

## Curriculum

### Database Fundamentals

- Database Fundamentals - Section Introduction
- A brief history of data storage
- Database Fundamentals
- Data Normalisation
- NOSQL Database fundamentals
- Python 101
- JSON101

### DynamoDB Basics

- DynamoDB Basics - Section Introduction
  - Creating & Configuring your AWS account
  - Getting Setup on OSX
  - Getting Setup on Windows
  - Getting Setup on Linux
  - Getting Setup with EC
  - Course Case Studies - Weather Station Inc
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- Dynamo DB Introduction
  - Dynamo DB Consistency Model
  - DEMO - Console Basics
  - DEMO - Working with Tables
  - Controlling Table Performance
  - Data Model Design - Version
  - DEMO - Retrieving Items
  - An introduction to partitions
  - Batch Operations
  - DEMO - Case Study Setup : Learning Online
  - Monitoring and Alerting
  - DEMO - Load Testing Student Enrollment
  - Lessons Learned, Refining the Learning Online Data Model v
  - DEMO - ReTesting Student Enrollment
  - Conditional and Update Expressions
  - DEMO - Using Conditional and Update Expressions
  - Controlling Access to DynamoDB
  - DEMO - Access Control

### Advanced DynamoDB :

- Section Introduction

- Partitions Deep-Dive
  - Advanced Key Design
  - Advanced Query & Scan
  - DEMO - Non Key searches and large sets
  - Local Secondary Indexes (LSI)
  - Global Secondary Indexes (GSI)
  - Best Practice - Part - Tables
  - Best Practice - Part - Items
  - Best Practice - Part - Indexes (GSI and LSI)
  - Data Model v Changes
  - Data Model v Implementation
  - DEMO - Comparing Searches - with and without indexes
  - Efficient Data Upload
  - Dynamo DB API - Indepth & Error Handling
  - Advanced Performance & Mitigating performance burstyness
  - DynamoDB Streams
  - Dynamo DB Triggers (Streams + Lambda)
  - Data Model v Discussion and Implementation
  - DEMO - Trigger - Teacher Performance
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- DEMO - Trigger - Altered Grades
  - DEMO - Trigger - High Performance Exam Dashboard
  - Logging DynamoDB Events using CloudTrail
  - Federated Access
  - DEMO - Federated Access
  - DEMO - Export and Import using DataPipeline
  - DEMO - Replication and DR
  - DEMO - SQL-Like Querying using EMR