Tumbling Windows

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1. Time window
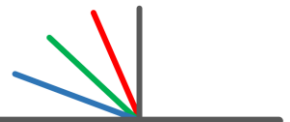2. Session window

Problem Statement

Compute the number of invoices in a five-minute window by each store (use event time semantics).
Simulate the scenario as following.

1. Create a Kafka topic named as simple-invoice.
2. Send the following Invoices to the Kafka topic.

```
STR1534:{"InvoiceNumber": 101,"CreatedTime": "2019-02-05T10:00:10.00Z","StoreID": "STR1534","TotalAmount": 1920}
STR1535:{"InvoiceNumber": 102,"CreatedTime": "2019-02-05T10:00:40.00Z","StoreID": "STR1534","TotalAmount": 1860}
STR1534:{"InvoiceNumber": 103,"CreatedTime": "2019-02-05T10:01:11.00Z","StoreID": "STR1534","TotalAmount": 2400}
STR1535:{"InvoiceNumber": 104,"CreatedTime": "2019-02-05T10:02:11.00Z","StoreID": "STR1534","TotalAmount": 8936}
STR1535:{"InvoiceNumber": 105,"CreatedTime": "2019-02-05T10:03:15.00Z","StoreID": "STR1534","TotalAmount": 6375}
STR1534:{"InvoiceNumber": 106,"CreatedTime": "2019-02-05T10:04:12.00Z","StoreID": "STR1534","TotalAmount": 9365}
STR1534:{"InvoiceNumber": 107,"CreatedTime": "2019-02-05T10:07:11.00Z","StoreID": "STR1534","TotalAmount": 5276}
```

