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CHAPTER 4

Basic SELECT Queries





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AGENDA

- SELECT Basic Structure
- SELECT DISTINCT
- LIMIT and ORDER BY

SELECT Basic Structure



SQL Syntax

- SQL query can be easily understood as the query syntax reads fairly like human language
- Here is the simplified structure of a SQL query

SELECT columns

FROM table

WHERE condition(s)

GROUP BY column(s)

ORDER BY column(s)

LIMIT n

- SQL keywords are typed in capital letters for better readability. However in most cases SQL queries are case insensitive.



SQL SELECT FROM

- Select some columns from a table:

```
SELECT col_name1, col_name2 FROM a_table
```

- In case of getting all the column of a table, use * to represent the columns

```
SELECT * FROM a_table
```

- Example: select all the movie titles and their release year from the movies table

```
SELECT title, year FROM movies
```



SQL SELECT FROM

- Sometimes, you would want to rename a column for readability. You can rename a column in the query using AS keyword
- This is usually used when you think the original name is not good enough (e.g. too long, too abstract etc)

```
SELECT title AS movie_title FROM movies
```



SELECT DISTINCT



SQL SELECT DISTINCT

- The DISTINCT keyword can ensure the query output has unique row data
- Example: extract a unique list of first name from a name list

```
SELECT DISTINCT first_name FROM party_name_list
```

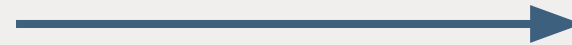


SQL SELECT DISTINCT

Table: party_name_list

first_name	last_name
Tom	Smith
Jerry	Jones
Lisa	Miller
Tom	Davis
Jerry	Johnson

```
SELECT  
  first_name  
FROM party_name_list
```



first_name
Tom
Jerry
Lisa
Tom
Jerry

```
SELECT DISTINCT  
  first_name  
FROM party_name_list
```



first_name
Tom
Jerry
Lisa



LIMIT and ORDER BY



SQL LIMIT

- When you look for some specific rows of the table instead of getting the full data, the LIMIT keyword can help to get the first few rows of the query result
- The number of rows can be set as any numbers you want

```
SELECT first_name FROM party_name_list LIMIT 3
```

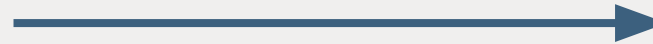


SQL LIMIT

Table: party_name_list

first_name	last_name
Tom	Smith
Jerry	Jones
Lisa	Miller
Tom	Davis
Jerry	Johnson

```
SELECT  
    first_name  
FROM party_name_list  
LIMIT 3
```



first_name
Jerry
Tom
Lisa

* Any 3 values from first_name will be returned as there is no specified sorting in the query



ORDER BY

- Sometimes, we want to have a sorted results from database. For example, we want to results to be order by alphabetical order.
- You can use the ORDER BY keyword to specify columns which need to be sorted
- The sorting can be ascending (ASC) or descending (DESC), and can be multiple columns

```
SELECT first_name  
FROM party_name_list  
ORDER BY first_name ASC
```

Order by first name, in ascending order

```
SELECT first_name, last_name  
FROM party_name_list  
ORDER BY first_name, last_name DESC
```

Order by first name, then last name, in descending order



ORDER BY EXAMPLE

Table: party_name_list

first_name	last_name
Tom	Smith
Jerry	Jones
Lisa	Miller
Tom	Davis
Jerry	Johnson

```
SELECT  
  first_name  
FROM party_name_list  
ORDER BY first_name ASC
```

first_name
Jerry
Jerry
Lisa
Tom
Tom

Ascending
order


```
SELECT  
  first_name, last_name  
FROM party_name_list  
ORDER BY first_name, last_name  
DESC
```

first_name	last_name
Tom	Smith
Tom	Davis
Lisa	Miller
Jerry	Jones
Jerry	Johnson

Descending
order


Combining LIMIT and ORDER BY

- As mentioned before, if you don't include a ORDER BY block with LIMIT, then the database will only randomly return a few records to you.
- To make the results from LIMIT meaningful, you can combine LIMIT and ORDER BY
- E.g. ORDER BY exam_score LIMIT 3 will give your the top 3 students in the class



first_name	exam_score
Tom	80
Jerry	60
Lisa	90
Tom	50
Jerry	85

ORDER BY exam_score DESC LIMIT 3



first_name	exam_score
Lisa	90
Jerry	85
Tom	80

Combining LIMIT and ORDER BY

Table party_name_list

first_name	last_name
Tom	Smith
Jerry	Jones
Lisa	Miller
Tom	Davis
Jerry	Johnson

```
SELECT first_name  
FROM party_name_list  
ORDER BY first_name ASC  
LIMIT 3
```



first_name
Jerry
Jerry
Lisa



Summary

- We've learnt a few key SQL keywords

SELECT FROM

LIMIT

SELECT DISTINCT

ORDER BY

- Tried out the SQL keywords and query the movies database!

