



DP – 420

Designing and Implementing Cloud- Native Applications Using Microsoft Azure Cosmos DB

Overview

As a candidate for this certification, you should have subject matter expertise designing, implementing, and monitoring cloud-native applications that store and manage data.

Your responsibilities for this role include:

- Designing and implementing data models and data distribution.
- Loading data into an Azure Cosmos DB database.
- Optimizing and maintaining the solution.

As a professional in this role, you integrate the solution with other Azure services. You also design, implement, and monitor solutions that consider security, availability, resilience, and performance requirements.

As a candidate for this certification, you must have solid knowledge and experience with:

- Developing apps for Azure.
- Working with Azure Cosmos DB database technologies.
- Creating server-side objects with JavaScript.

You should be proficient at developing applications that use the Azure Cosmos DB for NoSQL API. You should be able to:

- Write efficient SQL queries for the API.
- Create appropriate indexing policies.
- Interpret JSON.
- Read C# or Java code.
- Use PowerShell.

Additionally, you should be familiar with provisioning and managing resources in Azure.

Prerequisites

Required

- Experience writing in an Azure-supported language at the intermediate level. (C#, JavaScript, Python, or Java)
- [AZ-900T00: Microsoft Azure Fundamentals](#)
- Knowledge of Microsoft Azure and ability to navigate the Azure portal
- Ability to write code to connect and perform operations on a SQL or NoSQL database product. (SQL Server, Oracle, MongoDB, Cassandra or similar)

Audience Profile

Software engineers tasked with authoring cloud-native solutions that leverage Azure Cosmos DB for NoSQL and its various SDKs. They are familiar with C#, Python, Java, or JavaScript. They also have experience writing code that interacts with a SQL or NoSQL database platform.

