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**Batch:** Data Engineering

**Date:** 24/02/2024 – (Day 27)

Topics:

1. Introduction to CI / CD pipelines

Continuous Integration/Continuous Deployment (CI/CD) is a crucial concept in software development, facilitating automated processes, testing, and deployment of code changes. In a nutshell:

Continuous Integration (CI): Involves automatically testing every new piece of code or data transformation logic as it is added to the pipeline. This ensures that new additions don't introduce errors or problems into the system. CI involves automated testing, version control, maintaining a consistent environment for testing, and performing data quality checks.

Continuous Deployment (CD): Once the new code changes are verified and approved through CI, CD ensures that these changes are automatically deployed to the live system without requiring manual intervention. This means that updates are made live and functional in the production environment as soon as they are validated.

In the context of data pipelines, CI/CD focuses on automating data operations and transformations, ensuring high-quality and consistent data delivery. It merges development, testing, and operational workflows into a unified, automated process, critical for ensuring development velocity, supporting various data-related tasks such as machine learning model training, data analysis, business intelligence, and supporting data mesh approaches.

Key characteristics of CI in data pipelines include automated testing, version control, maintaining consistent environments for testing, and performing data quality checks. These processes help catch errors early, ensure code quality, and facilitate seamless deployment of data processes.

