```
SELECT Employees.Name, Orders.Product
FROM Employees, Orders
WHERE Employees.Employee_ID=Orders.Employee_ID
```

Employees:

Employee_ID	Name
01	Hansen, Ola
02	Svendson, Tove
03	Svendson, Stephen
04	Pettersen, Kari

Orders:

Prod_ID	Product	Employee_ID
234	Printer	01
657	Table	03
865	Chair	03

JOIN

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SELECT Employees.Name, Orders.Product
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```

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Orders:

Prod_ID	Product	Employee_ID
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Name	Product
Hansen, Ola	Printer
Svendson, Stephen	Table
Svendson, Stephen	Chair

JOIN

```
SELECT Employees.Name, Orders.Product
FROM Employees
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Name	Product
Hansen, Ola	Printer
Svendson, Stephen	Table
Svendson, Stephen	Chair

Race Conditions



INSERT ... ON DUPLICATE KEY UPDATE

```
INSERT INTO table (a,b,c) VALUES (1,2,3)
  ON DUPLICATE KEY UPDATE c=c+1;

UPDATE table SET c=c+1 WHERE a=1;
```

Transactions (InnoDB)

```
START TRANSACTION;  
UPDATE account SET balance = balance - 1000 WHERE number = 2;  
UPDATE account SET balance = balance + 1000 WHERE number = 1;  
COMMIT;
```

Transactions (InnoDB)

```
START TRANSACTION;  
UPDATE account SET balance = balance - 1000 WHERE number = 2;  
UPDATE account SET balance = balance + 1000 WHERE number = 1;  
SELECT balance FROM account WHERE number = 2;  
# select tells us that account #2 has a negative balance!  
# we'd better abort  
ROLLBACK;
```

Locks (MyISAM)

```
LOCK TABLES account WRITE;  
SELECT balance FROM account WHERE number = 2;  
UPDATE account SET balance = 1500 WHERE number = 2;  
UNLOCK TABLES;
```

C\$75 Finance

- 1) Log In
- 2) Register
- 3) Get Quotes
- 4) Sell Stocks
- 5) Buy Stocks
- 6) History
- 7) . . .

CSV



THE BIG BOARD





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