



Keywords



Data Pipeline



Orchestration



Data Curation



Frameworks and Platforms



Data Transformation and Integration



Provisioning



Data Analysis

Data Engineer

Data Engineers prepare raw data for analytical or operational uses. They make data accessible so that it can be used for optimisation, delivery of services and enhanced analytics solutions.

Data Engineers work in a variety of settings to create pipelines that transform and integrate raw data into useable information for other data professionals and various systems and platforms. They utilise a range of techniques to bring data into the processing environment, curate data, develop and implement technical solutions to improve access to data, optimise data usage, and connect systems to data and analytics outputs.

Data Engineers also provide platform management and development including creating application frameworks, leveraging event driven use cases, supporting system integration, managing platforms for analytical model execution and solution design. They write responsible, optimised, tested and quality assured code to deliver business outcomes.



Key Technologies

Graph Database

Distributed Processing

Coding / Computer Languages

Scheduling / Orchestration

Streaming / Messaging

Source Control

Data Warehouse / Data Lake

Automation

Specialisation Roles

Cloud Engineer

Database Administrator

Computer / Software Engineer

Machine Learning Engineer

Key Relationships



Clients / Users



IT Professionals



Data Professionals

Data Engineer



Level 1 | Foundation

- Identify and utilise known data sources, data processing concepts and methods.
- Assist with the selection and development of designing engineering methods, tools and techniques for on-premise and hybrid data engineering solutions
- Implement and assist in developing structure and data storing for usage in analytics and sharing with applications
- Assist in designing, developing, and implementing structured and unstructured data pipelines ensuring data is fit for purpose
- Understand the integration, consolidation, curation, migration and transformation of data and aligns to relevant guidelines
- Collaborate with business stakeholders to determine the required data sets and analysis tools

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Level 2 | Intermediate

- Identify, transform, and implement data sources, data processing concepts and methods
- Identify the selection and development of designing engineering methods, tools and techniques for on-premise and hybrid data engineering solutions
- Design, implement and develop solutions for advanced structure and data storing for usage in analytics, machine learning, data mining and sharing with applications
- Initiate the design, development and implementation of structured and unstructured data pipelines ensuring data is fit for purpose
- Plan and contribute to the integration, consolidation, curation, migration, and transformation of data, aligning to relevant guidelines
- Collaborate with other data professionals and business stakeholders to determine the required data sets and analysis tools. Also to identify process improvements and apply data quality frameworks
- Coach and train less experienced engineers
- Identify and apply appropriate design patterns and practices
- Work with vendors, engineers, data scientists and UX designers to integrate algorithm implementations with data pipelines and production systems

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Level 3 | Advanced

- Identify, transform, and implement complex data sources, data processing concepts and innovative methods
- Lead the selection and development of designing engineering methods, tools and techniques under the Software Development Lifecycle (SDLC) for on-premise, hybrid data and cloud-based data engineering solutions
- Design, implement, and maintain complex structure and data storing for usage in analytics, machine learning, data mining and sharing with applications
- Lead the design, development and implementation of structured and unstructured data pipelines ensuring data is fit for purpose
- Drive the integration, consolidation, curation, migration and transformation of data and ensures adherence to relevant guidelines, technical strategies, and architecture
- Collaborate with a broad range of stakeholders to drive system and process changes to realise strategic goals or deliver significant operational outcomes. Also to drive optimal approach for data quality assessment
- Coach and train other engineers, and contribute at whole of agency or APS level to developing the Data Engineer capability
- Identify and apply appropriate design patterns and practices, and contribute to design and code review processes
- Lead collaboration with vendors, engineers, data scientists and UX designers and utilise knowledge of organisational context to integrate algorithm implementations with data pipelines and production systems

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