

SQL Course

Expression Operators

- Demonstrate the use of expression operators in SQL **SELECT** statements.
- Illustrate the use of expression operators with a few examples.

In addition to columns whose values come directly from the database, a SQL query can include calculated columns whose values are calculated from the stored data values. To request a calculated column, you specify a SQL expression operator in the select list. The ANSI/ISO standard specifies three categories of expression operators that may be used in a **SELECT** statement :

- Arithmetic Operators.
- Time/Date Operators.
- String Operators.

The ANSI/ISO standard specifies four arithmetic operations that can be used in expressions :

- Addition.
- Subtraction.
- Multiplication.
- Division.

The arithmetic operators -, * and / can be used in expressions involving constants, column values and functions of column values.

Parentheses can be used to form more complicated expressions. The ANSI/ISO standard specifies that multiplication and division have a higher precedence than addition or subtraction and as such parentheses are not strictly required. However, parentheses should be used to make your SQL statements unambiguous and also because different SQL dialects may use different rules. The standard also specifies automatic data type conversion from integers to decimal numbers and from decimal point numbers to floating point numbers, as required. Of course the columns referenced in an arithmetic expression must have a numeric type. The calculated column is calculated row by row using the data values of the current row. SQL constants can also be used by themselves in the select list. This can be useful for producing query results that are easier to read and interpret.

Date Operators

The following expressions are allowed with DATE types :

date + number adds a number of days 'number' to a date.

date - number subtracts a number of days 'number' from a date.

date - date subtracts two dates to give a number of days.

The SQL2 standard supports addition and subtraction of DATE, TIME, and TIMESTAMP data, for occasions when these operations make sense.

String Operators

Column values can be concatenated using the '||' operator as implemented by DB2.

The following displays the total number of seats on each aircraft :

```
SELECT no_club_seats + no_economy_seats FROM aircraft;
```

The following example will calculate the time elapsed between the booking of the flight and it's departure :

```
SELECT departure_date - booking_date FROM bookingv;
```

The following example retrieves the customer name and address as one column :

```
SELECT customer_name || address FROM customer;
```