

# More Constraints

# UNIQUE constraint

```
CREATE TABLE companies (  
    supplier_id INT AUTO_INCREMENT,  
    name VARCHAR(255) NOT NULL,  
    phone VARCHAR(15) NOT NULL UNIQUE,  
    address VARCHAR(255) NOT NULL,  
    PRIMARY KEY (supplier_id)  
);
```

phone must be unique

# CHECK constraints

```
CREATE TABLE partiers (  
    name VARCHAR(50),  
    age INT CHECK (age > 18)  
);
```

age must be greater than 18

# Named Constraints

```
CREATE TABLE partiers2 (  
    name VARCHAR(50),  
    age INT,  
    CONSTRAINT age_over_18 CHECK (age > 18)  
);
```

We can provide a name for the constraint

# Multi-Column Checks

```
CREATE TABLE companies (  
    supplier_id INT AUTO_INCREMENT,  
    name VARCHAR(255) NOT NULL,  
    phone VARCHAR(15) NOT NULL UNIQUE,  
    address VARCHAR(255) NOT NULL,  
    PRIMARY KEY (supplier_id),  
    CONSTRAINT name_address UNIQUE (name , address)  
);
```

The combination of name and address must  
be unique for each row

# ALTER TABLE

```
ALTER TABLE companies  
ADD COLUMN city VARCHAR(25);
```

Use ALTER TABLE to add a new column to an existing table

# ALTER TABLE

```
ALTER TABLE suppliers  
DROP COLUMN city;
```

Use ALTER TABLE to remove  
columns from a table

# Renaming Tables

```
RENAME TABLE companies TO suppliers;
```

Use RENAME to...rename a table



# Renaming Columns

```
ALTER TABLE suppliers  
RENAME COLUMN name TO biz_name;
```

Use RENAME COLUMN to rename a column

# Changing Columns

```
ALTER TABLE suppliers  
CHANGE business biz_name VARCHAR(50);
```

Use CHANGE to rename a column AND change its data type.

This example renames the 'business' column to 'biz\_name'  
AND make its VARCHAR(50)

# Modify

```
ALTER TABLE suppliers  
MODIFY biz_name VARCHAR(100);
```

Use MODIFY to change an existing column's type

This example modify's the 'biz\_name' column to be a  
VARCHAR(100)



Greater Than

```
SELECT * FROM books  
WHERE released_year > 2000;
```

Select books released after the year 2000

# A Small Side Note

```
SELECT 99 > 1;
```

What Do You Expect?



Less Than

```
SELECT * FROM books  
WHERE released_year < 2000;
```

Select books released **before** the year 2000





Less Than Or  
Equal To



LOGICAL AND

SELECT books written  
by Dave Eggers,  
published after the  
year 2010

SELECT books written  
by Dave Eggers,  
published after the  
year 2010

# SELECT books written by Dave Eggers,

```
SELECT * FROM books  
WHERE author_lname='Eggers';
```

```
SELECT * FROM books  
WHERE released_year > 2010;
```

published after the  
year 2010

```
SELECT * FROM books  
WHERE author_lname='Eggers';
```

# AND

```
SELECT * FROM books  
WHERE released_year > 2010;
```



```
SELECT * FROM books  
WHERE author_lname='Eggers' AND  
released_year > 2010;
```

```
SELECT * FROM books  
WHERE author_lname='Eggers' AND  
released_year > 2010 AND  
title LIKE '%novel%';
```

# OR

LOGICAL OR



# Let's Try Something!

```
SELECT * FROM books  
WHERE author_lname='Eggers' AND  
released_year > 2010;
```



```
SELECT * FROM books  
WHERE author_lname='Eggers' OR  
released_year > 2010;
```

# Condition 1 AND Condition 2

BOTH SIDES MUST BE TRUE

Condition 1 OR Condition 2

ONLY ONE SIDE MUST BE TRUE

BETWEEN

Before we see  
BETWEEN...

How can we  
accomplish the same  
thing using what we  
already know?

Select all books  
published between  
2004 and 2015

# USE LOGICAL AND!

```
SELECT title, released_year FROM  
books WHERE released_year >= 2004 AND  
released_year <= 2015;
```



Or...Use BETWEEN

# BETWEEN x AND y

```
SELECT title, released_year FROM books  
WHERE released_year BETWEEN 2004 AND 2015;
```

# NOT BETWEEN

Is Also A Thing

# NOT BETWEEN $x$ AND $y$

```
SELECT title, released_year FROM books  
WHERE released_year NOT BETWEEN 2004 AND 2015;
```

# A Note About Comparing Dates

IN

Select all books written by...

**Carver**

OR...

**Lahiri**

OR...

**Smith**

# We Can Already Do This

```
SELECT title, author_lname FROM books  
WHERE author_lname='Carver' OR  
       author_lname='Lahiri' OR  
       author_lname='Smith';
```



**IN** makes it much easier

# SO MUCH SHORTER!

```
SELECT title, author_lname FROM books  
WHERE author_lname IN ('Carver', 'Lahiri', 'Smith');
```

NOT  
IN

I'm really superstitious  
and have a problem  
with even numbers...

