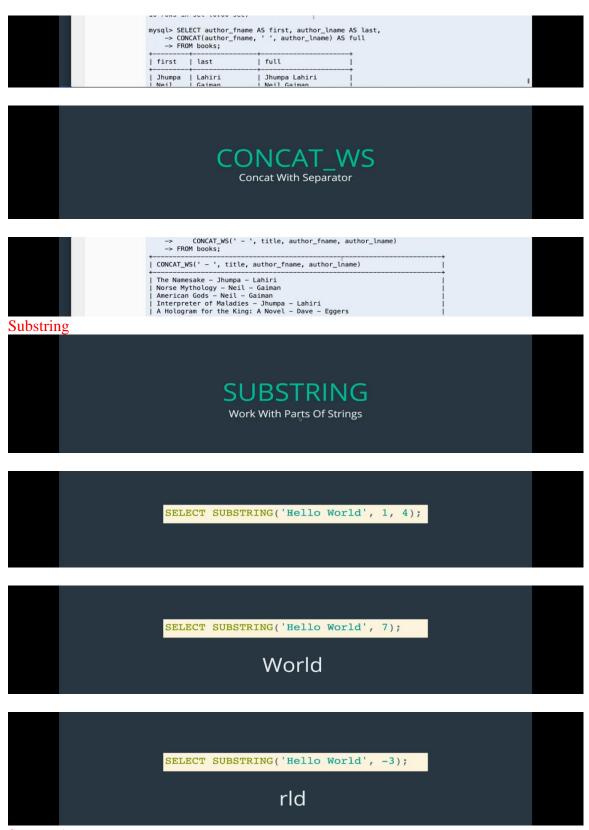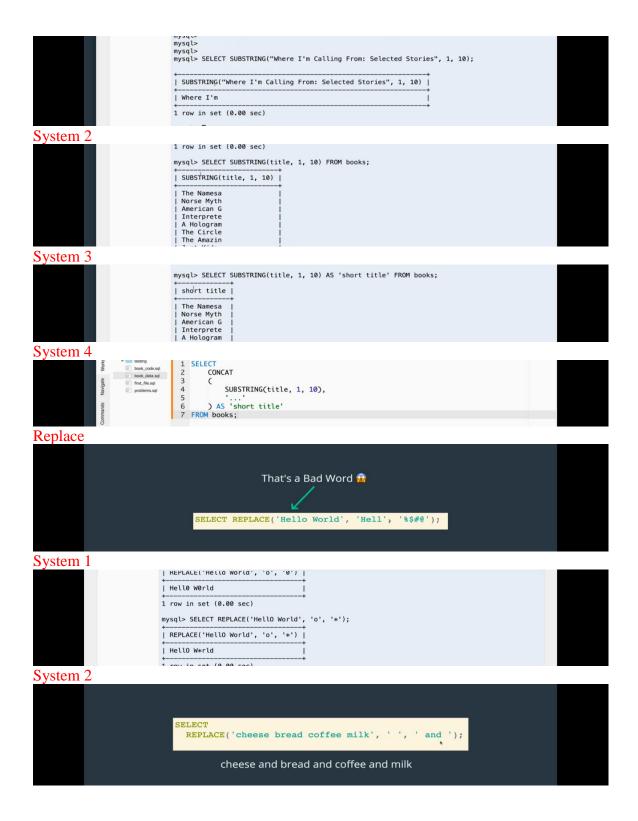# Lesson 7- The world of string function

