

# Computer Science E-75

## Building Dynamic Websites

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Lecture 5: SQL, continued  
October 18, 2010

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```
<VirtualHost *:80>
```

```
    ServerName subdomain.domain.tld  
    ServerAdmin webmaster@domain.tld
```

```
    DocumentRoot "/home/username/public_html/"
```

```
    UseCanonicalName OFF
```

```
</VirtualHost>
```

Configuration

Typical Apache VirtualHost

```
<VirtualHost *:80>
```

```
    ServerName projects.domain.tld  
    ServerAdmin webmaster@domain.tld
```

```
    DocumentRoot "/home/username/projects/0/html/"  
    Alias /0 "/home/username/projects/0/html/"  
    Alias /1 "/home/username/projects/1/html/"  
    Alias /2 "/home/username/projects/2/html/"  
    Alias /3 "/home/username/projects/3/html/"  
    Alias /final "/home/username/projects/final/html/"
```

```
    UseCanonicalName OFF
```

```
</VirtualHost>
```

Configuration

Cloud Setup

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

- `AES_ENCRYPT(key, key_str)`
- `NOW()`
- `DATE_FORMAT(date, format)`
- `TIME_FORMAT(time, format)`
- `more...`

MySQL

Functions

# Log In

Please provide your username and password for cs75.net.

Username:

Password:

keep me logged in until I click **log out** atop page

Example

Authentication via loginN

STRING	CHAR	BYTE STRING	BINARY
	VARCHAR		VARBINARY
	TINYTEXT		TINYBLOB
	TEXT		BLOB
	MEDIUMTEXT		MEDIUMBLOB
	LONGTEXT		LOBLOB
INTEGER	TINYINT	DATE & TIME	DATE
	SMALLINT		DATETIME
	MEDIUMINT		YEAR
	INT		TIME
	BIGINT		TIMESTAMP
DECIMAL	FLOAT	SETS	ENUM
	DOUBLE		SET
	DECIMAL		

MySQL

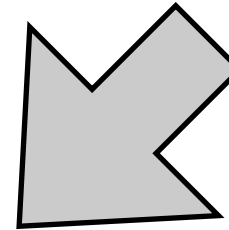
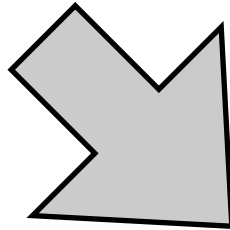
Data types

Drivers:

<b>id</b>	<b>Name</b>	<b>..</b>
01	John Harvard	
02	Jane Harvard	

Times:

<b>id</b>	<b>driver_id</b>	<b>times..</b>
1	02	60
2	01	50



<b>Name</b>	<b>times..</b>
John Harvard	60
Jane Harvard	50

MySQL

Joins

```
SELECT drivers.name, times.*  
FROM times  
JOIN drivers  
ON times.driver_id=drivers.id;
```



```
SELECT drivers.name, times.*  
FROM times, drivers  
WHERE times.driver_id=drivers.id;
```

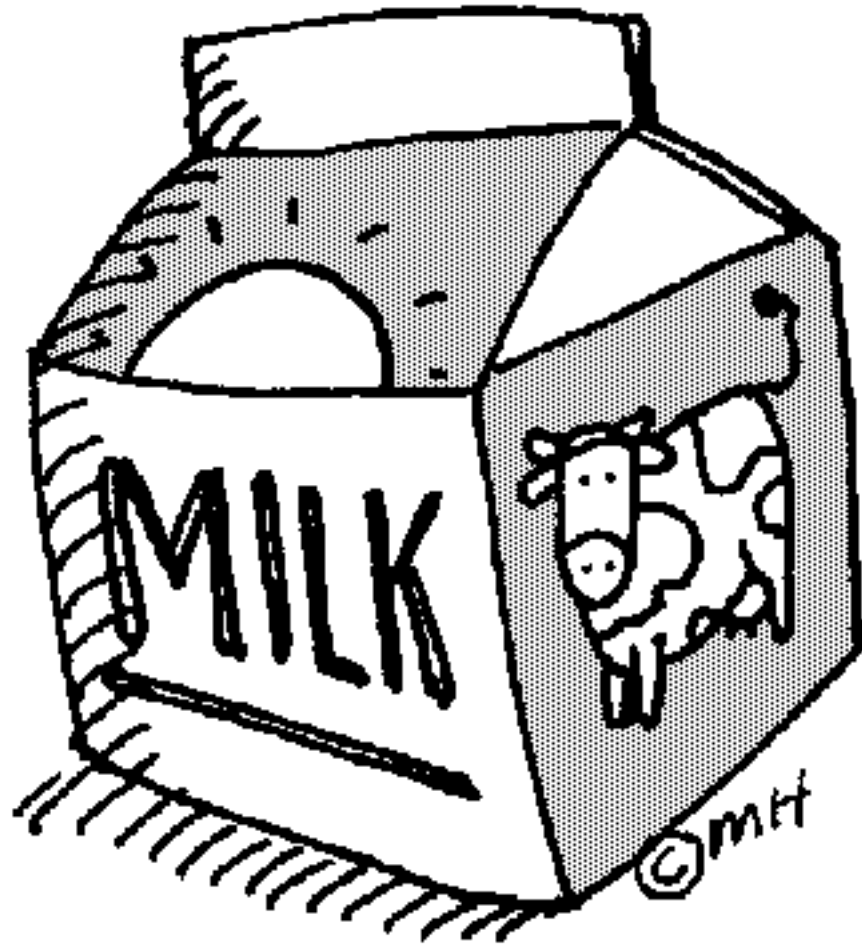


Image from <http://school.discoveryeducation.com/clipart/clip/milk.html>

Race Conditions

Example

```
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;
```

From <http://dev.mysql.com/doc/refman/5.0/en/insert-on-duplicate.html>

Race Conditions

Duplicate Rows

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

Excerpted from <http://dev.mysql.com/books/mysqlpress/mysql-tutorial/ch10.html>.

```
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;
# suppose account #2 has a negative balance!
ROLLBACK;
```

Excerpted from <http://dev.mysql.com/books/mysqlpress/mysql-tutorial/ch10.html>.

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

Excerpted from <http://dev.mysql.com/books/mysqlpress/mysql-tutorial/ch10.html>.

## Race Conditions

## Table Locks using MyISAM

# C\$75 Finance

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

Project 2

C\$75 Finance

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