



# Computer Science S-75

## Building Dynamic Websites

Harvard Summer School

<http://cs75.net/>

### Lecture 7: SQL, Continued

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# 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](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](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

```
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

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

# JOIN

## Employees:

Employee_ID	Name
01	Hansen, Ola
02	Svendson, Tove
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## Orders:

Prod_ID	Product	Employee_ID
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```
SELECT Employees.Name, Orders.Product
FROM Employees
JOIN Orders ON Employees.Employee_ID=Orders.Employee_ID
```

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)

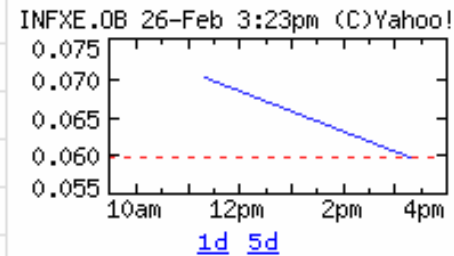
```
LOCK TABLES account WRITE;  
SELECT balance FROM account WHERE number = 2;  
UPDATE account SET balance = 1500 WHERE number = 2;  
UNLOCK TABLES;
```

# C\$75 Finance

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

# CSV

INFINEX VENTURES NEW (OTC BB:INFXE.OB) <span>Edit</span>			
Last Trade:	<b>0.06</b>	Day's Range:	N/A - N/A
Trade Time:	Feb 26	52wk Range:	N/A
Change:	0.00 (0.00%)	Volume:	0
Prev Close:	0.06	Avg Vol (3m):	N/A
Open:	N/A	Market Cap:	1.52M
Bid:	0.05 × 5000	P/E (ttm):	1.00
Ask:	0.07 × 5000	EPS (ttm):	0.06
1y Target Est:	N/A	Div & Yield:	N/A (N/A)



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# THE BIG BOARD





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