

SQL Week 1

Topics List

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

SQL Week 1

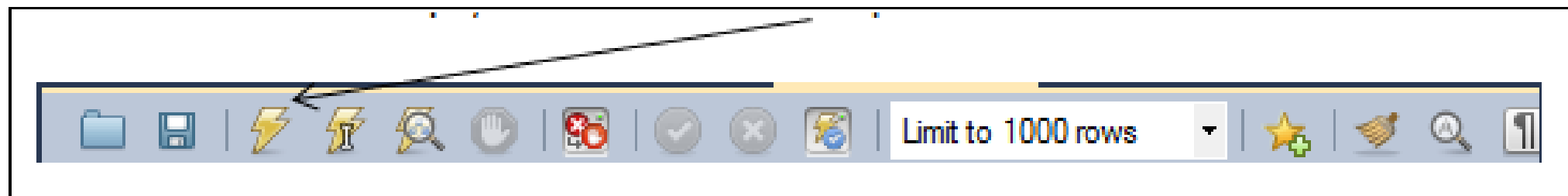
Library System

- 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*.

SQL Week 1

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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SQL Week 1

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];
```

SQL Week 1

SELECT

- Examples:

```
SELECT *  
FROM student;
```

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

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

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SQL Week 1

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;
```

SQL Week 1

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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SQL Week 1

Using WHERE

- The WHERE keyword is used when we want to filter results, and only see records that meet specific criteria. For example, we may only want to see books with the title 'JavaScript':

```
SELECT title  
FROM book  
WHERE title = 'JavaScript';
```

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SQL Week 1

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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SQL Week 1

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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SQL Week 1

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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SQL Week 1

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