

Data Warehousing on AWS

Duration: 3 Days **Course Code: GK4375**

Overview:

Data Warehousing on AWS introduces you to concepts, strategies, and best practices for designing a cloud-based data warehousing solution using Amazon Redshift. This course demonstrates how to ingest, store, and transform data in the data warehouse. Topics covered include: the purpose of Amazon Redshift, how Amazon Redshift addresses business and technical challenges, features and capabilities of Amazon Redshift, designing a Data Warehousing Solution on AWS by applying best practices based on the Well-Architected Framework, integration with AWS and non-AWS products and services, performance tuning, orchestration, and securing and monitoring Amazon Redshift.

Course level: Advanced

Duration: 3 days

Activities

This course includes presentations, hands-on labs, and demonstrations.

Target Audience:

This course is intended for:

- Data engineers
 - Data architects
 - Database architects
 - Database administrators
 - Database developers
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Objectives:

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| ■ In this course, you will learn to: | ■ Perform maintenance and performance tuning on an Amazon Redshift data warehouse |
| ■ Describe Amazon Redshift architecture and its roles in a modern data architecture | ■ Secure and manage access to an Amazon Redshift data warehouse |
| ■ Design and implement a data warehouse in the cloud using Amazon Redshift | ■ Share data between multiple Redshift clusters in an organization |
| ■ Identify and load data into an Amazon Redshift data warehouse from a variety of sources | ■ Orchestrate workflows in the data warehouse using AWS Step Functions state machines |
| ■ Analyze data using SQL QEV2 notebooks | ■ Create an ML model and configure predictors using Amazon Redshift ML |
| ■ Design and implement a disaster recovery strategy for an Amazon Redshift data warehouse | |
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Prerequisites:

We recommend that attendees of this course have completed the following courses:

- Fundamentals of Analytics on AWS – Part 1 (Digital course)
 - Fundamentals of Analytics on AWS – Part 2 (Digital course)
 - Building Data Lakes on AWS (Instructor led Training)
 - Building Data Analytics Solutions Using Amazon Redshift (Instructor led Training)
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Content:

Day 1

Module 1: Data Warehouse Concepts

- Modern data architecture
- Introduction to the course story
- Data warehousing with Amazon Redshift
- Amazon Redshift Serverless architecture
- Hands-On Lab: Launch and Configure an Amazon Redshift Serverless Data Warehouse

Module 2: Setting up Amazon Redshift

- Data models for Amazon Redshift
- Data management in Amazon Redshift
- Managing permissions in Amazon Redshift
- Hands-On Lab: Setting up a Data Warehouse using Amazon Redshift Serverless

Module 3: Loading Data

- Overview of data sources
- Loading data from Amazon Simple Storage Service (Amazon S3)
- Extract, transform, and load (ETL) and extract, load, and transform (ELT)
- Loading streaming data
- Loading data from relational databases
- Hands-On Lab: Populating the data warehouse

Day 2

Module 4: Deep Dive into SQL Query Editor v2 and Notebooks

- Features of Amazon Redshift Query Editor v2
- Demonstration: Using Amazon Redshift Query Editor v2
- Advanced queries
- Hands-On Lab: Data Wrangling on AWS

Module 5: Backup and Recovery

- Disaster recovery
- Backing up and restoring Amazon Redshift provisioned
- Backing up and restoring Amazon Redshift Serverless

Module 6: Amazon Redshift Performance Tuning

- Factors that impact query performance
- Table maintenance and materialized views
- Query analysis
- Workload management
- Tuning guidance
- Amazon Redshift monitoring
- Hands-On Lab: Performance Tuning the Data Warehouse

Module 7: Securing Amazon Redshift

- Introduction to Amazon Redshift security and compliance
- Authentication with Amazon Redshift
- Access control with Amazon Redshift
- Data encryption with Amazon Redshift
- Auditing and compliance with Amazon Redshift
- Hands-On Lab: Securing Amazon Redshift

Day 3

Module 8: Orchestration

- Overview of data orchestration
- Orchestration with AWS Step Functions
- Orchestration with Amazon Managed Workflows for Apache Airflow (MWAA)
- Hands-On Lab: Orchestrating the Data Warehouse Pipeline

Module 9: Amazon Redshift ML

- Machine Learning Overview
- Getting started with Amazon Redshift ML
- Amazon Redshift ML workflow scenarios
- Amazon Redshift ML Usage
- Hands-On Lab: Predicting customer churn with Amazon Redshift ML

Module 10: Amazon Redshift Data Sharing

- Overview of data sharing in Amazon Redshift
- Amazon DataZone for Data as a service

Module 11: Wrap-Up

- Hands-On Lab: End of course challenge lab

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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