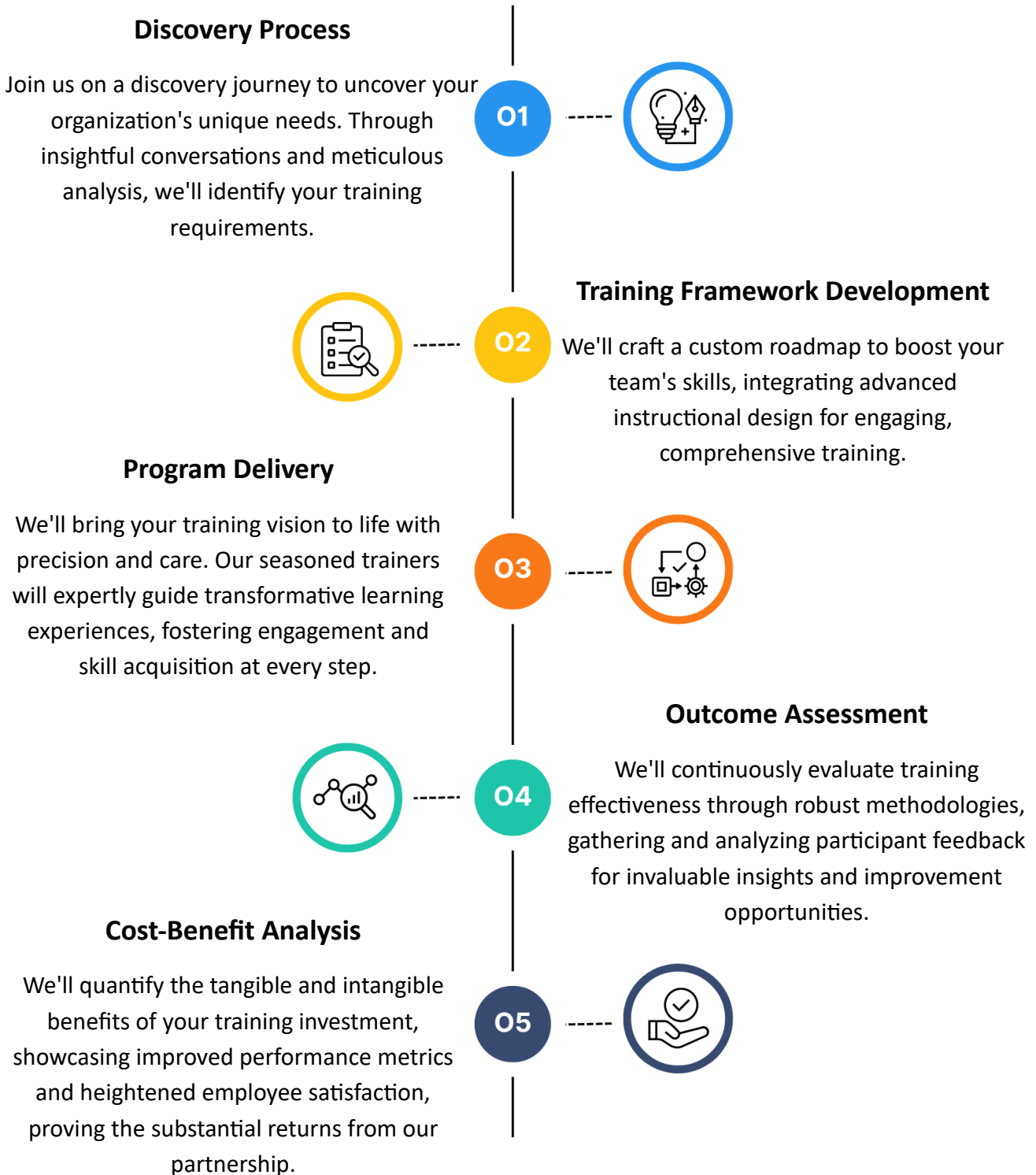
Course Level

- Intermediate

Course Duration

- 4 Day – 32 Hours

Creating Tailor - Made Training Programs to Meet Your **Specific Goals**



Course Outline

This course teaches developers how to create application using the NoSQL API and SDK for Azure Cosmos DB. Students will learn how to write efficient queries, create indexing policies, manage and provisioned resources, and perform common operations with the SDK.

Module 1: Get started with Azure Cosmos DB for NoSQL

- Lesson: Introduction to Azure Cosmos DB for NoSQL
- Lesson: Try Azure Cosmos DB for NoSQL
- **Lab** – Create an Azure Cosmos DB for NoSQL account

Module 2: Plan and implement Azure Cosmos DB for NoSQL

- Lesson: Plan resource requirements
- Lesson: Configure Azure Cosmos DB for NoSQL throughput
- Lesson: Moving data into and out of Azure Cosmos DB for NoSQL
- **Lab** – Configure throughput for Azure Cosmos DB for NoSQL with the Azure portal
- **Lab** – Migrate existing data using Azure Data Factory

Module 3: Connect to Azure Cosmos DB for NoSQL with the SDK

- Lesson: Import and use the Azure Cosmos DB for NoSQL SDK
- Lesson: Configure the Azure Cosmos DB for NoSQL SDK
- **Lab** – Connect to Azure Cosmos DB for NoSQL with the SDK
- **Lab** – Configure the Azure Cosmos DB for NoSQL SDK for offline development

Module 4: Access and manage data with the Azure Cosmos DB for NoSQL SDKs

- Lesson: Implement Azure Cosmos DB for NoSQL point operations
- Lesson: Perform cross-document transactional operations with the Azure Cosmos DB for NoSQL
- Lesson: Process bulk data in Azure Cosmos DB for NoSQL
- **Lab** – Create and update documents with the Azure Cosmos DB for NoSQL SDK
- **Lab** – Batch multiple point operations together with the Azure Cosmos DB for NoSQL SDK
- **Lab** – Move multiple documents in bulk with the Azure Cosmos DB for NoSQL SDK

Module 5: Execute queries in Azure Cosmos DB for NoSQL

- Lesson: Query the Azure Cosmos DB for NoSQL
- Lesson: Author complex queries with the Azure Cosmos DB for NoSQL
- **Lab** – Execute a query with the Azure Cosmos DB for NoSQL SDK
- **Lab** – Paginate cross-product query results with the Azure Cosmos DB for NoSQL SDK

Module 6: Define and implement an indexing strategy for Azure Cosmos DB for NoSQL

- Lesson: Define indexes in Azure Cosmos DB for NoSQL
- Lesson: Customize indexes in Azure Cosmos DB for NoSQL
- **Lab** – Review the default index policy for an Azure Cosmos DB for NoSQL container with the portal
- **Lab** – Configure an Azure Cosmos DB for NoSQL container's index policy with the portal

Module 7: Integrate Azure Cosmos DB for NoSQL with Azure services

- Lesson: Consume an Azure Cosmos DB for NoSQL change feed using the SDK
- Lesson: Handle events with Azure Functions and Azure Cosmos DB for NoSQL change feed
- Lesson: Search Azure Cosmos DB for NoSQL data with Azure Cognitive Search
- **Lab** – Process change feed events using the Azure Cosmos DB for NoSQL SDK
- **Lab** – Archive Azure Cosmos DB for NoSQL data using Azure Functions
- **Lab** – Search data using Azure Cognitive Search and Azure Cosmos DB for NoSQL

Module 8: Implement a data modeling and partitioning strategy for Azure Cosmos DB for NoSQL

- Lesson: Implement a non-relational data model
- Lesson: Design a data partitioning strategy
- **Lab** – Measure performance for customer entities
- **Lab** – Cost of denormalizing data and aggregates and using the change feed for referential integrity

Module 9: Design and implement a replication strategy for Azure Cosmos DB for NoSQL