1. running SQL file
2. loading our book data
3. working with concat
4. introducing substring
5. introducing replace
6. using reverse
7. working with character length
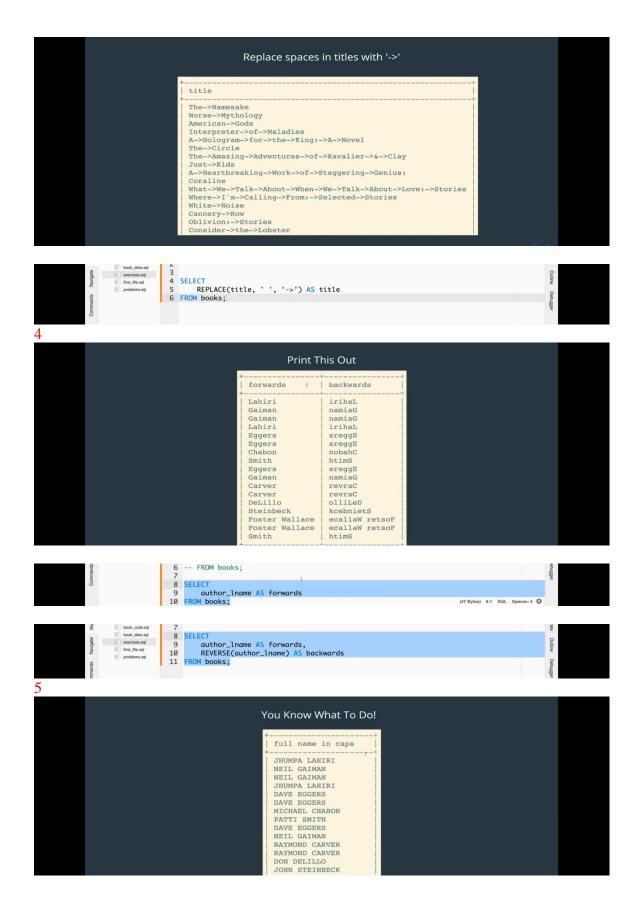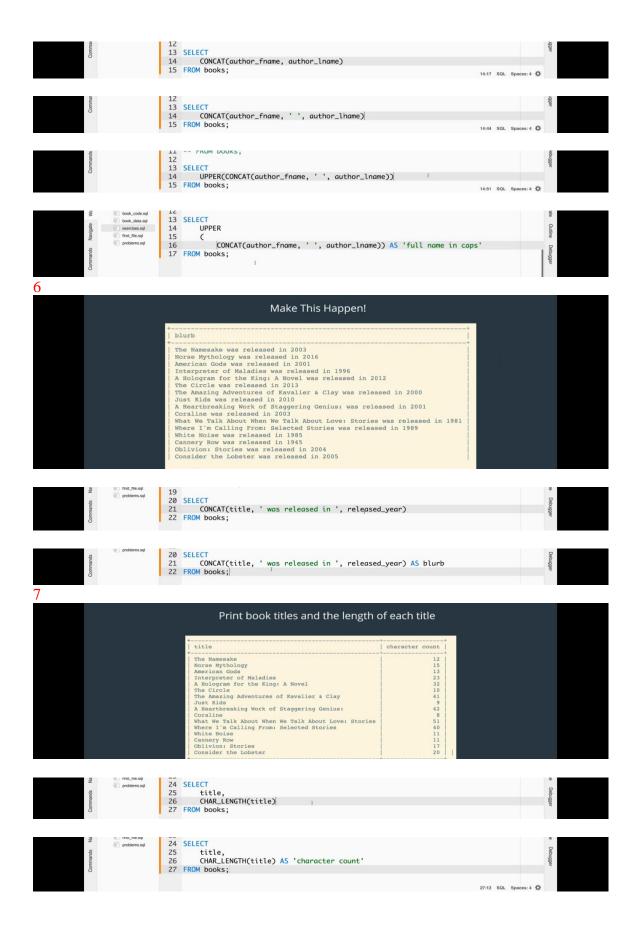8. changing case with upper and lower
9. string function challenges

Link file to command line

```
mysql>
mysql>
mysql> source first_file.sql;
Query OK, 0 rows affected (0.02 sec)
```

```
Failed to open file 'insert.sql', error: 2
mysql> source testing/insert.sql;
Query OK, 1 row affected (0.01 sec)

Query OK, 1 row affected (0.00 sec)

+--------+---------+------+
| cat_id | name    | AGE  |
+--------+---------+------+
|      1 | Charlie |   17 |
|      2 | Connie  |   10 |
+--------+---------+------+
2 rows in set (0.00 sec)
```

