

variance

Description

Returns the variance of a numerical expression within a group.

- Variance measures how far values spread out from the mean.
- Best applied when a complete dataset is available (for sampled data, use `sample_variance`).

Syntax

```
variance(expression: number): number
```

Arguments

Name	Type	Required	Description
expression	number	true	Numerical expression whose variance is computed

Example

Use case: Compute variance of trace durations

Suppose you want to calculate how much the duration of each operation varies across traces.

Example data

```
{ "operationName": "brokenPrinter", "duration": 20000 },
{ "operationName": "checkout", "duration": 250000 },
{ "operationName": "MalfunctioningDatabase", "duration": 900000 },
{ "operationName": "hipstershop.EmailService", "duration": 10000 },
{ "operationName": "checkout", "duration": 800000 },
{ "operationName": "MalfunctioningDatabase", "duration": 300000 },
{ "operationName": "brokenPrinter", "duration": 700000 },
{ "operationName": "hipstershop.EmailService", "duration": 10100 },
```

```
{ "operationName": "checkout", "duration": 1200000 },
{ "operationName": "MalfunctioningDatabase", "duration": 100000 },
{ "operationName": "brokenPrinter", "duration": 1000000 },
{ "operationName": "hipstershop.EmailService", "duration": 9950 },
{ "operationName": "MalfunctioningDatabase", "duration": 600000 },
{ "operationName": "checkout", "duration": 400000 },
{ "operationName": "brokenPrinter", "duration": 400000 },
{ "operationName": "hipstershop.EmailService", "duration": 10050 },
{ "operationName": "MalfunctioningDatabase", "duration": 500000 },
{ "operationName": "brokenPrinter", "duration": 800000 },
{ "operationName": "checkout", "duration": 600000 },
{ "operationName": "hipstershop.EmailService", "duration": 10200 }
```

Example query

```
groupby $l.operationName aggregate variance($m.duration) as
duration_variance
```

Example output

operationName	duration_variance
checkout	58572892530.596344
MalfunctioningDatabase	67834543984.789665
brokenPrinter	110859632383.16512
hipstershop.EmailService	378315.86960154894

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