

# DP-420: Azure Cosmos DB Developer Specialty

## – MS Learn

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### Course Overview

This 40+ hours course is fully aligned with Microsoft Learn learning paths for DP-420: Azure Cosmos DB Developer Specialty. It focuses on designing, developing, querying, indexing, integrating, and optimizing applications using Azure Cosmos DB for NoSQL.

### Target Audience

- Azure Developers
- Backend Developers
- Cloud Engineers
- Database Developers
- Professionals preparing for DP-420 certification

### Course Duration

Total Duration: 40–45 Hours

### Learning Path 1: Get Started with Azure Cosmos DB for NoSQL (5 Hours)

- Azure Cosmos DB overview
- Core concepts: databases, containers, items
- Azure Cosmos DB for NoSQL API
- Provisioned throughput & autoscale
- Creating and configuring Cosmos DB accounts
- Hands-on labs

### Learning Path 2: Plan and Implement Azure Cosmos DB for NoSQL (6 Hours)

- Capacity planning
- Partition key design
- Data modeling strategies
- Throughput optimization
- Global distribution
- High availability design

### Learning Path 3: Connect to Azure Cosmos DB for NoSQL with the SDK (6 Hours)

- Cosmos DB SDK architecture
- Connecting using SDKs
- Authentication and connection modes
- Error handling and retries
- Best practices for SDK usage

### **Learning Path 4: Access and Manage Data with the Azure Cosmos DB for NoSQL SDKs (7 Hours)**

- CRUD operations
- Transactions and batch operations
- Bulk execution
- Change Feed processing
- Managing containers and items
- Performance considerations

### **Learning Path 5: Execute Queries and Build a Generative AI Application with Azure Cosmos DB (6 Hours)**

- SQL query language
- Aggregations and joins
- Query optimization
- Vector search concepts
- Integrating Cosmos DB with Generative AI solutions
- Real-world AI application design

### **Learning Path 6: Define and Implement an Indexing Strategy for Azure Cosmos DB for NoSQL (5 Hours)**

- Indexing fundamentals
- Indexing policies
- Composite and spatial indexes
- Tuning indexes for performance
- Monitoring index impact on RU consumption

### **Learning Path 7: Integrate Azure Cosmos DB for NoSQL with Azure Services (5 Hours)**

- Azure Functions integration
- Event-driven architectures
- Azure Synapse Link
- Azure Data Factory integration
- Monitoring and diagnostics

### **Hands-on Labs & Capstone Project (4 Hours)**

- Build a production-ready Cosmos DB application
- Implement partitioning, indexing, and queries
- Integrate with Azure services
- Performance tuning and security hardening

### **Exam Preparation & Review (3 Hours)**

- DP-420 exam objective mapping
- Scenario-based questions

- Mock exams
- Final revision

### **Certification Details**

Exam Code: DP-420

Duration: 120 minutes

Question Types: Case studies, MCQs

Certification: Azure Cosmos DB Developer Specialty

### **Outcome**

After completing this course, learners will be able to design, build, optimize, integrate, and troubleshoot enterprise-grade applications using Azure Cosmos DB for NoSQL.