Concat (combining multiple data)
System 1

```
SELECT
  CONCAT(author_fname, ' ', author_lname)
FROM books;
```

```
mysql>
mysql>
mysql> SELECT
    ->   CONCAT(author_fname, ' ', author_lname)
    -> FROM books;
+-----------------------------------------+
| CONCAT(author_fname,' ', author_lname)  |
+-----------------------------------------+
| Jhumpa Lahiri                           |
| Neil Gaiman                             |
| Neil Gaiman                             |
| Jhumpa Lahiri                           |
| Dave Eggers                             |
| Dave Eggers                             |
```

System 2

```
mysql> SELECT   CONCAT(author_fname, ' ', author_lname) AS 'full name'  FROM books;
+---------------+
| full name     |
+---------------+
| Jhumpa Lahiri |
| Neil Gaiman   |
| Neil Gaiman   |
| Jhumpa Lahiri |
| Dave Eggers   |
| Dave Eggers   |
```

System 3

```
10 rows in set (0.00 sec)

mysql> SELECT author_fname AS first, author_lname AS last,
    -> CONCAT(author_fname, ' ', author_lname) AS full
    -> FROM books;
+---------+---------+------------------+
| first   | last    | full             |
+---------+---------+------------------+
| Jhumpa  | Lahiri  | Jhumpa Lahiri    |
| Neil    | Gaiman  | Neil Gaiman      |
```

CONCAT_WS
Concat With Separator

```
    ->     CONCAT_WS(' - ', title, author_fname, author_lname)
    -> FROM books;
+------------------------------------------------------------+
| CONCAT_WS(' - ', title, author_fname, author_lname)        |
+------------------------------------------------------------+
| The Namesake - Jhumpa - Lahiri                             |
| Norse Mythology - Neil - Gaiman                            |
| American Gods - Neil - Gaiman                              |
| Interpreter of Maladies - Jhumpa - Lahiri                  |
| A Hologram for the King: A Novel - Dave - Eggers           |
```

Substring

SUBSTRING
Work With Parts Of Strings

```
SELECT SUBSTRING('Hello World', 1, 4);
```

```
SELECT SUBSTRING('Hello World', 7);
```

World

```
SELECT SUBSTRING('Hello World', -3);
```

rld

System 1

```
mysql>
mysql>
mysql>
mysql> SELECT SUBSTRING("Where I'm Calling From: Selected Stories", 1, 10);

+----------------------------------------------------------------+
| SUBSTRING("Where I'm Calling From: Selected Stories", 1, 10) |
+----------------------------------------------------------------+
| Where I'm                                                      |
+----------------------------------------------------------------+
1 row in set (0.00 sec)
```

System 2

```
1 row in set (0.00 sec)

mysql> SELECT SUBSTRING(title, 1, 10) FROM books;
+-------------------------+
| SUBSTRING(title, 1, 10) |
+-------------------------+
| The Namesa              |
| Norse Myth              |
| American G              |
| Interprete              |
| A Hologram              |
| The Circle              |
| The Amazin              |
```

System 3

```
mysql> SELECT SUBSTRING(title, 1, 10) AS 'short title' FROM books;
+-------------+
| short title |
+-------------+
| The Namesa  |
| Norse Myth  |
| American G  |
| Interprete  |
| A Hologram  |
```

System 4

```
  testing              1  SELECT
  book_code.sql        2      CONCAT
  book_data.sql        3      (
  first_file.sql       4          SUBSTRING(title, 1, 10),
  problems.sql         5          '...'
                       6      ) AS 'short title'
                       7  FROM books;
```

Replace

That's a Bad Word 😱

```
SELECT REPLACE('Hello World', 'Hell', '%$#@');
```

System 1

```
| REPLACE('Hello World', 'o', '0') |
+----------------------------------+
| Hell0 W0rld                      |
+----------------------------------+
1 row in set (0.00 sec)

mysql> SELECT REPLACE('HellO World', 'o', '*');
+----------------------------------+
| REPLACE('HellO World', 'o', '*') |
+----------------------------------+
| HellO W*rld                      |
+----------------------------------+
1 row in set (0.00 sec)
```

