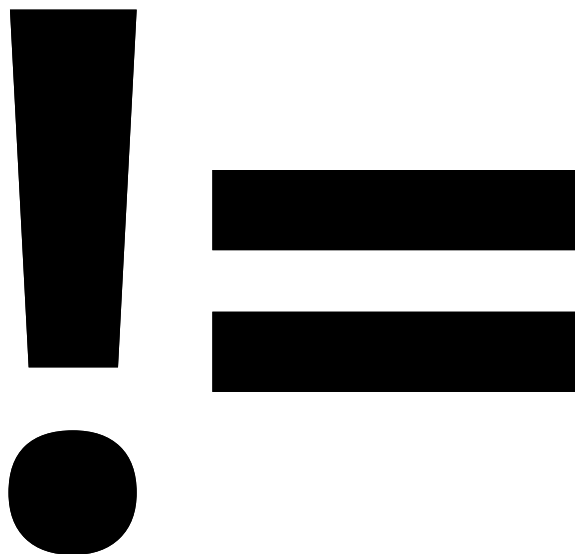# LOGICAL
OPERATORS

"Select all books NOT published in 2017"

"Select all birthdays between 1990 and 1992"

"Select all items that are in stock AND priced below $19.99"

Not Equal
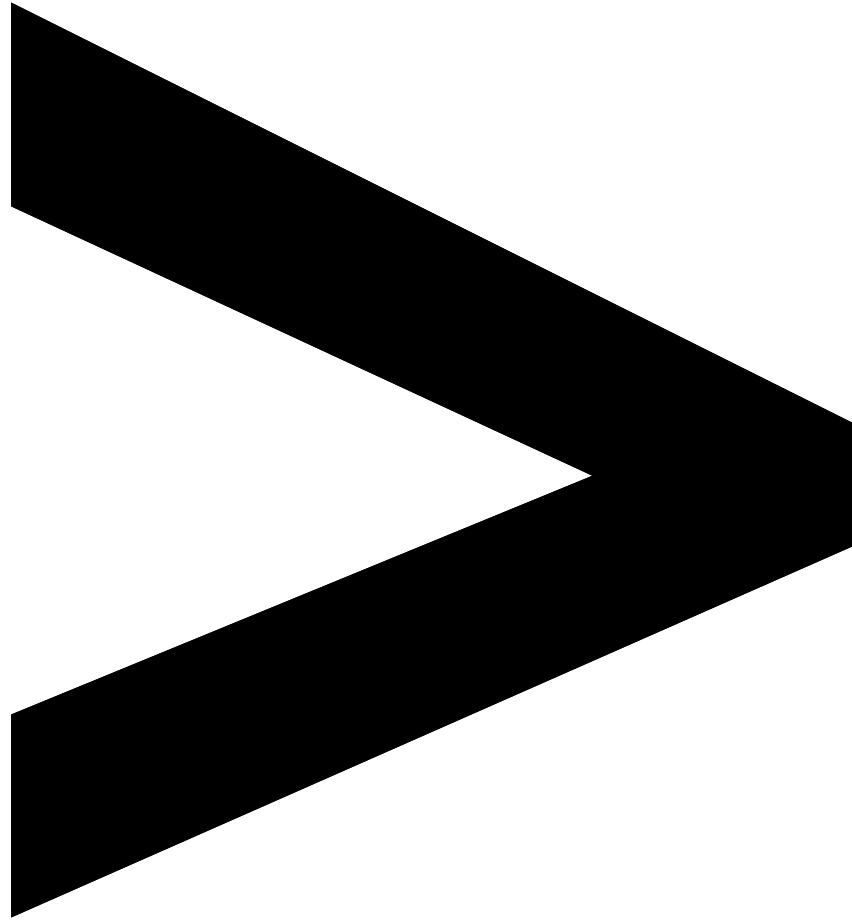
```
SELECT title FROM books
WHERE year != 2017;
```

Select books that were not released in 2017

NOT LIKE

```
SELECT title FROM books
WHERE title NOT LIKE 'W%';
```

Select books with titles that don't start with 'W'

