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## Building Batch Data Analytics Solutions on AWS

**Duration: 1 Day**    **Course Code: GK7378**    **Delivery Method: Company Event**

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### Overview:

In this course, you will learn to build batch data analytics solutions using Amazon EMR, an enterprise-grade Apache Spark and Apache Hadoop managed service. You will learn how Amazon EMR integrates with open-source projects such as Apache Hive, Hue, and HBase, and with AWS services such as AWS Glue and AWS Lake Formation. The course addresses data collection, ingestion, cataloging, storage, and processing components in the context of Spark and Hadoop. You will learn to use EMR Notebooks to support both analytics and machine learning workloads. You will also learn to apply security, performance, and cost management best practices to the operation of Amazon EMR.

### Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

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### Target Audience:

This course is intended for: Data platform engineers Architects and operators who build and manage data analytics pipelines

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### Objectives:

- In this course, you will learn to:
    - Choose the appropriate instance and node types, clusters, auto scaling, and network topology for a particular business use case
  - Compare the features and benefits of data warehouses, data lakes, and modern data architectures
    - Understand how data storage and processing affect the analysis and visualization mechanisms needed to gain actionable business insights
  - Design and implement a batch data analytics solution
    - Secure data at rest and in transit
  - Identify and apply appropriate techniques, including compression, to optimize data storage
    - Monitor analytics workloads to identify and remediate problems
  - Select and deploy appropriate options to ingest, transform, and store data
    - Apply cost management best practices
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### Prerequisites:

Students with a minimum one-year experience managing open-source data frameworks such as Apache Spark or Apache Hadoop will benefit from this course.

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## Content:

### Module A: Overview of Data Analytics and the Data Pipeline

- Data analytics use cases
- Using the data pipeline for analytics

### Module 1: Introduction to Amazon EMR

- Using Amazon EMR in analytics solutions
- Amazon EMR cluster architecture
- Interactive Demo 1: Launching an Amazon EMR cluster
- Cost management strategies

### Module 2: Data Analytics Pipeline Using Amazon EMR: Ingestion and Storage

- Storage optimization with Amazon EMR
- Data ingestion techniques

### Module 3: High-Performance Batch Data Analytics Using Apache Spark on Amazon EMR

- Apache Spark on Amazon EMR use cases
- Why Apache Spark on Amazon EMR
- Spark concepts
- Interactive Demo 2: Connect to an EMR cluster and perform Scala commands using the Spark shell
- Transformation, processing, and analytics
- Using notebooks with Amazon EMR
- Practice Lab 1: Low-latency data analytics using Apache Spark on Amazon EMR

### Module 4: Processing and Analyzing Batch Data with Amazon EMR and Apache Hive

- Using Amazon EMR with Hive to process batch data
- Transformation, processing, and analytics
- Practice Lab 2: Batch data processing using Amazon EMR with Hive
- Introduction to Apache HBase on Amazon EMR

### Module 5: Serverless Data Processing

- Serverless data processing, transformation, and analytics
- Using AWS Glue with Amazon EMR workloads
- Practice Lab 3: Orchestrate data processing in Spark using AWS Step Functions

### Module 6: Security and Monitoring of Amazon EMR Clusters

- Securing EMR clusters
- Interactive Demo 3: Client-side encryption with EMRFS
- Monitoring and troubleshooting Amazon EMR clusters
- Demo: Reviewing Apache Spark cluster history

### Module 7: Designing Batch Data Analytics Solutions

- Batch data analytics use cases
- Activity: Designing a batch data analytics workflow

### Module B: Developing Modern Data Architectures on AWS

- Modern data architectures

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## 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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