Aggregate Functions

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Experimental-Objective

1. To learn how to use some aggregate function along with `distinct, group by` and `having`.

Part 1.Queries with aggregate functions

> As the name says, aggregate function will aggregate all rows that share a feature (such as being films from the same country) and return a characteristic of each group of aggregated rows. It will be clearer with an example.

(1) count(*)

aggregate functions ignore Nulls.

Example:

```
select count(*) - count(s.latitude) as null_latitude_column
from stations s;
```

All aggregate functions ignore NULLs, so result of count(*) may be different from count([column]).

round() and trunc()

Function round will save a few decimal places. Also you can use trunc().

- round(3.141592, 3) result is 3.142
- trunc(3.141592, 3) result is 3.141

(2) max(), min(), avg()

Those are aggregate functions that would be return only one row as the specific executed result of the whole table.

Example:

```
select max(latitude) from stations s;
```

(3) group by

Usually executed with aggregate functions, and for each value of the group by column, those aggregate functions would return the corresponding result.

Example:

```
select s.district, max(latitude) from stations s group by s.district;
```

(4) having

`Having` is like a filter condition acted on the result set of `group by` .

Grammer:

```
select ...
    from ...
where ...
group by ...
having ...
```

Example:

```
select count(*), s.district
from stations s
where s.latitude is not null
group by s.district
having count(*) > 30
```

count	district
50	Futian
38	Nanshan

(5) distinct

Dumplicated values can not be existed in distincted columns.

Example:

```
select distinct district from stations;
```