# Database Retrieval

SELECT clause specifies the data items to be retrieved by the query. These items are usually specified by a list of comma-separated items. Each item generates a single column of query results in left to right order.

Each item can be one of the following:

* Column name – this must identify a column form the table in the FROM clause. SQL simply takes the value of that column from each row and places it in the corresponding row of query results.
* Constant – this means the same constant value will appear in every row of the query results
* SQL expression – indicating that SQL must calculate the value to be placed into the query results.

The FROM clause consists of the keyword FROM followed by a list of table specification separated by commas.

Example:

SELECT aircraft\_name, no\_club\_seats FROM aircraft;

Where aircraft\_name and no\_club\_seats are columns and aircraft is the table name.

The keyword DISTINCT is used to qualify the column name so that no duplicate values will be displayed.

Example:

SELECT DISTINCT customer\_number FROM booking;

Where there may be many bookings by the same customer in the table, you don’t want their number repeated unnecessarily.

The SELECT and FROM clauses are required but there are other optional ones:

* SELECT – lists the data items to be retrieved
* FROM – lists the tables that contain the data to be retrieved
* WHERE – tells SQL to include only certain rows of data in the query results. A search condition is used to specify the desired rows
* GROUP BY – specifies a summary query, which groups together similar rows and then produces one summary row of query results for each group
* HAVING – tells SQL to include only certain groups produced by the GROUP BY clause. It also uses a search condition to specify the desired groups. It was introduced as WHERE could not be used in aggregate functions
* ORDER BY – sort the query results can be ASC or DESC

Expression Operators