(I'm not actually, I promise)

# Select all books not published in

- 2000,
- 2002,
- 2004,
- 2006,
- 2008,
- 2010,
- 2012,
- 2014,
- 2016

# Well...that was fun to type

```
SELECT title, released_year FROM books
WHERE released_year != 2000 AND
      released_year != 2002 AND
      released_year != 2004 AND
      released_year != 2006 AND
      released_year != 2008 AND
      released_year != 2010 AND
      released_year != 2012 AND
      released_year != 2014 AND
      released_year != 2016;
```

There's a better way!

```
SELECT title, released_year FROM books  
WHERE released_year NOT IN  
(2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016);
```



# Taking It To The Next Level!

I only want books released after 2000

```
SELECT title, released_year FROM books
WHERE released_year >= 2000
AND released_year NOT IN
(2000,2002,2004,2006,2008,2010,2012,2014,2016);
```

# Theres still a better way

It doesn't use IN or NOT IN

0%

# MODULO

```
SELECT title, released_year FROM books  
WHERE released_year >= 2000 AND  
released_year % 2 != 0;
```

# **CASE STATEMENTS**

title	released_year	GENRE
The Namesake	2003	Modern Lit
Norse Mythology	2016	Modern Lit
American Gods	2001	Modern Lit
Interpreter of Maladies	1996	20th Century Lit
A Hologram for the King: A Novel	2012	Modern Lit
The Circle	2013	Modern Lit
The Amazing Adventures of Kavalier & Clay	2000	Modern Lit
Just Kids	2010	Modern Lit
A Heartbreaking Work of Staggering Genius	2001	Modern Lit
Coraline	2003	Modern Lit
What We Talk About When We Talk About Love: Stories	1981	20th Century Lit
Where I'm Calling From: Selected Stories	1989	20th Century Lit
White Noise	1985	20th Century Lit
Cannery Row	1945	20th Century Lit
Oblivion: Stories	2004	Modern Lit
Consider the Lobster	2005	Modern Lit
10% Happier	2014	Modern Lit
fake_book	2001	Modern Lit
Lincoln In The Bardo	2017	Modern Lit

```
SELECT title, released_year,  
       CASE  
         WHEN released_year >= 2000 THEN 'Modern Lit'  
         ELSE '20th Century Lit'  
       END AS GENRE  
FROM books;
```



title	stock_quantity	STOCK
The Namesake	32	*
Norse Mythology	43	*
American Gods	12	*
Interpreter of Maladies	97	**
A Hologram for the King: A Novel	154	***
The Circle	26	*
The Amazing Adventures of Kavalier & Clay	68	**
Just Kids	55	**
A Heartbreaking Work of Staggering Genius	104	***
Coraline	100	**
What We Talk About When We Talk About Love: Stories	23	*
Where I'm Calling From: Selected Stories	12	*
White Noise	49	*
Cannery Row	95	**
Oblivion: Stories	172	***
Consider the Lobster	92	**
10% Happier	29	*
fake_book	287	***
Lincoln In The Bardo	1000	***

```
SELECT title, stock_quantity,  
       CASE  
           WHEN stock_quantity BETWEEN 0 AND 50 THEN '*'  
           WHEN stock_quantity BETWEEN 51 AND 100 THEN '**'  
           ELSE '***'  
       END AS STOCK  
FROM books;
```

# A Little More Succinct

```
SELECT title, stock_quantity,  
       CASE  
         WHEN stock_quantity <= 50 THEN '*'  
         WHEN stock_quantity <= 100 THEN '**'  
         ELSE '***'  
       END AS STOCK  
FROM books;
```

YOUR  
TURN

This is the last time  
we'll work with the  
books table!!!

# Evaluate the following...

```
SELECT 10 != 10;
```

```
SELECT 15 > 14 AND 99 - 5 <= 94;
```

```
SELECT 1 IN (5, 3) OR 9 BETWEEN 8 AND 10;
```

Select All  
Books Written  
Before 1980  
(non inclusive)

Select All  
Books Written  
By Eggers Or  
Chabon



Select All Books  
Written By Lahiri,  
Published after  
2000

Select All books with  
page counts between  
100 and 200

Select all books where  
author\_lname starts  
with a 'C' or an 'S'

If title contains 'stories' -> Short Stories  
Just Kids and A Heartbreaking Work -> Memoir  
Everything Else -> Novel

title	author_lname	TYPE
The Namesake	Lahiri	Novel
Norse Mythology	Gaiman	Novel
American Gods	Gaiman	Novel
Interpreter of Maladies	Lahiri	Novel
A Hologram for the King: A Novel	Eggers	Novel
The Circle	Eggers	Novel
The Amazing Adventures of Kavalier & Clay	Chabon	Novel
Just Kids	Smith	Memoir
A Heartbreaking Work of Staggering Genius	Eggers	Memoir
Coraline	Gaiman	Novel
What We Talk About When We Talk About Love: Stories	Carver	Short Stories
Where I'm Calling From: Selected Stories	Carver	Short Stories
White Noise	DeLillo	Novel
Cannery Row	Steinbeck	Novel
Oblivion: Stories	Foster Wallace	Short Stories
Consider the Lobster	Foster Wallace	Novel
10% Happier	Harris	Novel
fake_book	Harris	Novel
Lincoln In The Bardo	Saunders	Novel

# Bonus: Make This Happen

author_fname	author_lname	COUNT
Jhumpa	Lahiri	2 books
Neil	Gaiman	3 books
Dave	Eggers	3 books
Michael	Chabon	1 book
Patti	Smith	1 book
Raymond	Carver	2 books
Don	DeLillo	1 book
John	Steinbeck	1 book
David	Foster Wallace	2 books
Dan	Harris	1 book
Freida	Harris	1 book
George	Saunders	1 book

BURN ALL  
THE BOOKS  
We're Done With Them!