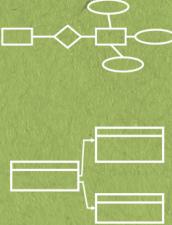
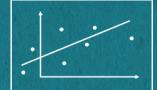
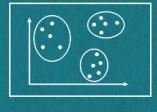


Data		Data Science			
WHEN it is applied	At the beginning of your analysis	BUSINESS INTELLIGENCE	TRADITIONAL METHODS	MACHINE LEARNING	
WHY you need it	data-driven decisions require well-organized and relevant raw data stored in a digital format	use data to create reports and dashboards to gain business insights	PAST	NOW	FUTURE
WHAT techniques are involved	DATA COLLECTION <ul style="list-style-type: none"> PREPROCESSING <ul style="list-style-type: none"> class labeling (categorical vs numerical) data cleansing dealing with missing values CASE SPECIFIC <ul style="list-style-type: none"> e.g. balancing & shuffling datasets 	DATA COLLECTION <ul style="list-style-type: none"> PREPROCESSING <ul style="list-style-type: none"> class labeling (number, text, digital images, digital video data, digital audio data) data cleansing dealing with missing values CASE SPECIFIC <ul style="list-style-type: none"> text data mining, confidentiality - preserving data mining techniques 	ANALYZE THE DATA <ul style="list-style-type: none"> EXTRACT INFO AND PRESENT IT IN THE FORM OF: <ul style="list-style-type: none"> metrics KPIs reports dashboards   	REGRESSION  LOGISTIC REGRESSION CLUSTERING  FACTOR ANALYSIS TIME SERIES 	SUPERVISED LEARNING <ul style="list-style-type: none"> SVMs NNs deep learning random forests bayesian networks ML UNSUPERVISED LEARNING <ul style="list-style-type: none"> k-means deep learning REINFORCEMENT LEARNING <p>similar to supervised learning, but instead of minimizing the loss, one maximizes reward</p>
WHERE	BASIC CUSTOMER DATA HISTORICAL STOCK PRICE DATA	SOCIAL MEDIA FINANCIAL TRADING DATA	PRICE OPTIMIZATION INVENTORY MANAGEMENT	USER EXPERIENCE (UX) SALES FORECASTING	FRAUD DETECTION CLIENT RETENTION
HOW using what tools	PROGRAMMING LANGUAGES     SOFTWARE  IBM SPSS	PROGRAMMING LANGUAGES     SOFTWARE 	PROGRAMMING LANGUAGES     SOFTWARE  Qlik Q	PROGRAMMING LANGUAGES    SOFTWARE  EViews	PROGRAMMING LANGUAGES       SOFTWARE 
WHO	DATA ARCHITECT DATA ENGINEER DATABASE ADMINISTRATOR	BIG DATA ARCHITECT BIG DATA ENGINEER	BI ANALYST BI CONSULTANT BI DEVELOPER	DATA SCIENTIST DATA ANALYST	DATA SCIENTIST MACHINE LEARNING ENGINEER
ARE YOU AWARE	200,000 lines of data is not necessarily big data. It is not just volume that defines a data set as 'big' - variety, variability, velocity, veracity, and other characteristics are determinative as well.		Qualitative analysis tools such as SWOT are not used for quantitative analysis. Hence, they are not part of business intelligence.		In deep learning, there is still a debate on WHY the algorithms used outperform all conventional methods.