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?
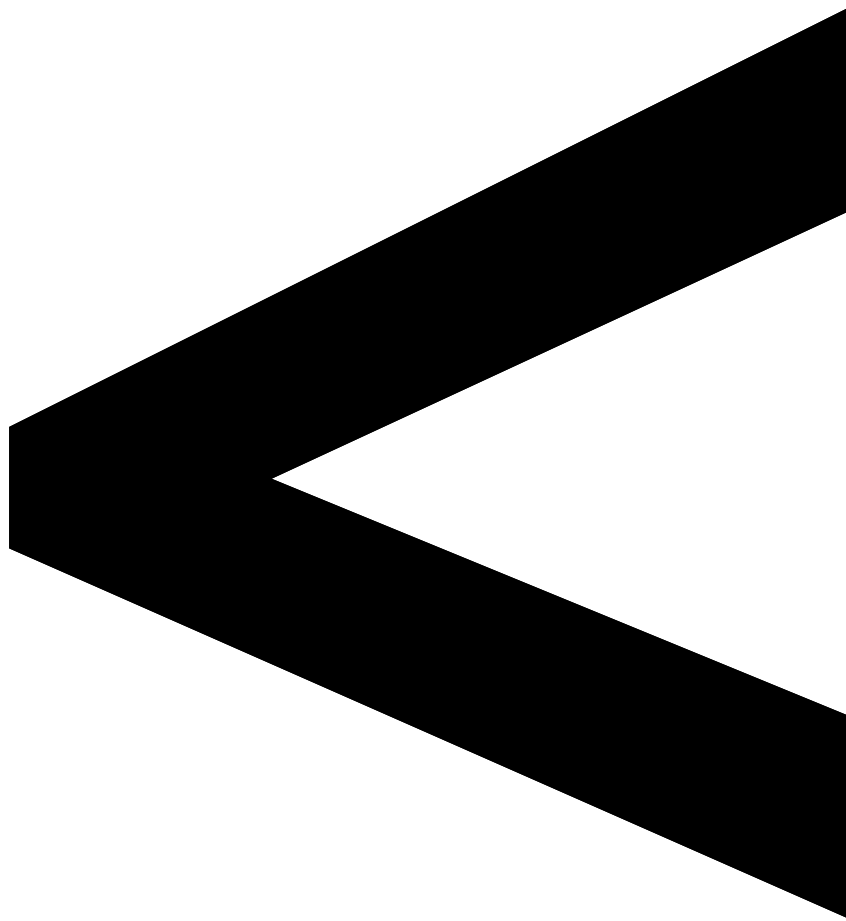
Less Than

