

Example “Formula1”

This example demonstrates querying a database and merging data imported from a database with a text file. Source data is the winning Formula 1 teams and drivers every season starting from 1950.

The example works as follows:

- Load a list of Formula 1 drivers from a CSV file
- Use **Split column into rows** transformation to split comma-separated lists of seasons for drivers who won more than 1 season
- Import a list of Formula 1 teams from a SQLite database (comes with the example) using a parametrized query with a calculated expression (using a SQLite function)
- Merge both lists
- Calculate two aggregates

The project doesn't export data, but you can add an export transformation, if needed.

How to use the example

- Open **Formula1.morph** and run it (press F5, or click Run Project button on Main ribbon bar)
- You will be prompted to enter *Start year* – enter a value between 1950 and 2015. This parameter defines a year starting from which the historical data will be loaded
- Here is what you should see when the project finishes reloading:

The screenshot shows a data transformation tool interface with four main components:

- Drivers**: A table with columns 'Driver' and 'Season'. It lists drivers like Michael Schumacher (1994-2004) and Juan Manuel Fangio (1951-1957). A red arrow labeled "Import from CSV file" points to the top of this table.
- Teams**: A table with columns 'Season', 'Team', and 'Driver'. It lists teams from 1950 to 1960, such as ALFA ROMEO, FERRARI, MERCEDES, MASERATI, and COOPER. A red arrow labeled "Import from database" points to the top of this table.
- Wins by Team**: A table with columns 'Team' and 'Season'. It lists teams and their number of wins, such as FERRARI (15), MCLAREN (12), and WILLIAMS (7). A red arrow labeled "Merge" points from the Teams table to this table.
- Wins by Driver**: A table with columns 'Driver' and 'Season'. It lists drivers and their number of wins, such as Michael Schumacher (7), Juan Manuel Fangio (5), and Alain Prost (4). A red arrow labeled "Merge" points from the Drivers table to this table.

Query Editor

If you click **Import from database** transformation (first in table Teams), you will see its properties and the Query Editor.

The screenshot shows the Query Editor interface with several red annotations:

- Show / hide Query Editor:** Points to the "On" button in the "Query editor" section.
- Database fields:** Points to the "Team" field in the "teams" table.
- SQL expression:** Points to the "Team_uppercase" expression in the "Expressions" section.
- Parametrized WHERE clause:** Points to the SQL query: `"Season" >= {Start year}`.

The interface includes a left sidebar with "Import from database" and "Query editor" (On/Off), a "Connector" section with "Formula1" and "Manage" buttons, and a "Query type" section with "Query builder" and "Custom SQL" options. The main area shows a tree view of "Project parameters", "Expressions", and "teams". The "WHERE (free-form SQL)" section contains the query `"Season" >= {Start year}`. Below this is a "Preview query results" section with a table of data:

Season	Team_uppercase
1950	ALFA ROMEO
1951	ALFA ROMEO
1952	FERRARI
1953	FERRARI
1954	MERCEDES
1955	MERCEDES

A few notes:

- To leave the Query Editor click *Query editor: Off*, or *Back to List* button, or hit ESC.
- Database connector properties can be viewed and edited in Connector Manager. Click *Manage* to open it.
- Fields names, expressions and parameters are draggable.
- WHERE clause has free-form SQL syntax which supports EasyMorph parameters in curly braces.
- SQL expressions can be used in a case when there is no similar function in EasyMorph. To create or edit SQL expressions press *Add expression* or *Edit* respectively.