

Group 2

1. What is EDA? What are its advantages and disadvantages?

- EDA (Event driven architecture) is a software architecture used by many big software companies whose main goal when developing software applications is to produce, consume, react, and detect events.
- **Advantages:** Improved experience in real time, producers and consumers within the API is loosely coupled, and event immutability and ordering of messages make concurrency handling more consistent.
- **Disadvantages:** The API provider is more complex, Developer experience as well as governance and standardization becomes limited, and the analytics of API's become more ambiguous.

2. In Kafka, what's meant by cluster, broker, topic, replica, partition, zookeeper, controller, leader, consumer, producer, and consumer group?

- **Cluster:** A cluster in kafka essentially consists of at least one server.
- **Broker:** A broker in kafka is basically synonymous with a kafka server and resides within a cluster.
- **Topic:** A topic is a virtual culmination of many partitions and treated as a group.
- **Replica:** When many data copies are distributed around many brokers/servers they are called replicas.
- **Partition:** In kafka there are collections of data called "logs" and partitioning is essentially breaking those logs into multiple parts called partitions.
- **Zookeeper:** Nodes, in kafka clusters, require constant tracking of their status so that a list of the many different messages or topics are maintained.
- **Controller:** In a kafka cluster one broker is chosen to be the controller where replicas and partitions are managed by this controller as well as the re-assigning of such partitions.
- **Leader:** The reading and writing of partitions are handled by the leader.
- **Consumer:** Consumers can be subscribed to a topic and put into consumer groups where the messages it receives are from alternate subsets of partitions within it's topic.
- **Producer:** The producer communicates with a leader by sending requests to partition messages to topic partitions to be received by consumers.
- **Consumer Group:** Consumer groups are basically a culmination of multiple consumers subscribed to a particular topic containing partitions.

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