System 2

```
SELECT
  REPLACE('cheese bread coffee milk', ' ', ' and ');
```

cheese and bread and coffee and milk

```
| HellO W*rld                       |
+-----------------------------------+
1 row in set (0.00 sec)

mysql> SELECT
    ->   REPLACE('cheese bread coffee milk', ' ', ' and ');
+-------------------------------------------------------+
| REPLACE('cheese bread coffee milk', ' ', ' and ') |
+-------------------------------------------------------+
| cheese and bread and coffee and milk              |
+-------------------------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT REPLACE(title, 'e', '3') FROM books;█
```

System 3

```
 8
 9  SELECT
10      SUBSTRING(REPLACE(title, 'e', '3'),1,10)
11  FROM books;
                                        10:16  SQL  Spaces: 4 ⚙
```

System 4

```
mysql> SELECT REPLACE(title, 'e', '3') FROM books;
+----------------------------------------------------+
| REPLACE(title, 'e', '3')                           |
+----------------------------------------------------+
| Th3 Nam3sak3                                       |
| Nors3 Mythology                                    |
| Am3rican Gods                                      |
| Int3rpr3t3r of Maladi3s                            |
| A Hologram for th3 King: A Nov3l                   |
```

Reverse
System1


```
14
15  'woof' 'foow'
16  SELECT CONCAT('woof', REVERSE('woof'));
                              (39 Bytes)  16:1  SQL  Spaces: 4 ⚙
```

System 2

```
14
15  'woof' 'foow'
16  SELECT CONCAT(author_fname, REVERSE(author_fname)) FROM books;
                              16:63  SQL  Spaces: 4 ⚙
```

Character length
System1

System 2

```
mysql> SELECT author_lname, CHAR_LENGTH(author_lname) AS 'length' FROM books;
+---------------+--------+
| author_lname  | length |
+---------------+--------+
| Lahiri        |      6 |
| Gaiman        |      6 |
| Gaiman        |      6 |
```

System 3

```
                    15
book_data.sql       16  "Eggers is 6 characters long"
first_file.sql      17
problems.sql        18  SELECT
                    19    CONCAT(author_lname, ' is ', CHAR_LENGTH(author_lname), ' characters long')
                    20  FROM books;
```

Upper and lower case

System 1

```
SELECT UPPER('Hello World');
```

HELLO WORLD

```
SELECT LOWER('Hello World');
```

System 2

```
21
22
23 SELECT CONCAT('MY FAVORITE BOOK IS ',UPPER(title)) FROM books;
```

```
21
22
23 SELECT CONCAT('MY FAVORITE BOOK IS ',LOWER(title)) FROM books;
```

Exercises

1

Reverse and Uppercase the following sentence

"Why does my cat look at me with such hatred?"

```
1 SELECT REVERSE(UPPER('Why does my cat look at me with such hatred?'));
```

2

What Does This Print Out?

```
SELECT
  REPLACE
  (
  CONCAT('I', ' ', 'like', ' ', 'cats'),
  ' ',
  '_'
  );
```

3

Replace spaces in titles with '->'

```
+-----------------------------------------------------------+
| title                                                     |
+-----------------------------------------------------------+
| The->Namesake                                             |
| Norse->Mythology                                          |
| American->Gods                                            |
| Interpreter->of->Maladies                                 |
| A->Hologram->for->the->King:->A->Novel                    |
| The->Circle                                               |
| The->Amazing->Adventures->of->Kavalier->&->Clay           |
| Just->Kids                                                |
| A->Heartbreaking->Work->of->Staggering->Genius:           |
| Coraline                                                  |
| What->We->Talk->About->When->We->Talk->About->Love:->Stories |
| Where->I'm->Calling->From:->Selected->Stories             |
| White->Noise                                              |
| Cannery->Row                                              |
| Oblivion:->Stories                                        |
| Consider->the->Lobster                                    |
```

```
  2
  3
4 SELECT
5     REPLACE(title, ' ', '->') AS title
6 FROM books;
```

