

# Aggregating and Enriching Data with Kafka Streams

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# Overview

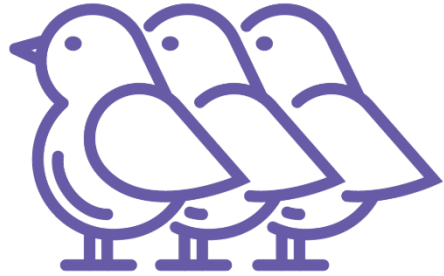


**Grouping and aggregating**

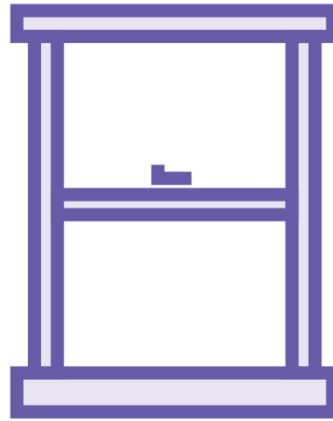
**Joining and enriching**



# Combining Events



Grouping



Windowing



Aggregating

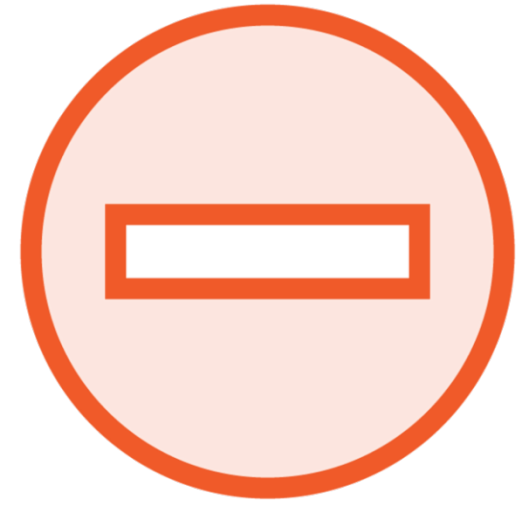
# Custom Aggregations



Initializer

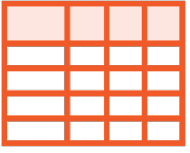


Adder

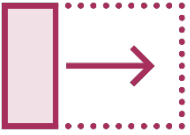


Subtractor

# Efficiency Considerations



Consider using tables



Limit window width



Remember your partitions

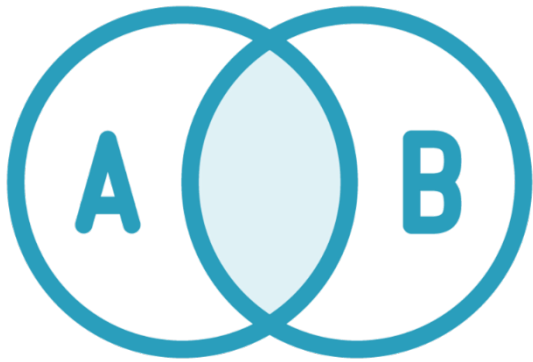


# Enriching and Joining Data

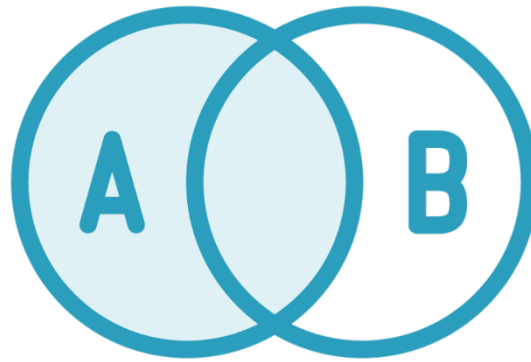
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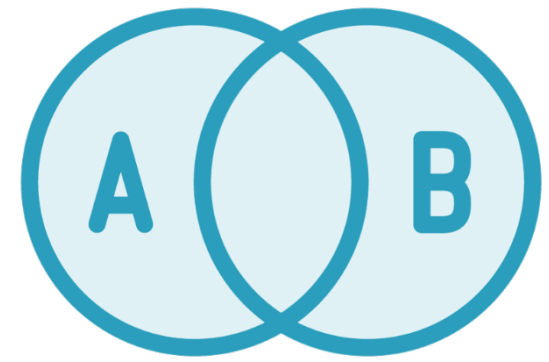
# Types of Joins



Inner

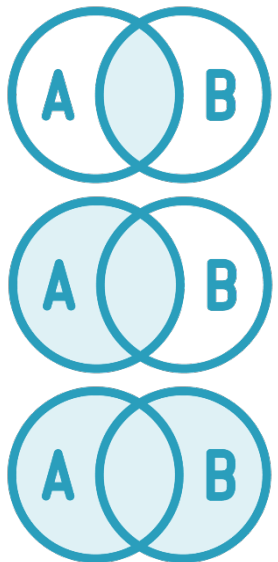
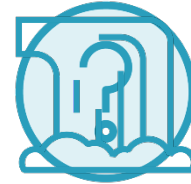
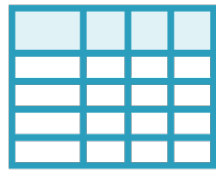


Left



Outer

# Supported Joins





# Join Considerations



Nulls don't join



Streams trigger joins



Object types



Co-partitioning



Windowing



# Demo



**Branch a stream**

**Create an aggregated table**

**Join a stream to a table**



# Demo



Create a stream

Apply a window

Handle late events

Aggregate over that window



# Summary



Streaming theory

Setting of ksqlDB

Writing and deploying queries

Advanced streaming theory

Writing Kafka Streams applications

Expanding with aggregations and joins