- Lesson: Configure replication and manage failovers in Azure Cosmos DB
- Lesson: Use consistency models in Azure Cosmos DB for NoSQL
- Lesson: Configure multi-region write in Azure Cosmos DB for NoSQL
- **Lab** – Connect to different regions with the Azure Cosmos DB for NoSQL SDK
- **Lab** – Configure consistency models in the portal and the Azure Cosmos DB for NoSQL SDK
- **Lab** – Connect to a multi-region write account with the Azure Cosmos DB for NoSQL SDK

Module 10: Optimize query and operation performance in Azure Cosmos DB for NoSQL

- Lesson: Optimize indexes in Azure Cosmos DB for NoSQL
- Lesson: Measure index performance in Azure Cosmos DB for NoSQL
- Lesson: Implement integrated cache
- **Lab** – Optimize an Azure Cosmos DB for NoSQL container's index policy for common operations
- **Lab** – Optimize an Azure Cosmos DB for NoSQL container's index policy for a specific query

Module 11: Monitor and troubleshoot an Azure Cosmos DB for NoSQL solution

- Lesson: Measure performance in Azure Cosmos DB for NoSQL
- Lesson: Monitor responses and events in Azure Cosmos DB for NoSQL
- Lesson: Implementing backup and restore for Azure Cosmos DB for NoSQL
- Lesson: Implement security in Azure Cosmos DB for NoSQL
- **Lab** – Use Azure Monitor to analyze an Azure Cosmos DB for NoSQL account
- **Lab** – Troubleshoot an application using the Azure Cosmos DB for NoSQL SDK
- **Lab** – Recover a database or container from a recovery point

Module 12: Manage an Azure Cosmos DB for NoSQL solution using DevOps practices

- Lesson: Write management scripts for Azure Cosmos DB for NoSQL
- Lesson: Create resource template for Azure Cosmos DB for NoSQL
- **Lab** – Adjust provisioned throughput using an Azure CLI script
- **Lab** – Create an Azure Cosmos DB for NoSQL container using Azure Resource Manager templates

Module 13: Create server-side programming constructs in Azure Cosmos DB for NoSQL

- Lesson: Build multi-item transactions with the Azure Cosmos DB for NoSQL
- Lesson: Expand query and transaction functionality in Azure Cosmos DB for NoSQL
- **Lab** – Create a stored procedure with the Azure Portal
- **Lab** – Implement and use user-defined functions with the SDK

Indus Tech Services

Who We Are....

Indus Tech Services is an IT company that specializes in providing comprehensive training, consulting & implementation services for software solutions designed to address the diverse business challenges faced by organizations today. With a passion for technology and a deep understanding of business processes, Indus Tech is committed to empowering businesses to optimize their operations, boost productivity, and drive sustainable growth.

Indus Tech Services and Microsoft Partnership

As a proud **Microsoft Partner**, **Indus Tech Services** is uniquely equipped to deliver top-tier training and certification programs designed to meet the evolving needs of today's workforce. Our partnership with Microsoft allows us to offer direct access to the latest tools, resources, and industry insights, ensuring that our courses are aligned with the most current technology trends. This collaboration enables us to provide unparalleled support to our students, helping them gain the skills and knowledge required to excel in their careers. By choosing Indus Tech Services, you're not just learning; you're gaining a competitive edge with Microsoft-backed expertise and certification.

Why Choose Us...

From time to time, life serves up a profound nudge, urging us to step beyond our routines and make a difference in the world. Indus Tech Services emerged from one such compelling wake-up call. We are not just a company; we are a dedicated force with a belief in providing solutions to organizations, regardless of their size, and we infuse a human touch into everything we do.

Our Expertise

With over 25 years of collective experience navigating the intricacies of daily business transactions, irrespective of geographical, cultural, time zone, or language barriers, our team has honed their expertise to meet any challenge head-on. This wealth of experience has armed our resources with an unparalleled understanding and skill set to tackle a broad spectrum of obstacles.

Training

With two decades of unwavering commitment and a global footprint, our company is a true pioneer in the fields of linguistic, transactional, technical, and behavioural training for some of the world's largest corporate entities. Our unparalleled expertise has been refined through years of dedication and innovation, making us the go-to choice for businesses seeking transformative training solutions.

Consulting

Our company has been at the forefront of providing world-class IT consulting services to organizations spanning the globe. With an extensive and proven track record, we have honed our expertise to meet the ever-evolving technological needs and challenges faced by businesses, regardless of their scale or industry.

Implementation

Our experience covers a broad spectrum of IT implementation services, including system integration, software deployment, network architecture, cloud migration, and infrastructure setup. We understand that the successful execution of IT projects is pivotal to an organization's growth and efficiency. Therefore, we bring a depth of knowledge and a commitment to delivering results that set us apart.

To know more contact us at info@industechservices.com or call us at +91 - 99961 61170.