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

Select books released **before** the year 2000
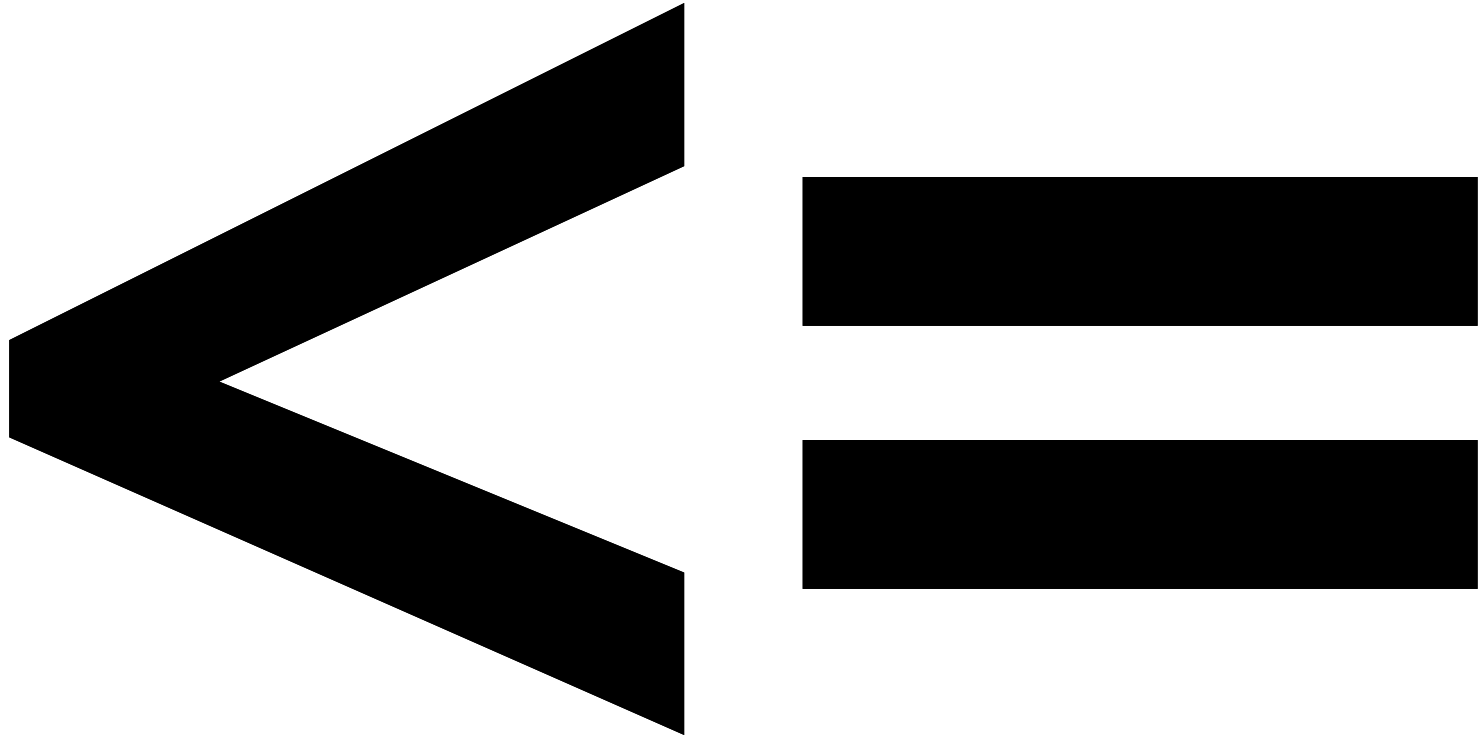
Less Than Or Equal To
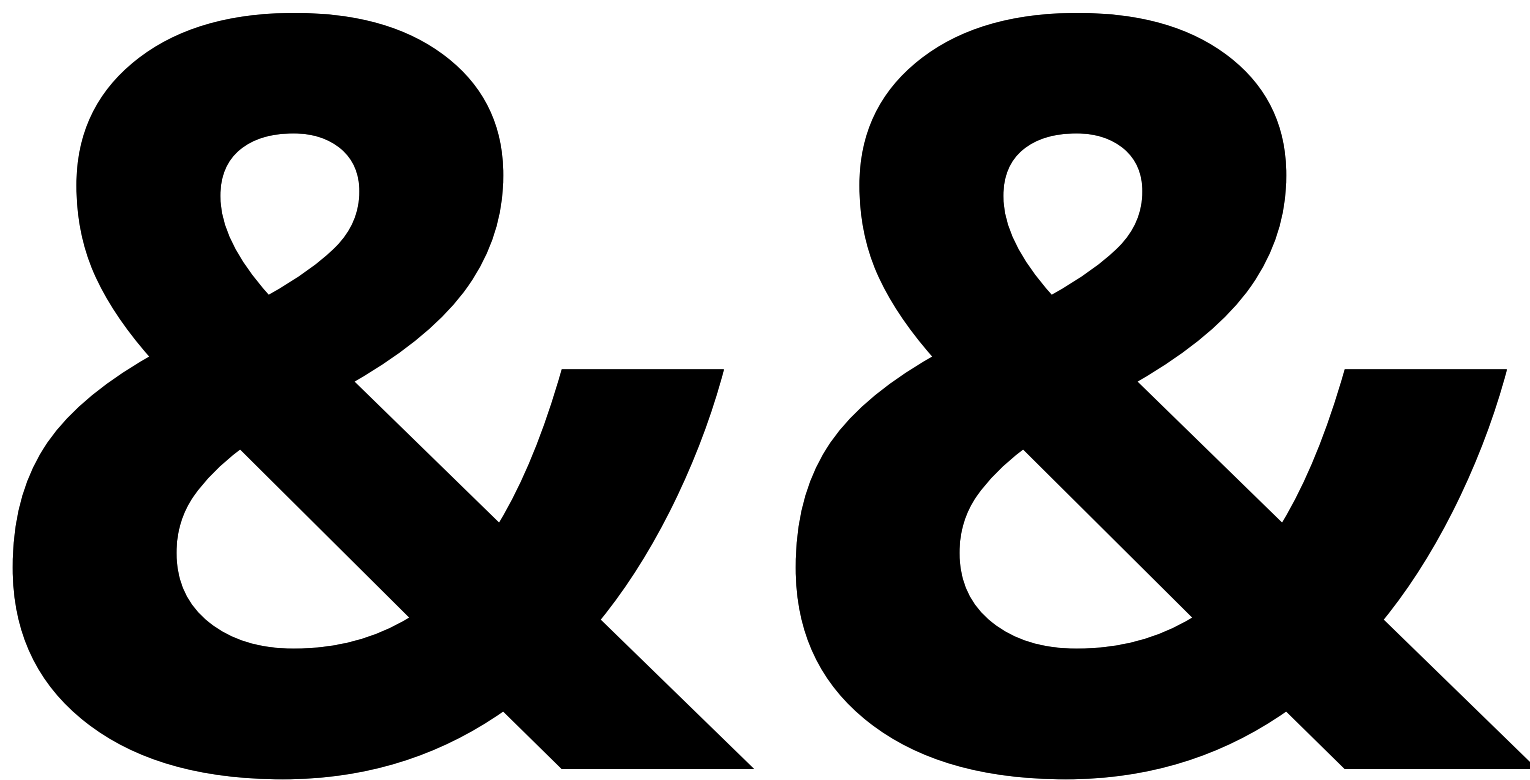
&& LOGICAL AND

