

Kafka Fundamentals Brain Teasers: M4: How Kafka Works

Overview

Key concepts from Module 4 are:

- A simple producer code example in the Java API
- A simple consumer code example in the Java API
- Replication, leaders, and followers
- Deletion retention policy
- Producer design
- Acknowledgments
- Idempotence
- Partitioning strategies
- Consumer groups and rebalancing
- Security

Here's the [quick quiz on Module 4](https://forms.gle/JyY2w9FN6iCTsp5y7) (<https://forms.gle/JyY2w9FN6iCTsp5y7>) from the Online Talk Series.

Problem #4A: Relating Consumers in Groups

Suppose you have a topic with 3 partitions, p_0 , p_1 , and p_2 . Further, suppose we have consumer group g_0 with consumers c_0 and c_1 . No matter what further configuration you have, what is the same about c_0 and c_1 ? What is different?

Problem #4B: Fixing a Broken Consumer/Partition Assignment

Suppose you have a topic with 3 partitions, p_0 , p_1 , and p_2 . Further, suppose you have consumer group g_0 with consumers c_0 and c_1 . Suppose at one point in time, we have only the following assignments: c_1 is consuming from p_0 and c_1 is consuming from p_2 . What is the downside about this situation? Propose a fix.

Problem #4C: Understanding Consumer Offsets

Suppose you have a topic with 3 partitions, p_0 , p_1 , and p_2 . Further, suppose you have consumer group g_0 with consumers c_0 and c_1 . It's the same situation as before. Suppose c_1 just read the message at offset 12 in p_0 . What is its consumer offset for this partition? With your fix in mind, are there any other consumer offsets stored?

Problem #4D: When Can Two Consumers Consume the Same Partition?

Suppose you have a topic with 3 partitions, p_0 , p_1 , and p_2 . Further, suppose you have consumer group g_0 with consumers c_0 and c_1 . You know that c_1 is consuming from p_0 . Can c_0 consume from p_0 ? If so, why? If not, how can you change the setup to allow another consumer to consume from p_0 ?