

AWS Data Engineering & Analytics (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Tools & Technologies: S3 (Data Lake), Glue, Redshift, Kinesis, Athena, QuickSight, EMR

Certifications Prepared: AWS Certified Data Analytics – Specialty, AWS Certified Database – Specialty

Syllabus

Week 1: Data Lakes with S3

- Data Lake Concepts & Architecture
- Partitioning, Versioning, Lifecycle Rules
- Data Ingestion Patterns (Batch vs Streaming)
- Hands-on: Create S3 Data Lake
- Assignment

Week 2: AWS Glue ETL

- Crawlers, Catalogs, Schema Detection
- ETL Jobs in PySpark
- Schema Evolution & Partitions
- Hands-on: Raw → Curated ETL Pipeline
- Assignment

Week 3: Amazon Redshift

- Cluster Setup & Node Types
- COPY/UNLOAD Commands
- Redshift Spectrum with S3
- Hands-on: Create Data Warehouse & Load Data
- Assignment

Week 4: Real-Time Streaming with Kinesis

- Kinesis Streams
- Kinesis Firehose Delivery to S3/Redshift
- Kinesis Analytics SQL Queries
- Hands-on: Real-Time Pipeline (Kinesis → Redshift)
- Assignment
- Mock Interview 1

Week 5: Serverless Analytics with Athena

- Query S3 Data with Athena
- Integrate with Glue Catalog
- Cost Optimization
- Hands-on: Query JSON/CSV logs from S3
- Assignment

Week 6: Visualization with QuickSight

- Data Sources, Datasets
- Dashboard Creation
- Integration with Redshift & Athena
- Hands-on: Sales Dashboard
- Assignment

Week 7: Big Data with EMR

- EMR Cluster Setup
- Spark & Hive Jobs
- EMR-S3 Integration
- Hands-on: Large Dataset Processing
- Assignment

Week 8: Capstone Project & Interview

- Project: Real-time ETL pipeline (Kinesis → S3 → Glue → Redshift → QuickSight Dashboard)
- Resume Prep for AWS Data Engineer
- Assignment
- Mock Interview 2

Learning Outcomes

- Design and manage Data Lakes with S3 and Glue
- Build and optimize data warehouses with Redshift and Athena
- Stream and process real-time data with Kinesis
- Orchestrate ETL pipelines with Glue and EMR
- Prepare for AWS Certified Data Analytics – Specialty and AWS Certified Database – Specialty