

MASTERING DATA ENGINEERING

Learn to build scalable data pipelines and process big data with Python, PySpark, SQL, Hive, and ETL.

Curriculum

- Introduction to Data Engineering
- Python for Data Engineering
- SQL for Data Analysis
- PySpark for Big Data Processing
- Hive and Data Warehousing
- ETL Concepts and Frameworks
- Capstone Project
- Bonus : Interview prep

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Detailed course topics

Module 1: Introduction to Data Engineering

- Overview of Data Engineering and its importance.
- Key tools and technologies in the data engineering ecosystem.
- Understanding the data lifecycle.

Module 2: Python for Data Engineering

- Python fundamentals for data manipulation.
- Working with libraries like Pandas, NumPy, and CSV.
- Writing reusable scripts for data processing.

Module 3: SQL for Data Analysis

- Basics of SQL: SELECT, JOIN, GROUP BY, etc.
- Advanced SQL: CTEs, window functions, and optimization techniques.
- Writing SQL queries for ETL workflows.

Module 4: PySpark for Big Data Processing

- Introduction to distributed computing.
- Setting up and using Apache Spark with Python (PySpark).
- Writing transformations and actions in PySpark.
- Optimizing Spark jobs.

Module 5: Hive and Data Warehousing

- Fundamentals of Hive and its architecture.
- Creating and managing Hive tables.
- Querying data with HiveQL.
- Integrating Hive with other tools in the ecosystem.

Module 6: ETL Concepts and Frameworks

- Understanding ETL (Extract, Transform, Load) processes.
- Designing efficient ETL pipelines.
- Hands-on with popular ETL tools.
- Best practices in ETL development.

Module 7: Capstone Project

- Real-world data engineering project.
- Building end-to-end pipelines.
- Data processing, storage, and reporting

Bonus: Interview Prep and Career Guidance.

This outline ensures participants gain theoretical knowledge and practical skills in data engineering.

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