# buffer.memory

1. This producer configuration parameter dictates **the total amount of memory (in bytes)** that can be used by producer **to buffer** records.
2. The default value is 33554432 bytes (approximately 32 MB).

# batch.size

1. This parameter defines the maximum size (in bytes) of a single batch of records that the producer will attempt to send together.
2. Batching helps improve throughput by reducing the overhead of individual record sends.
3. The default value is 16384 bytes (16 KB).

# When batches are sent.

1. When buffer.memory is nearing its capacity.
   1. **Full or close to full:** Batches that are already at or near their batch.size limit are given higher priority for sending. This is because they are ready to be transmitted and sending them will free up a significant amount of memory in the buffer.
   2. **Oldest:** If there are no batches close to full, the producer will start sending the oldest batches in the buffer, regardless of their size. This helps prevent messages from being delayed for too long and ensures fairness in message delivery.
   3. **NOTE:** The specific implementation of batch selection might **vary slightly between different Kafka client libraries or versions**.