A Beginner's Guide to Data Engineering

SIGMOID

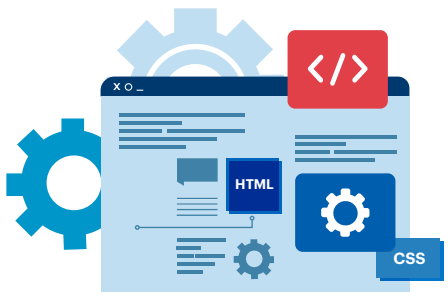
According to the Dice Tech Job report, data engineering is the fastest growing job position and is expected to have a year-on-year growth of **50%**

What do Data Engineers do?

Data engineers use distinct techniques and a myriad of technologies to build systems that collect and manipulate raw data into usable information for data scientists and analysts to interpret and gain business insights.

How does Data Engineering differ from Software Engineering

Data engineering requires a background in programming languages like Java, Python & Scala. But it is significantly differently from software engineering in the following ways:



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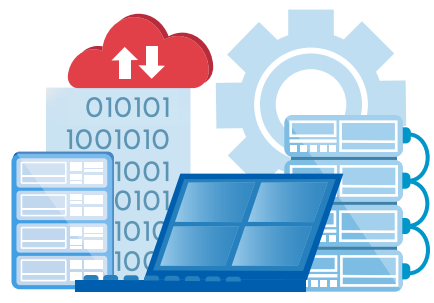


Software Engineering		Data Engineering
Involves apps, frontend and backend development	Practices	Applies distributed computing and concurrent programming
Not always flexible to large change in data volume	Scalability	Addresses the three V's – velocity, variety, and volume of data
Architecture and coding	Core Focus	Accurate and fast data availability
Largely driven by Agile development framework	Process	Agile along with emphasis on speed and scalability
Fairly straightforward testing	Testing	Complex testing as data changes daily

The Data Engineer's Technology Stack

There are several tools aimed at different aspects of data engineering and are critical to the engineer's ability to accomplish various types of tasks.

Event-based streaming data flow from different sources simultaneously

Integrates data from various sources, followed by cleansing and transforming and enrichment of data

Controls and manages data based on internal data standards and policies and improves searchability

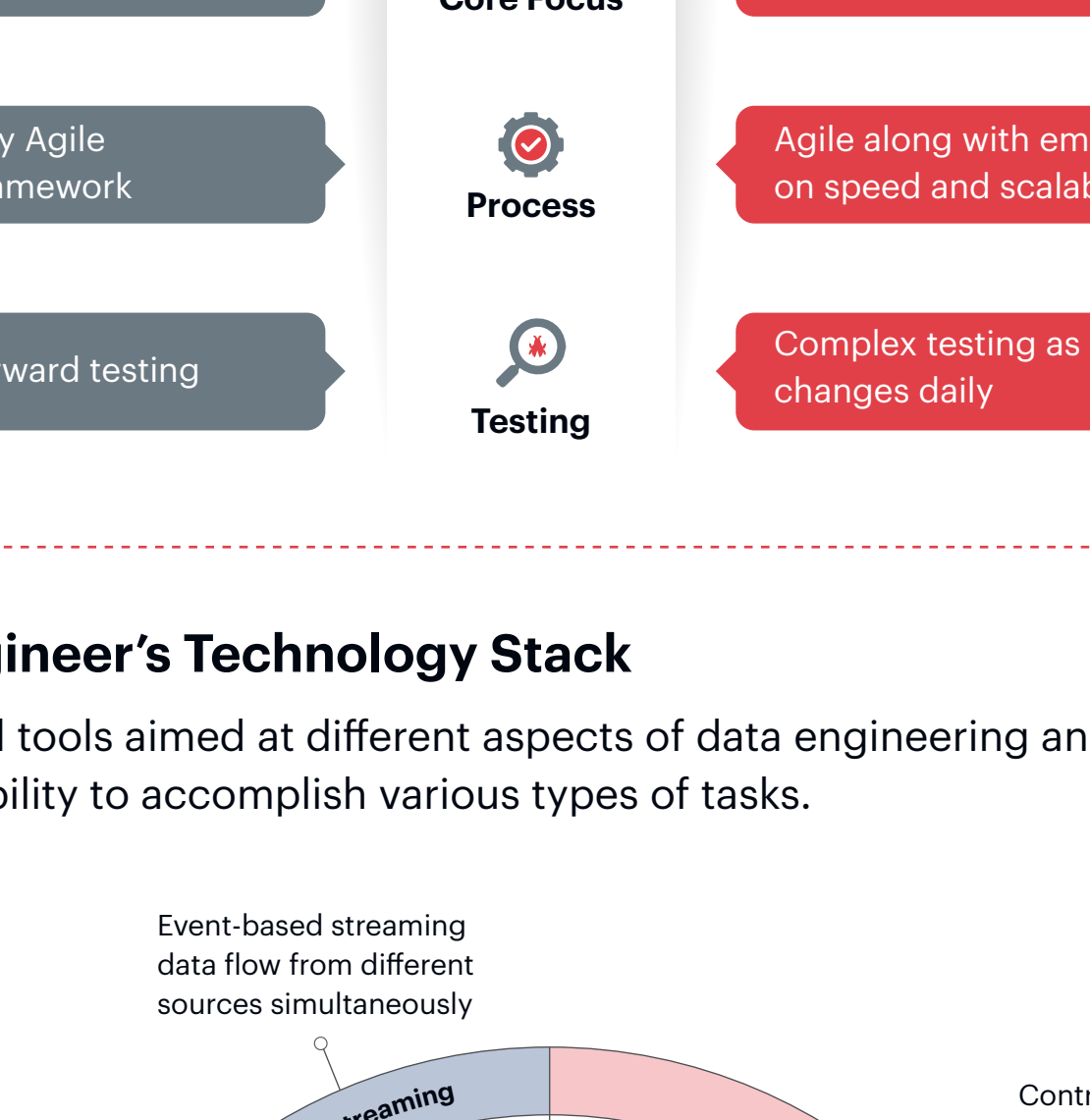
Data management system used for reporting and data analysis

Model lifecycle management that handles model development, deployment & monitoring

Stores data in its natural / raw format, usually object blobs or files.

Stores data in non tabular form, different from relational databases

Combines process-oriented perspective on data with methods from agile software engineering



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