

**Introduction To NoSQL Databases**

**Course Number:** NSQL-100
**Duration:** 1 day

**Overview**

This live, online Introduction to NoSQL Databases training course teaches attendees how to leverage distributed architecture and features of various non-relational databases. Participants will understand the difference between relational and non-relational databases along with usage patterns and explore document stores, graph databases, column-oriented Databases, and key-value pairs.

**Prerequisites**

Students must have basic programming knowledge, preferably Python, Java, or Scala, and a basic understanding of Databases.

**Materials**

All NoSQL training students will receive comprehensive courseware.

**Software Needed on Each Student PC**

* Computer with Internet connectivity
* Ability to install software on the computer
* Recent 64-bit OS, such as Windows 10, macOS, or Linux

**Objectives**

All students will learn how to:

* Understand the history and evolution of data storage systems
* Understand distributed architecture benefits
* Identify which techniques should be applied for a specific use case
* Leverage Hadoop and HDFS
* Compare SQL and NoSQL databases
* Understand NoSQL databases types
* Understand Cloud-Based Data Storage options
* Identify usage patterns for various NoSQL databases types

**Outline**

* Introduction
* Need of Elasticity
	+ Horizontal versus Vertical scalability
	+ Parallel Execution
	+ Fault tolerance
	+ Economic impact
* Cluster and Cloud Option
	+ Cluster
	+ Cloud options
	+ AWS, GCP, and Microsoft Azure
* Non-relational databases
* Evolution of Data Storage
	+ History of data stores
	+ OLTP versus OLAP
	+ Data warehousing concepts
	+ Data growth and usage patterns
	+ 5Vs of Big Data
	+ Hadoop and HDFS
* Relational versus non-relational databases
	+ CAP Theorem
	+ Comparison of Relational and Non-relational databases
	+ NoSQL Databases
	+ NoSQL Databases types
	+ Document Stores
	+ Graph Database
	+ Column-Oriented Database
	+ Key-value
	+ Search
* Document Stores
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ MongoDB
* Graph Database
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ Neo4J
* Key-value Data Store
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ Redis, Dynamo
* Column-Oriented Database
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ HBase
* Search
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ Solr, ELK Stack
* Cloud Data Store
	+ Overview
	+ Pros and Cons
	+ Usage patterns
	+ S3, AWS Dynamo, Google Cloud SQL, Azure Cosmos Db, Snowflake
	+ References and Next steps
* Conclusion