

PYSPARK

Data Engineering Bootcamp

Data management and archiving in the research environment

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CONTENT

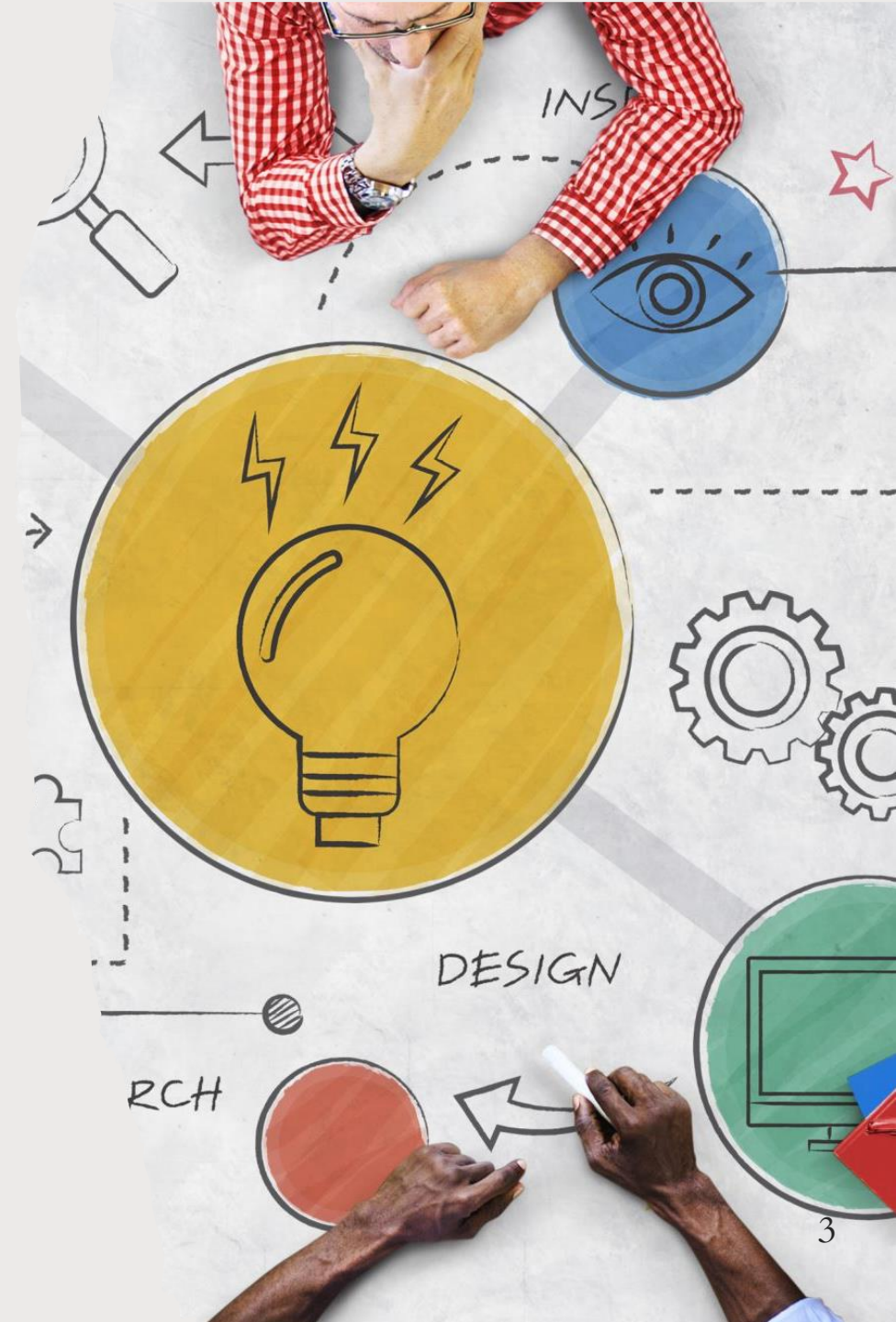
Introduction & Presentation ETL Process

Actions & Basic Transformations

Advanced Transformations

Databricks

INTRODUCTION & PRESENTATION ETL PROCESS



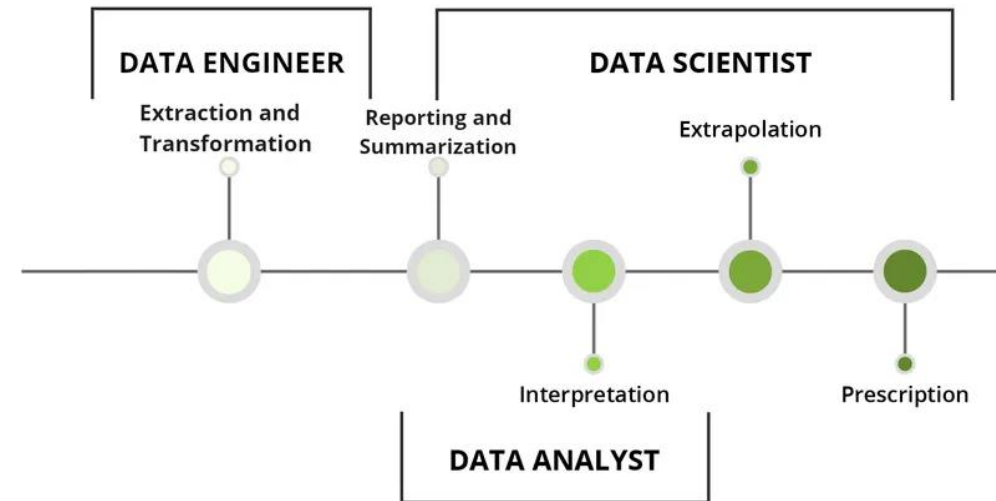
GOAL OF THE LEARNING SECTIONS



- Create a basic understanding for Data Engineering
- Understand how an ETL workflow is structured
- The Role of Spark in such a context

WHAT IS DATA ENGINEERING ?

- Developing and building systems for collecting, storing and analyzing data
- Provide data for evaluation and optimization performance of enterprises
- Data engineers manage data resources
- Data analysts use data to gain insights



WHAT IS ETL ?

Extraction

- Raw data is copied or exported from a variety of data sources
- These can be structured or unstructured

