

SQL Week 1

Topics List

- Library System
- SELECT
- Using AS and CONCAT
- Using LIKE
- Using BETWEEN...AND
- Using IN
- Using ORDER BY

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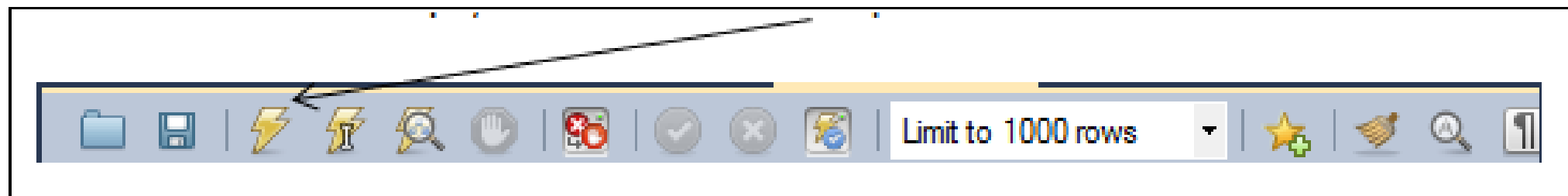
Library System

- For our labs, we will be using an existing database (library database). It has the following tables: *book*, *bookcopy*, *student*, *loan*, *author* and *authorship*.
- To run the script:
 - Under the *File* menu, choose *Run SQL Script*
 - When the dialog box opens, select *library_script.sql*.
 - Click the button *Open* and on the next dialog box, click *Run*.
 - When the Operation has run successfully, click *Close*.

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Library System

- Alternatively:
 - Choose *Open SQL Script*
 - When the dialog box opens, select *library_script.sql*.
 - Click the button *Open*. This will open the script in a new tab.
 - To execute the script, choose the third option on the window.



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SELECT

- The select statement is used to query the database and retrieve selected data that match the criteria that you specify. The data returned is stored in a result table, called the *result-set*. Here is the format of a simple select statement:

```
SELECT [DISTINCT|ALL] {*| [columnExpression [AS newName]] [, ...] }  
FROM Tablename [alias]  
[JOIN Tablename ON ...]  
[WHERE condition]  
[GROUP BY columnlist] [HAVING condition]  
[ORDER BY columnList];
```

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SELECT

- Examples:

```
SELECT *  
FROM student;
```

```
SELECT fname, lname  
FROM student;
```

```
SELECT *  
FROM student  
WHERE county = 'Waterford';
```

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Using AS and CONCAT

- To rename a column (returned value), use the AS clause.

```
SELECT fname AS 'First Name', lname AS 'Last Name'  
FROM student;
```

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Using AS and CONCAT

- To combine 2 or more strings or columns together use the CONCAT clause.

```
SELECT CONCAT(fname, ' ', lname) AS 'Name'  
FROM student;
```

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Using LIKE

- With strings if you are using equality (=), you cannot always exactly match the data, so nothing will be returned. Pattern Matching through the LIKE clause allows you to enter a string with one or more wildcard characters. The % is a wildcard character meaning 0 or more characters.

```
SELECT CONCAT(fname, ' ', lname) AS 'Name'  
FROM student  
WHERE lname LIKE 'Mc%' OR  
       lname LIKE 'Mac%';
```

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Using BETWEEN...AND

- With numeric data, if you want to return records where one data field is in a particular range, then we use the BETWEEN...AND clause.

```
SELECT title
```

```
FROM book
```

```
WHERE price BETWEEN 10 AND 30;
```

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Using IN

- The IN clause means one of the following (from a list). It is useful when there are a few alternatives for a data field value.

```
SELECT CONCAT(fname, ' ', lname) AS 'Name'
```

```
FROM student
```

```
WHERE county in('Kilkenny', 'Waterford', 'Wexford');
```


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Using ORDER BY

- The ORDER BY sorts the returned data in the order specified. The default is ASC (ascending), use DESC for descending order.

```
SELECT CONCAT(fname, ' ', lname) AS 'Name'
```

```
FROM student
```

```
WHERE county in('Kilkenny', 'Waterford', 'Wexford')
```

```
ORDER BY county, lname, fname;
```

Live lab support

- Available live on Slack between 9:15 and 11:15 next Tuesday, 18th September
- Feel free to send questions any time between now and then; I will respond when I can or during the time slot above