4

Print This Out

```
+----------------+----------------+
| forwards     I | backwards      |
+----------------+----------------+
| Lahiri         | irihaL         |
| Gaiman         | namiaG         |
| Gaiman         | namiaG         |
| Lahiri         | irihaL         |
| Eggers         | sreggE         |
| Eggers         | sreggE         |
| Chabon         | nobahC         |
| Smith          | htimS          |
| Eggers         | sreggE         |
| Gaiman         | namiaG         |
| Carver         | revraC         |
| Carver         | revraC         |
| DeLillo        | olliLeD        |
| Steinbeck      | kcebnietS      |
| Foster Wallace | ecallaW retsoF |
| Foster Wallace | ecallaW retsoF |
| Smith          | htimS          |
+----------------+----------------+
```

```
 6 -- FROM books;
 7
 8 SELECT
 9     author_lname AS forwards
10 FROM books;                              (47 Bytes)  8:1  SQL  Spaces: 4 ⚙
```

```
 7
 8 SELECT
 9     author_lname AS forwards,
10     REVERSE(author_lname) AS backwards
11 FROM books;
```

5

You Know What To Do!

```
+-----------------------+
| full name in caps     |
+-----------------------+
| JHUMPA LAHIRI         |
| NEIL GAIMAN           |
| NEIL GAIMAN           |
| JHUMPA LAHIRI         |
| DAVE EGGERS           |
| DAVE EGGERS           |
| MICHAEL CHABON        |
| PATTI SMITH           |
| DAVE EGGERS           |
| NEIL GAIMAN           |
| RAYMOND CARVER        |
| RAYMOND CARVER        |
| DON DELILLO           |
| JOHN STEINBECK        |
```

```
12
13  SELECT
14      CONCAT(author_fname, author_lname)
15  FROM books;
```
14:17 SQL Spaces: 4

```
12
13  SELECT
14      CONCAT(author_fname, ' ', author_lname)
15  FROM books;
```
14:44 SQL Spaces: 4

```
11  -- FROM BOOKS;
12
13  SELECT
14      UPPER(CONCAT(author_fname, ' ', author_lname))
15  FROM books;
```
14:51 SQL Spaces: 4

```
12
13  SELECT
14      UPPER
15      (
16          CONCAT(author_fname, ' ', author_lname)) AS 'full name in caps'
17  FROM books;
```

6

Make This Happen!

```
+--------------------------------------------------------------------+
| blurb                                                              |
+--------------------------------------------------------------------+
| The Namesake was released in 2003                                  |
| Norse Mythology was released in 2016                               |
| American Gods was released in 2001                                 |
| Interpreter of Maladies was released in 1996                       |
| A Hologram for the King: A Novel was released in 2012              |
| The Circle was released in 2013                                    |
| The Amazing Adventures of Kavalier & Clay was released in 2000     |
| Just Kids was released in 2010                                     |
| A Heartbreaking Work of Staggering Genius: was released in 2001    |
| Coraline was released in 2003                                      |
| What We Talk About When We Talk About Love: Stories was released in 1981 |
| Where I'm Calling From: Selected Stories was released in 1989      |
| White Noise was released in 1985                                   |
| Cannery Row was released in 1945                                   |
| Oblivion: Stories was released in 2004                             |
| Consider the Lobster was released in 2005                          |
```

```
19
20  SELECT
21      CONCAT(title, ' was released in ', released_year)
22  FROM books;
```

```
20  SELECT
21      CONCAT(title, ' was released in ', released_year) AS blurb
22  FROM books;
```

