The Select Statement

The select statement is the third and final part of SQL, and can only be used once the database and tables have been created using Data Definition Language (DDL) and the data entered using Data Manipulation Language (DML). It is key to extracting data from the database and using the database to answer questions. It is the most commonly used command in SQL.

The select statement can be used both in command-line format and through GUI based query and reporting tools. Select operations do not modify the database content, but in some books can be found grouped together with DML statements.

Two forms of select statements will be covered here:

Basic Information Retrieval
The basic select statement takes the form:

```
SELECT <SOMETHING>
FROM <TABLENAME>
WHERE <FILTER CRITERIA>
```


Suppose the EMPLOYEES table has the following attributes:

- NI_Number
- Name
- Surname
- Department
- Grade
- Salary

To find out information about all employees, you issue a select statement against the table, such as

```
SELECT *
FROM ucfscde.EMPLOYEES
```

This statement will return a list of all employees in the database. The * indicates ALL RECORDS, as follows:

NI_Number	Name	Surname	Department	Grade	Salary
B 29296875	David	Gower	IT	Consultant	£25,000
A 32929302	James	Smith	IT	Senior Consultant	£35,000
X 29391832	James	Jones	HR	Manager	£35,550
U 38329203	Annette	Smith	IT	Consultant	£30,000

The basic select statement can also be qualified to filter out unwanted records, such as


```
SELECT *
FROM ucfscde.EMPLOYEES
WHERE SURNAME = 'Smith'
```

This will only return the details of all employees having surname Smith.

Another form of filtering can be done to return only some data about the employees selected:

```
SELECT NI_NUMBER, NAME, SURNAME, DEPARTMENT
FROM ucfscde.EMPLOYEES
WHERE SURNAME = 'Smith'
```

This will return:

NI_Number	Name	Surname	Department
A 32929302	James	Smith	IT
U 38329203	Annette	Smith	IT

Aggregates
Aggregates allow you to perform sums in the database as you would in a spreadsheet. For example:

```
SELECT SUM(SALARY)
FROM ucfscde.EMPLOYEES
WHERE DEPARTMENT = 'IT'
```

would give a total of £90,000.

This could answer the HR question 'How much am I paying the IT department in salaries this year?'.

```
SELECT COUNT(*)
FROM ucfscde.EMPLOYEES
```

returns the answer 4, as there are 4 records in the table.