Expected Outcome:

```
-------------------------------------------------------------------------------------
StoreID     Window ID      Window start          Window end            Count
-------------------------------------------------------------------------------------
STR1534     2050479689     2019-02-05T10:00Z     2019-02-05T10:05Z     3
STR1534     2051079849     2019-02-05T10:05Z     2019-02-05T10:10Z     1
STR1535     2050479689     2019-02-05T10:00Z     2019-02-05T10:05Z     3
-------------------------------------------------------------------------------------
```
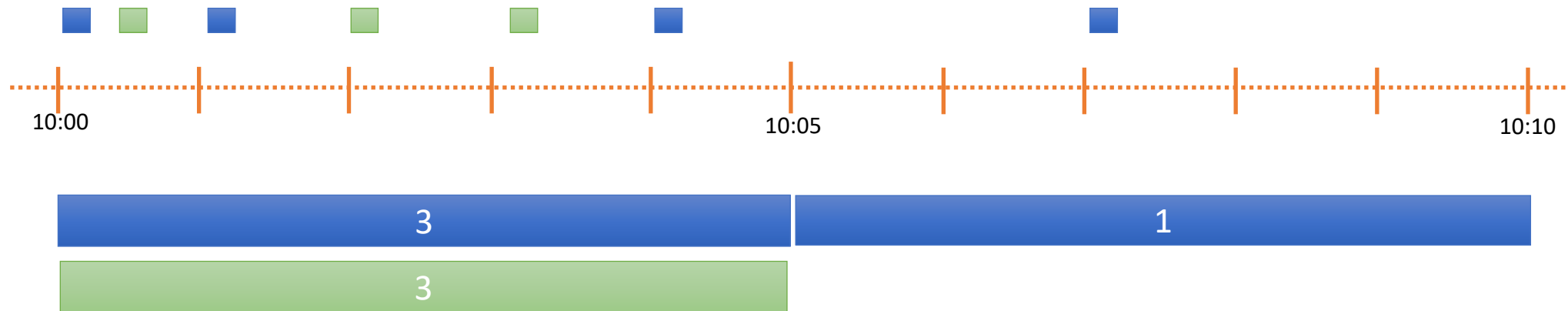
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```
--------------------------------------------------------------------------------------------------
Store ID      Window ID         Window start              Window end             Count
--------------------------------------------------------------------------------------------------
STR1534      2050479689       2019-02-05 10:00         2019-02-05 10:05          3
STR1534      2051079849       2019-02-05 10:05         2019-02-05 10:10          1
STR1534      2050479256       2019-02-05 10:10         2019-02-05 10:15          -
STR1534      2050479278       2019-02-05 10:15         2019-02-05 10:20          -
--------------------------------------------------------------------------------------------------
```
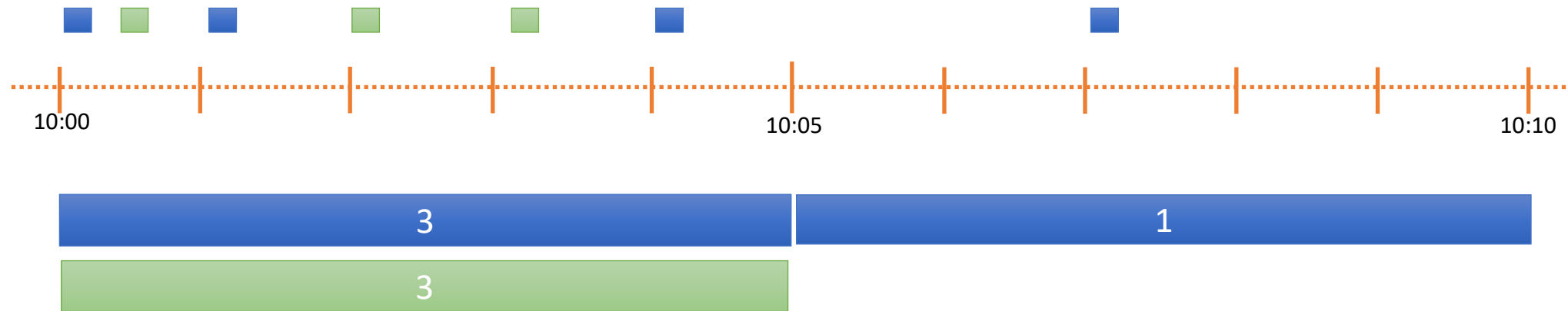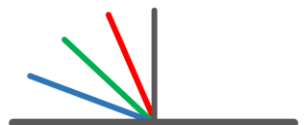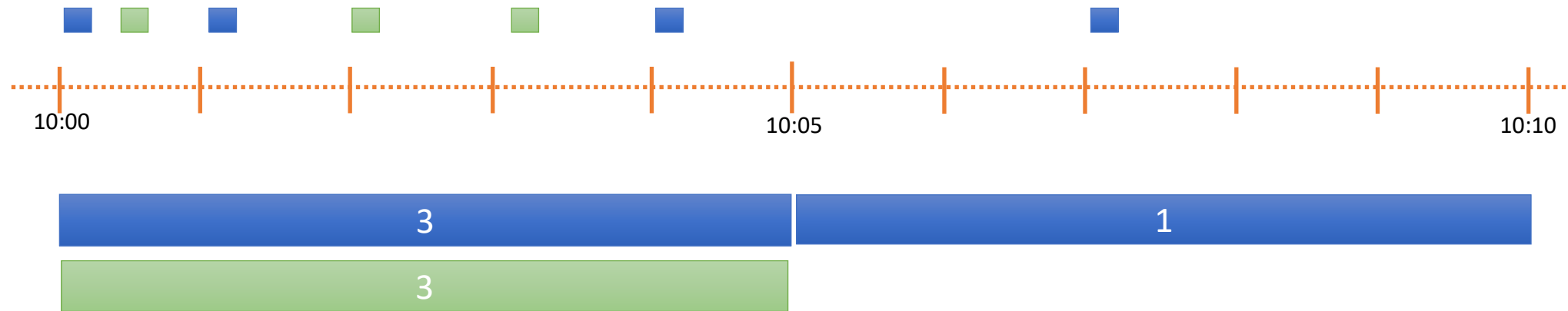
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```
KTable<Windowed<String>, Long> KT0 = KS0.groupByKey(Grouped.with(AppSerdes.String(), AppSerdes.SimpleInvoice()))
    .windowedBy(TimeWindows.of(Duration.ofMinutes(5)))
    .count();
```

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First Message Timestamp	Epoch Representation	Window Size	Rounded Epoch	Window Start Timestamp
Feb 5, 2019 10:01:00 AM	1549360860000	5 Minutes	1549360800000	Feb 5, 2019 10:00:00 AM
Feb 5, 2019 10:00:10 AM	1549360810000	5 Minutes	1549360800000	Feb 5, 2019 10:00:00 AM
Feb 5, 2019 10:02:05.300 AM	1549360925300	30 Seconds	1549360920000	Feb 5, 2019 10:02:00 AM
Feb 5, 2019 10:01:50 AM	1549360910000	30 Seconds	1549360890000	Feb 5, 2019 10:01:30 AM