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 books written by Dave Eggers,

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

SELECT books written by Dave Eggers,

```
SELECT * FROM books
WHERE author_lname='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

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



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

```sql
SELECT * FROM books
WHERE author_lname='Eggers' AND
released_year > 2010 AND
title LIKE '%novel%';
```
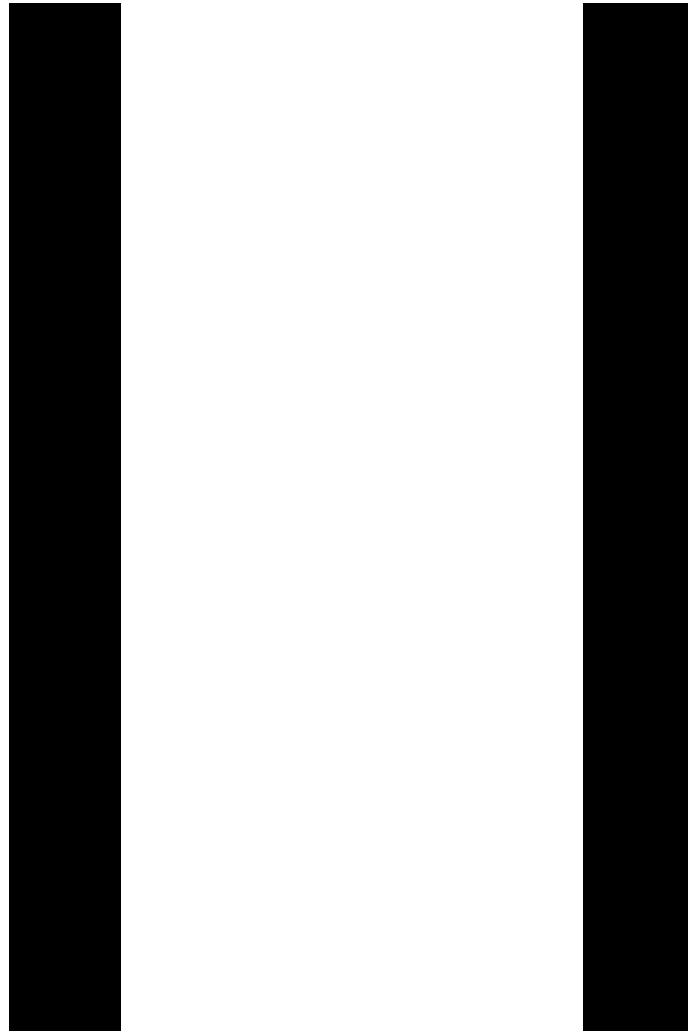
LOGICAL OR
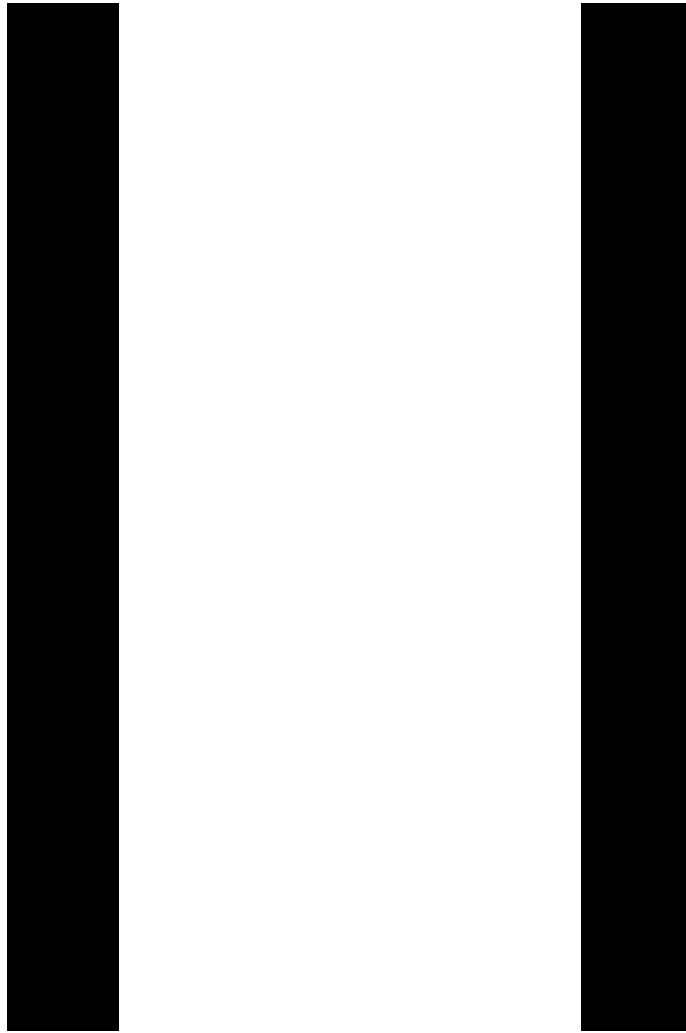
The 'pipe' character
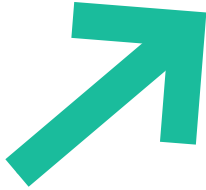
LOGICAL OR

Let's Try Something!

Let's Try Something!

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

Let's Try Something!

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

Let's Try Something!

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



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

Let's Try Something!

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

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

Let's Try Something!

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

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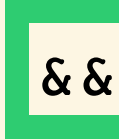
```
SELECT * FROM books
WHERE author_lname='Eggers' ||
released_year > 2010;
```

Condition 1 && Condition 2

BOTH SIDES MUST BE TRUE

Condition 1 || 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 &&
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...

Select all books written by...

Carver

Select all books written by...

Carver

OR...

Select all books written by...

Carver

OR...

Lahiri

Select all books written by...

Carver

OR...

Lahiri

OR...

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

```sql
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

MODULO

```sql
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

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	***

```sql
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

```sql
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 && 99 - 5 <= 94;
```

```
SELECT 1 IN (5,3) || 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

```
+----------------------------------------------------------+----------------+---------+
| title                                                    | author_lname   | COUNT   |
+----------------------------------------------------------+----------------+---------+
| What We Talk About When We Talk About Love: Stories      | Carver         | 2 books |
| The Amazing Adventures of Kavalier & Clay                | Chabon         | 1 book  |
| White Noise                                              | DeLillo        | 1 book  |
| A Hologram for the King: A Novel                         | Eggers         | 3 books |
| Oblivion: Stories                                        | Foster Wallace | 2 books |
| Norse Mythology                                          | Gaiman         | 3 books |
| 10% Happier                                              | Harris         | 1 book  |
| fake_book                                                | Harris         | 1 book  |
| The Namesake                                             | Lahiri         | 2 books |
| Lincoln In The Bardo                                     | Saunders       | 1 book  |
| Just Kids                                                | Smith          | 1 book  |
| Cannery Row                                              | Steinbeck      | 1 book  |
+----------------------------------------------------------+----------------+---------+
```

BURN ALL
THE BOOKS
We're Done With Them!