.mode column Left-aligned columns

.mode csv Comma-separated values

.headers on Turn display of headers on

.output ?FILENAME? Send output to FILENAME

.output stdout Send output to stdout

1. The following query contains the date, temperature quantity measurement, and the converted temperature readings from Fahrenheit to Celsius rounded to two decimal places.

The table gives us the temperature in Celsius on corresponding dates, and the temperature of unknown date is removed.

In this query,

* Three columns are selected
* The temperature reading in Celsius is calculated as 5\*(reading-32)/9, and then rounded to two decimal places round(5\*(reading-32)/9,2). The column reading is renamed as Celsius.
* JOIN creates the cross product of table Survey and Visited, and then use ON to filter out combinations of records with Survey.taken = Visited.id
* AND quant = 'temp' filter quant column with only temperature readings
* Remove missing data Visited.dated IS NOT NULL, since there is only missing data in dated column.

sqlite> .mode csv

sqlite> .output Temperature.csv

sqlite> .mode column

sqlite> .headers on

sqlite> SELECT Visited.dated, quant, round(5\*(reading-32)/9,2) as Celsius

...> FROM Survey JOIN Visited

...> ON Survey.taken = Visited.id

...> AND quant = 'temp'

...> AND Visited.dated IS NOT NULL;

sqlite> .output stdout

dated quant Celsius

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1930-01-07 temp -29.72

1930-01-12 temp -32.22

1930-02-26 temp -28.06

1. The following query contains the identifier, Full name (by concatenating personal and family), and the latitude and longitude.

The table gives us the coordinates and full names of each person.

In this query,

* Four columns are selected
* Use the concatenation operator || to combine personal and family and rename the concatenating column as Fullname.
* JOIN creates the cross product of all the four tables, and then use ON to filter out combinations of records with Person.id = Survey.person AND Survey.taken = Visited.id AND Visited.site = Site.name.
* Then we will actually has a lot of duplicate rows, all the records in each batch have the same value for Person.id and Fullname, so use GROUP BY to group all the records with the same value for the specified field together so that aggregation can process each batch separately.

sqlite> .mode csv

sqlite> .output Fullname.csv

sqlite> .mode column

sqlite> .headers on

sqlite> SELECT Person.id, personal || ' ' || family as Fullname, Site.lat, Site.long

...> FROM Person JOIN Site JOIN Survey JOIN Visited

...> ON Person.id = Survey.person

...> AND Survey.taken = Visited.id

...> AND Visited.site = Site.name

...> GROUP BY Person.id, Fullname;

sqlite> .output stdout

id Fullname lat long

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dyer William Dyer -49.85 -128.57

lake Anderson Lak -48.87 -123.4

pb Frank Pabodi -47.15 -126.72

roe Valentina Ro -49.85 -128.57

1. The following query contains the site, kind of quantity measurement, the minimum reading and maximum reading.

The table gives us the minimum reading and maximum reading of each kind of quantity measurement taken at each site.

In this query,

* The reading values in Survey table are modified by calculating minimum reading and maximum reading.
* Four columns are selected.
* Rename: min(reading) as MinReading, max(reading) as MaxReading
* JOIN creates the cross product of table Survey and Visited, and then use ON to filter out combinations of records with Survey.taken = Visited.id
* All the records in each batch have the same value for site and quant, so use GROUP BY to group all the records with the same value for the specified field together.

sqlite> .mode csv

sqlite> .output SiteReadings.csv

sqlite> .mode column

sqlite> .headers on

sqlite> SELECT Visited.site, quant, min(reading) as MinReading, max(reading) as MaxReading

...> FROM Visited JOIN Survey

...> ON Visited.id = Survey.taken

...> GROUP BY Visited.site, quant;

sqlite> .output stdout

site quant MinReading MaxReading

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DR-1 rad 7.8 11.25

DR-1 sal 0.09 0.13

DR-3 rad 2.19 8.41

DR-3 sal 0.05 41.6

DR-3 temp -26.0 -16.0

MSK-4 rad 1.46 1.46

MSK-4 sal 0.21 22.5