7

Print book titles and the length of each title

```
+-----------------------------------------------+-----------------+
| title                                         | character count |
+-----------------------------------------------+-----------------+
| The Namesake                                  |              12 |
| Norse Mythology                               |              15 |
| American Gods                                 |              13 |
| Interpreter of Maladies                       |              23 |
| A Hologram for the King: A Novel              |              32 |
| The Circle                                    |              10 |
| The Amazing Adventures of Kavalier & Clay     |              41 |
| Just Kids                                     |               9 |
| A Heartbreaking Work of Staggering Genius:    |              42 |
| Coraline                                      |               8 |
| What We Talk About When We Talk About Love: Stories |        51 |
| Where I'm Calling From: Selected Stories      |              40 |
| White Noise                                   |              11 |
| Cannery Row                                   |              11 |
| Oblivion: Stories                             |              17 |
| Consider the Lobster                          |              20 |
```

```
24  SELECT
25      title,
26      CHAR_LENGTH(title)
27  FROM books;
```

```
24  SELECT
25      title,
26      CHAR_LENGTH(title) AS 'character count'
27  FROM books;
```
27:12 SQL Spaces: 4

Last One, I Promise!

```
+------------------+----------------+----------------+
| short title      | author         | quantity       |
+------------------+----------------+----------------+
| American G...    | Gaiman,Neil    | 12 in stock    |
| A Heartbre...    | Eggers,Dave    | 104 in stock   |
+------------------+----------------+----------------+
```

```sql
27  -- FROM BOOKS;
28
29  SELECT
30      CONCAT(SUBSTRING(title, 1, 10), '...')
31  FROM books;
```

```sql
28
29  SELECT
30      CONCAT(SUBSTRING(title, 1, 10), '...') AS 'short title'
31  FROM books;
```

```sql
28
29  SELECT
30      CONCAT(SUBSTRING(title, 1, 10), '...') AS 'short title',
31      CONCAT(author_lname, ',', author_fname ) AS author
32  FROM books;
```

```sql
28
29  SELECT
30      CONCAT(SUBSTRING(title, 1, 10), '...') AS 'short title',
31      CONCAT(author_lname, ',', author_fname ) AS author,
32      CONCAT(stock_quantity, ' in stock') AS quantity
33  FROM books;
```

```sql
28
29  SELECT
30      CONCAT(SUBSTRING(title, 1, 10), '...') AS 'short title',
31      CONCAT(author_lname, ',', author_fname ) AS author,
32      CONCAT(stock_quantity, ' in stock') AS quantity
33  FROM books;
34
35  '32' I+ ' in stock'
```

```
c:\wamp\bin\mysql\mysql5.5.24\bin\mysql.exe

mysql>
mysql>
mysql> select
    -> concat(substring(title,1,10),'...') as 'short title',
    -> concat(author_fname, ' ', author_lname) as author,
    -> concat(stock_quantity, ' in stock') as quantity
    -> from books order by title;
+---------------+---------------------+--------------+
| short title   | author              | quantity     |
+---------------+---------------------+--------------+
| A Heartbre... | Dave Eggers         | 104 in stock |
| A Hologram... | Dave Eggers         | 154 in stock |
| American G... | Neil Gaiman         | 12 in stock  |
| Cannery Ro... | John Steinbeck      | 95 in stock  |
| Consider t... | David Foster Wallace | 92 in stock |
| Coraline...   | Neil Gaiman         | 100 in stock |
| Interprete... | Jhumpa Lahiri       | 97 in stock  |
| Just Kids...  | Patti Smith         | 55 in stock  |
| Norse Myth... | Neil Gaiman         | 43 in stock  |
| Oblivion: ... | David Foster Wallace | 172 in stock |
| The Amazin... | Michael Chabon      | 68 in stock  |
| The Circle... | Dave Eggers         | 26 in stock  |
| The Namesa... | Jhumpa Lahiri       | 32 in stock  |
| What We Ta... | Raymond Carver      | 23 in stock  |
| Where I'm ... | Raymond Carver      | 12 in stock  |
| White Nois... | Don DeLillo         | 49 in stock  |
+---------------+---------------------+--------------+
16 rows in set (0.00 sec)

mysql>
```