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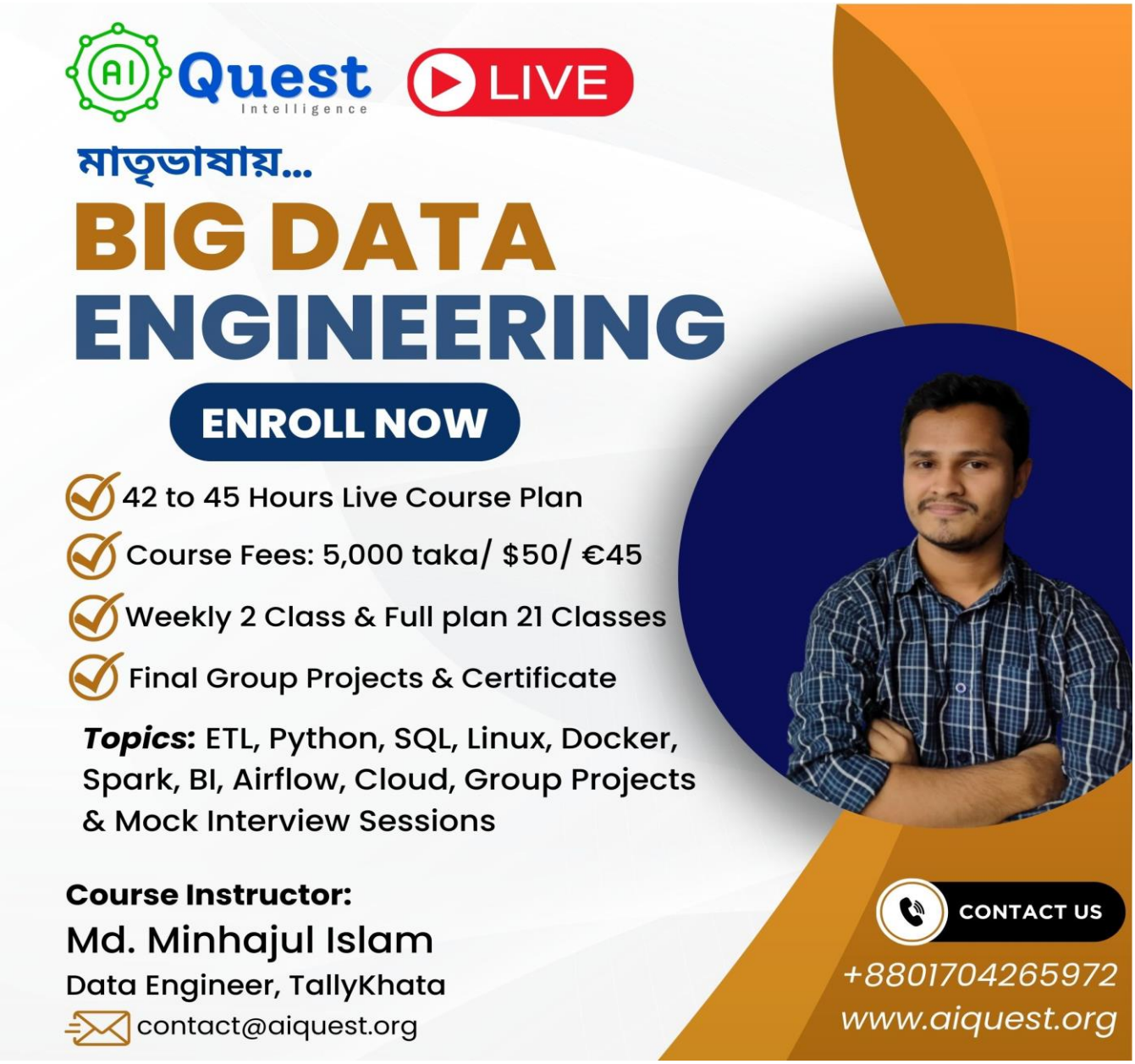

Course Instructor:

Md. Minhajul Islam

Data Engineer, TallyKhata

Data Engineering Instructor, aiQuest Intelligence

Become a Big Data Engineer with aiQuest Intelligence & Study Mart

❖ Module 1: Intro to Data Engineering (2 Hours)

- What is Data? Importance of data.
- What is a Database?
- Types of Databases.
- What is Data Warehouse?
- Data Warehouse Vs. Data Lake.
- Data Analyst vs Data Engineer vs Data Scientist: Explaining the key differences.
- Understanding the role of Data Engineering in the data ecosystem.
- Why are data jobs becoming popular?
- Requirements for a career in Data Engineering.
- FAQ Session.

