Through conceptual presentation, demonstration and extensive hands-on labs and exercises, this 4-day instructor-led course guides developers, architects and DBA's on storing and accessing data rapidly and at web scale, in diverse document-database use cases based on JSON, using Couchbase Server, N1QL, and related technologies. All labs rely on queries in N1QL for Query, N1QL for Analytics or FTS Queries without dependency on any particular application programming language. The course is aimed at developers, architects, analysts, SQL and Oracle Developers, DBAs, data warehouse and business intelligence admins and analysts, and DevOps professionals.

The hands-on labs (usually 60% of class time) get you real-world “flight-time” modeling NoSQL data using best practices for JSON and key/value, creating and exploiting secondary indexes, performing complex aggregations using N1QL, and becoming capable with N1QL as a basis for developing powerful, scalable, and reliable applications using NoSQL data, in any programming language.

Objectives
Upon completing this course, students will be able to perform the following:

• Describe the key components of Couchbase Server
• How to design data models for optimal storage and retrieval in Couchbase
• How to query for data using SQL-like syntax
• Create effective indexes to meet your requirements with the possible performance enhancements
• Monitor to assess how queries are performing and identify the slow running queries and tune them
• Perform full-text-search, Google-like search capability on JSON documents
• Use Couchbase Analytics to efficiently run complex queries over many records
Introduction to NoSQL
- Discuss the modern application challenges
- Describe Big Data
- Describe the common strategies for handling Big Data
- Explain CAP Theorem
- Differentiate Hadoop and NoSQL
- Explain different types of NoSQL
- Describe Polyglot Programming

Introduction to Couchbase
- Describe the history of Couchbase server
- Describe Couchbase Data Platform
- Explain how data is stored in Couchbase server
- Describe Couchbase server architecture [Single Data Node]
- Describe the anatomy of a Couchbase application
- Explain Multi Dimensional Scaling
- Describe Tools to Integrate with Couchbase
- Explain Couchbase SDKs

N1QL Essentials
- Select documents and limiting results
- Explain Aliasing, concatenating, and selecting by keys
- Create indexes and filter queries
- Describe Querying ranges, ordering results, and explaining queries
- Describe Aggregating, distinct values, and filtering with wildcards
- Select for missing attributes, and group results
- Index and select based on values in JSON arrays
- Use functions in queries
- Join documents

Indexes in N1QL
- Describe the various Index Options
- Explain Index Partitioning
- Explain Alter Indexes
- Explain index service capacity management
- Explain Memory Optimized Indexes

Query Planning and Tuning
- Describe query planning
- Explain the data source access methods
- Explain index selection in N1QL
- Explain pushdowns
- Explain the best practices in index tuning
- Explain query tuning in N1QL
- Describe the query tuning checklist

Eventing
- Describe an event
- Explain the traditional ways of listening to events
- Explain Couchbase Eventing
- Describe Functions
- Explain the Functions Terminology
- Demonstrate Deploying and Un-deploying Functions

Introduction to Data Modeling
- Describe Data Modeling
- Explain Data Modeling for Distributed Systems
- Explain Formal Data Modeling
- Learn the Data Models Used In The Course

Data Modeling for Couchbase
- Describe JSON Document Design
- Explain Data Nesting
- Explain Key Design
- Explain the various Trade-offs in Data Modeling

Role Based Access Control, N1QL Tools and Other Tricks
- Explain Role Based Access Control in N1QL
- Explain pretty setting in CBQ
- Explain updating of nested arrays
- Explain cURL in N1QL

Introduction to Full Text Search
- Explain when use Search
- Explain Search Basic Concepts
- Introduce Couchbase Search
- Demonstrate a simple Couchbase Search

Performing Full Text Search
- Explain Search Queries
- Execute Search Queries Using Couchbase Web Console
- Demonstrate the usage of Query String Queries
- Run Queries via REST
- Demonstrate Simple Query
- Demonstrate Compound Queries
- Execute Search Queries Using N1QL

Creating Full Text Indexes
- Create Basic Full Text Indexes
- Configuring Mappings
- Store Field Data and Indexing Nested Fields
- Create an Index Alias and Clone an Index
- Explain Flex Indexes

Analyzers and Filters
- Explain Tokenization and Analyzers
- Define a custom analyzer

Built-in Functions and Window Functions
- Expressions in N1QL for Analytics
- Built-in Functions
- Window Functions

Introduction to Couchbase Analytics
- Organizing Data in Analytics
- N1QL for Analytics vs. N1QL for Query
- Executing Analytical Queries
- Monitoring Analytical Queries
- Query and Configuration Parameters
- Understand Query Responses
- Analytics Shell
- Analytics REST API
- Remote Links
- External Datasets

About Couchbase
Unlike other NoSQL databases, Couchbase provides an enterprise-class, multicloud to edge database that offers the robust capabilities required for business-critical applications on a highly scalable and available platform. As a distributed cloud-native database, Couchbase runs in modern dynamic environments and on any cloud, either customer-managed or fully managed as-a-service. Couchbase is built on open standards, combining the best of NoSQL with the power and familiarity of SQL, to simplify the transition from mainframe and relational databases.

Couchbase has become pervasive in our everyday lives; our customers include industry leaders Amadeus, American Express, Carrefour, Cisco, Comcast/Sky, Disney, eBay, LinkedIn, Marriott, Tesco, Tommy Hilfiger, United, Verizon, as well as hundreds of other household names. For more information, visit www.couchbase.com.

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