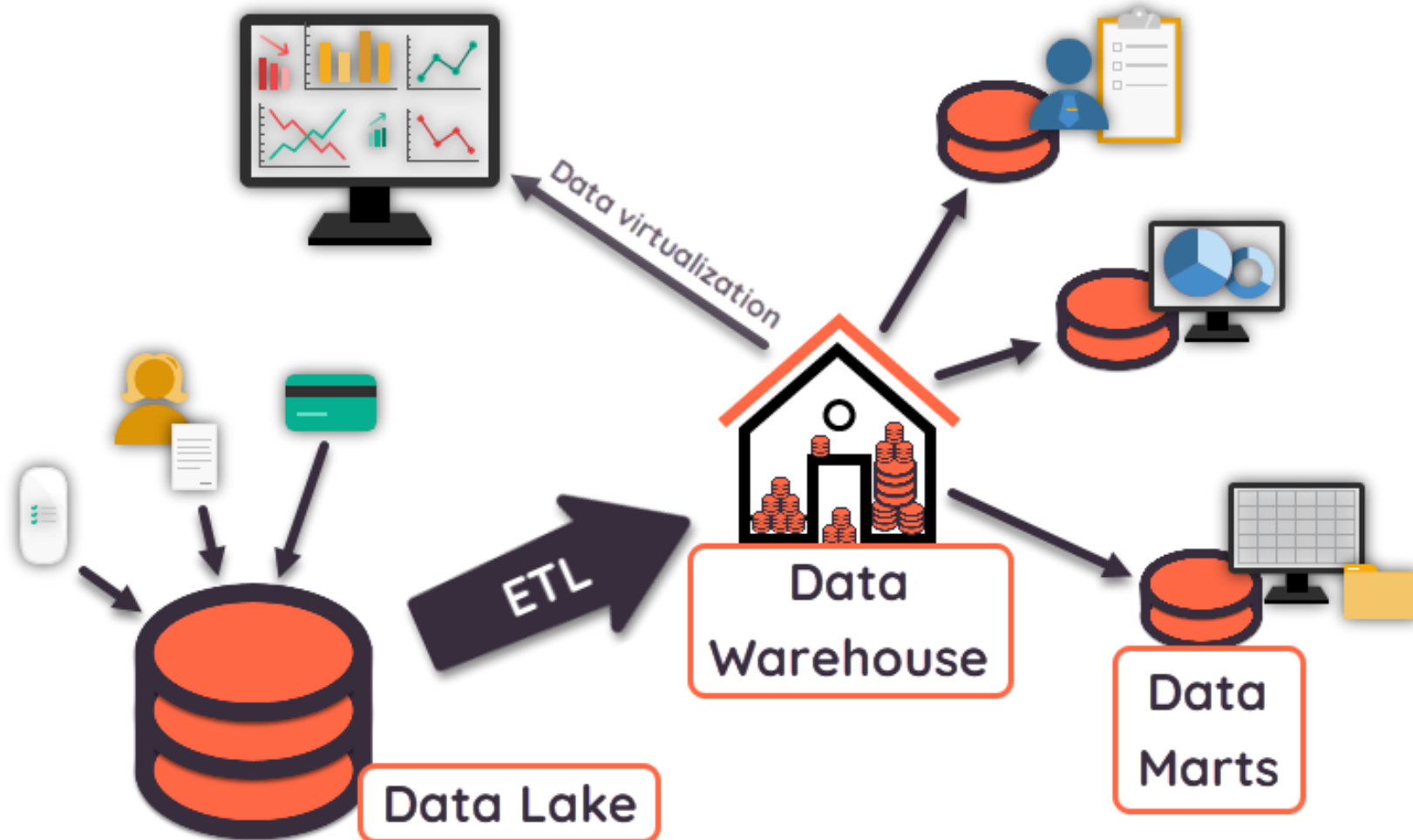
Transformation

- Collected raw data is consolidated for the intended use case
- During transformation, data is deduplicated, translated or summarized
- Adapt data to the Data Warehouse schema

Loading

- Load transformed data into the Target-Data-Warehouse

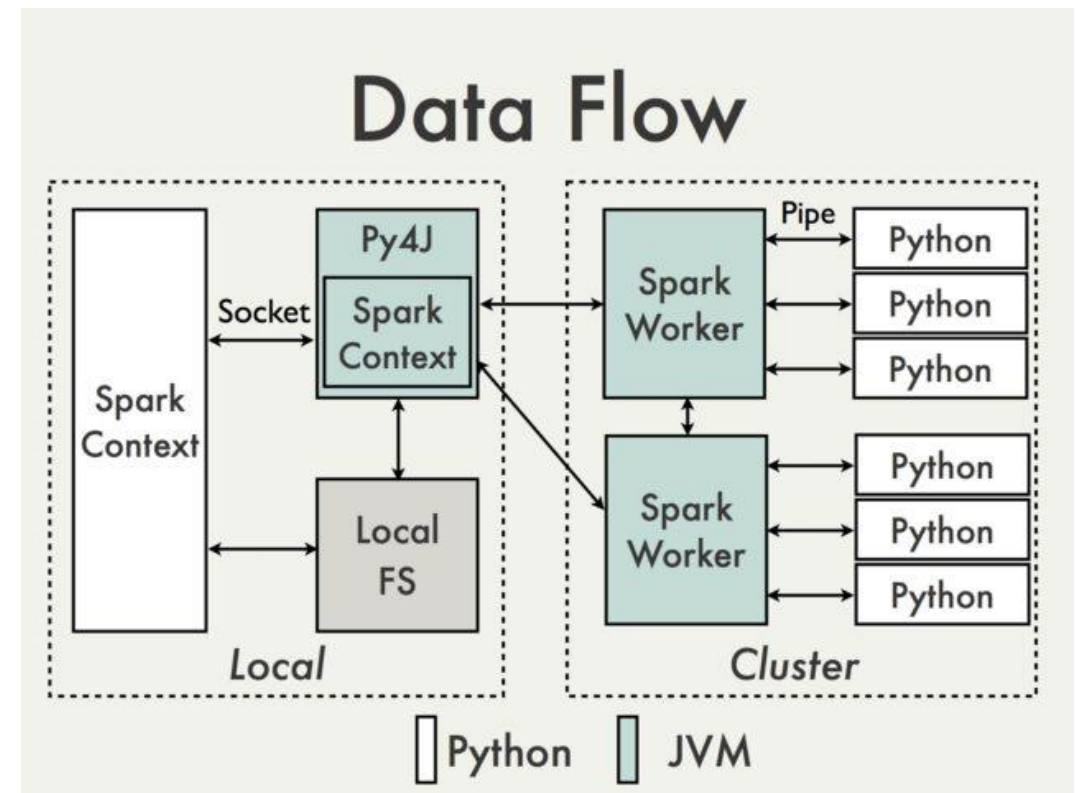
WHAT IS ETL ?



WHAT IS SPARK ?

Apache Spark/PySpark

- Multilingual engine for data engineering execution
- Outsourcing of the data development workflow to a number of servers
- Processing Big Data through parallelization
- Spark is written in Scala
- Python functions are available via Python-based wrapper PySpark



SPARKSQL

- Basic Data Structure Resilient Distributed Dataset (RDD)
- Tutorial focus on SparkSQL model, DataFrame
- DataFrame has great advantages over RDD
 - powerful optimization engine
 - Data Science module working with DataFrames