❖ Module 2: Database and SQL (5 Hours)

❖ Part 1: Database (2 hours)

- What is a database?
- Types of databases: Relational vs Non-relational Database.
- Understanding Data Models and Data Schema.
- Fact and Dimension Tables.
- Slowly Changing Dimensions (SCD) types.
- Normalization and its importance.
- OLAP vs OLTP.
- ACID Properties

❖ Part 2: SQL (3 hours)

- Setting up PostgreSQL.
- Setting up an IDE for SQL development.
- Basic SQL syntax and commonly used SQL commands.
- Understanding Foreign keys and Primary keys.
- Triggers and their application.
- User Authorization in databases.
- CRUD operations (Create, Read, Update, Delete).
- Working with Subqueries and Joins.

- Window functions for advanced data manipulation.
- Indexing and partitioning for query optimization.
- Introduction to PL/SQL.
- Star Schema vs Snowflake Schema.
- Complex Query Example.
- Query Optimization techniques.
- FAQ Session and Assignment.

❖ Module 3: Python (4 hours)

- Introduction to Python.
- Installing Python and setting up the development environment.
- Understanding Python Data Types: Lists, Tuples, and Dictionaries.
- Conditional statements: if...else.
- Loops in Python.
- Functions and Lambda functions.
- Object Oriented Programming
- Functional programming vs Class Based Programming
- Using PIP for installing libraries.
- Introduction to Pandas for data manipulation.
- Working with Virtual Environments in Python.
- File Handling in Python.
- Advanced Topics in Python.
- FAQ Session and Assignment.

❖ Module 4: Working with Data (8 hours)

- Connecting to databases using Python.
- Working with Google Sheets and Google Drive.
- Utilizing APIs for data retrieval.
- Web Scraping for data extraction.
- Handling and cleaning data with Python.
- Introduction to ETL/ELT Pipelines.
- Data Wrangling/Data Cleaning techniques.
- Setting up a Mail system for data notifications.
- FAQ Session and Assignment.

❖ Module 5: Linux (4 hours)

- Understanding Linux distributions and setting up a Linux distro.
- Basic Linux Commands for file and directory management.
- Bash vs shell: Differentiating between shell scripting languages.
- Coding in the Linux shell.
- Exploring important Linux features.
- FAQ Session and Assignment.

❖ Module 6: Docker (2 hours)

- What is Docker, and what is its importance in the data engineering ecosystem?
- Installing Docker.
- Understanding Images vs Containers.
- Creating Docker files for container configuration.
- Composing multiple containers with Docker Compose.
- Running a project using Docker.
- FAQ Session and Assignment.

❖ Module 7: Spark (2 hours)

- Introduction to Apache Spark.
- Comparing Spark vs Hadoop.
- Working with Resilient Distributed Datasets (RDDs) in Spark.
- Coding in Spark for data processing.
- FAQ Session and Assignment.

❖ Module 8: Looker Studio / Power BI (2 hours)

- Introduction to Looker Studio or Power BI for data visualization.
- Understanding their importance in data analysis and reporting.
- Designing Dashboard
- FAQ Session and Assignment.

❖ Module 9: Airflow (2 hours)

- What is Apache Airflow, and why is it essential in data engineering workflows?

- Directed Acyclic Graphs (DAGs) in Airflow.
- How to work with Airflow for scheduling data pipelines.
- Scheduling a script with Airflow.
- FAQ Session and Assignment.

❖ Module 10: Cloud (4 hours)

- Understanding cloud computing.
- Types of cloud systems.
- Introduction to AWS, GCP, and Azure cloud platforms.
- Explanation of some essential AWS tools.
- FAQ Session and Assignment.

❖ Module 11: Conclusion (8 hours)

- Showcasing an entire project using all the tools learned throughout the data engineering course.
- Working with team members & collaborating in real-life teamwork experience.
- Final group project submission.
- Career discussion and tips for success in the Data Engineering industry.
- Further learning opportunities in the field of Data Engineering.
- We will invite industry expert guests and data engineers.
- Mock Interview session for practical experience & Job interview tips.

How to Enroll?

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