# Training Topic: Kafka Testing

**Number Of Hrs : 24 Pax Level – 1+ years**

**Pre-requisite**

* GitHub
* Good to have introduction ton containerization with Docker
* Programming with Java
* Good to have Spring boot
* Good to have conceptual knowledge ESB

## Day 1

* Introduction to Big Data
* Big Data Analytics
* Need for Kafka
* What is Kafka?
* Kafka Features
* Kafka Concepts
* Kafka Architecture
* Kafka Components
* ZooKeeper
* Where is Kafka Used?
* Kafka Installation
* Kafka Cluster
* Types of Kafka Clusters
* Configuring Single Node Single Broker Cluster
* Configuring Single Node Multi Broker Cluster
* Constructing a Kafka Producer
* Sending a Message to Kafka
* Producing Keyed and Non-Keyed Messages
* Sending a Message Synchronously & Asynchronously

## Day 2

* Configuring Producers
* Serializers
* Serializing Using Apache Avro
* Partitions
* Consumers and Consumer Groups
* Standalone Consumer
* Consumer Groups and Partition Rebalance
* Creating a Kafka Consumer
* Subscribing to Topics
* The Poll Loop
* Configuring Consumers
* Commits and Offsets
* Rebalance Listeners
* Consuming Records with Specific Offsets
* Deserializers
* Cluster Membership
* The Controller
* Replication
* Request Processing
* Physical Storage
* Reliability
* Broker Configuration
* Using Producers in a Reliable System
* Using Consumers in a Reliable System
* Validating System Reliability
* Multi-Cluster Architectures
* Topic Operations
* Consumer Groups
* Dynamic Configuration Changes
* Partition Management
* Consuming and Producing
* Unsafe Operations

## Day 3

* Considerations When Building Data Pipelines
* Client Monitoring
* Lag Monitoring
* End-to-End Monitoring
* Kafka Connect
* When to Use Kafka Connect?
* Kafka Connect Properties
* Setup a SpringBoot application, with API end point
* SpringBoot application to be integrated with kafka
  + Producer
  + Consumer
* Understanding and working on real time project
* Introduction to other formats of data passed in Kafka