DATA ANALYTICS

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MODULE READINGS & SOFTWARE

- Textbooks: Business Analytics for Managers, taking Business Intelligence Beyond Reporting. Gert H.N. Laursen & Jesper Thorlund. Wiley 2010
- http://www.teradatauniversitynetwork.com/tun/ A great and free academic resource for BI (the available resources include cases, articles, tools including Microstrategy, datasets, exercises, etc.
  - Register :
    - The new student password for 2017 is: Analytics
- Labs: Statisical analysis: Excel, Data ETL & Dashboard Design: Qlikview

ASSESSMENT

- Module is 50/50
  - Written Exam 50% - May 2017
  - Practical 50% -
    - Practical project –
      - Excel data analysis 25%
      - Dashboard design 20%
      - Report 5%

Date	Week	Topic	Lab	CA
16/01/2017	1	1: Introduction	Lab1 & Lab2	
23/01/2017	2	2: Exploring Data	Lab3	
30/01/2017	3	2: Exploring Data	lab4	
06/02/2017	4	2: Data Discovery	lab5	
13/02/2017	5	2: Data Discovery	CA lab	
20/02/2017		Study Week		data prep/stats 26/02/2017
27/02/2017	6	Big Data/ Advanced Data analytics	lab6	
06/03/2017	7	Data Visualisation	lab7	
13/03/2017	8	Data Visualisation	lab8	
20/03/2017	9	Business Analytics	lab9	
27/03/2017	10	Business Analytics	lab10	
03/04/2017	11	Modelling and Decision trees	Ca lab	
10/04/2017-21/04/2017	Easter Break			qlik/report 21/04/2017
24/04/2017	12	Revision & Demo	demo	

MODULE LEARNING OUTCOMES

- Identify relevant organisational data sources.
- Prepare data for analysis through cleansing and transformation.
- Apply the concepts of data analytics to a business data analytics project.
- Identify business problems and propose data analytics solutions.
- Discuss current trends in data analytics.

INTRODUCTION

- Data analytics (DA) is the science of examining raw data with the purpose of drawing conclusions about that information. Data analytics is used in many industries to allow companies and organization to make better business decisions and in the sciences to verify or disprove existing models or theories.

- http://www.gartner.com/it-glossary/analytics

INTRODUCTION

- Data analytics focuses on inference, the process of deriving a conclusion based solely on what is already known by the researcher.
- The science is generally divided into exploratory data analysis (EDA), where new features in the data are discovered, and confirmatory data analysis (CDA), where existing hypotheses are proven true or false.

INTRODUCTION

- The term "analytics" has been used by many business intelligence (BI) software vendors as a buzzword to describe quite different functions. Data analytics is used to describe everything from online analytical processing (OLAP) to CRM analytics in call centres. Banks and credit cards companies, for instance, analyse withdrawal and spending patterns to prevent fraud or identity theft. Ecommerce companies examine Web site traffic or navigation patterns to determine which customers are more or less likely to buy a product or service based upon prior purchases or viewing trends. Modern data analytics often use information dashboards supported by real-time data streams. So-called real-time analytics involves dynamic analysis and reporting, based on data entered into a system less than one minute before the actual time of use.

TechTarget

INTRODUCTION

- Business intelligence (BI) is a technology-driven process for analysing data and presenting actionable information to help corporate executives, business managers and other end users make more informed business decisions. BI encompasses a variety of tools, applications and methodologies that enable organizations to collect data from internal systems and external sources, prepare it for analysis, develop and run queries against the data, and create reports, dashboards and data visualizations to make the analytical results available to corporate decision makers as well as operational workers.
- http://www.gartner.com/it-glossary/business-intelligence-bi/

INTRODUCTION

- Business intelligence combines a broad set of data analysis applications, including ad hoc analysis and querying, enterprise reporting, online analytical processing (OLAP), mobile BI, real-time BI, operational BI, cloud and software as a service BI, open source BI, collaborative BI and location intelligence. BI technology also includes data visualization software for designing charts and other infographics, as well as tools for building BI dashboards and performance scorecards that display visualized data on business metrics and key performance indicators in an easy-to-grasp way.

INTRODUCTION

- Business intelligence is sometimes used interchangeably with business analytics; in other cases, business analytics is used either more narrowly to refer to advanced data analytics or more broadly to include both BI and advanced analytics.
- Information technology which provides decision makers with valuable information and knowledge by leveraging a variety of data sources as well as structured and unstructured information.
  - Data sources external or internal to the organization
  - Information quantitative or qualitative
  - Output: knowledge
  - Input: information and data

- https://hbr.org/video/2386816175001/business-analytics-defined

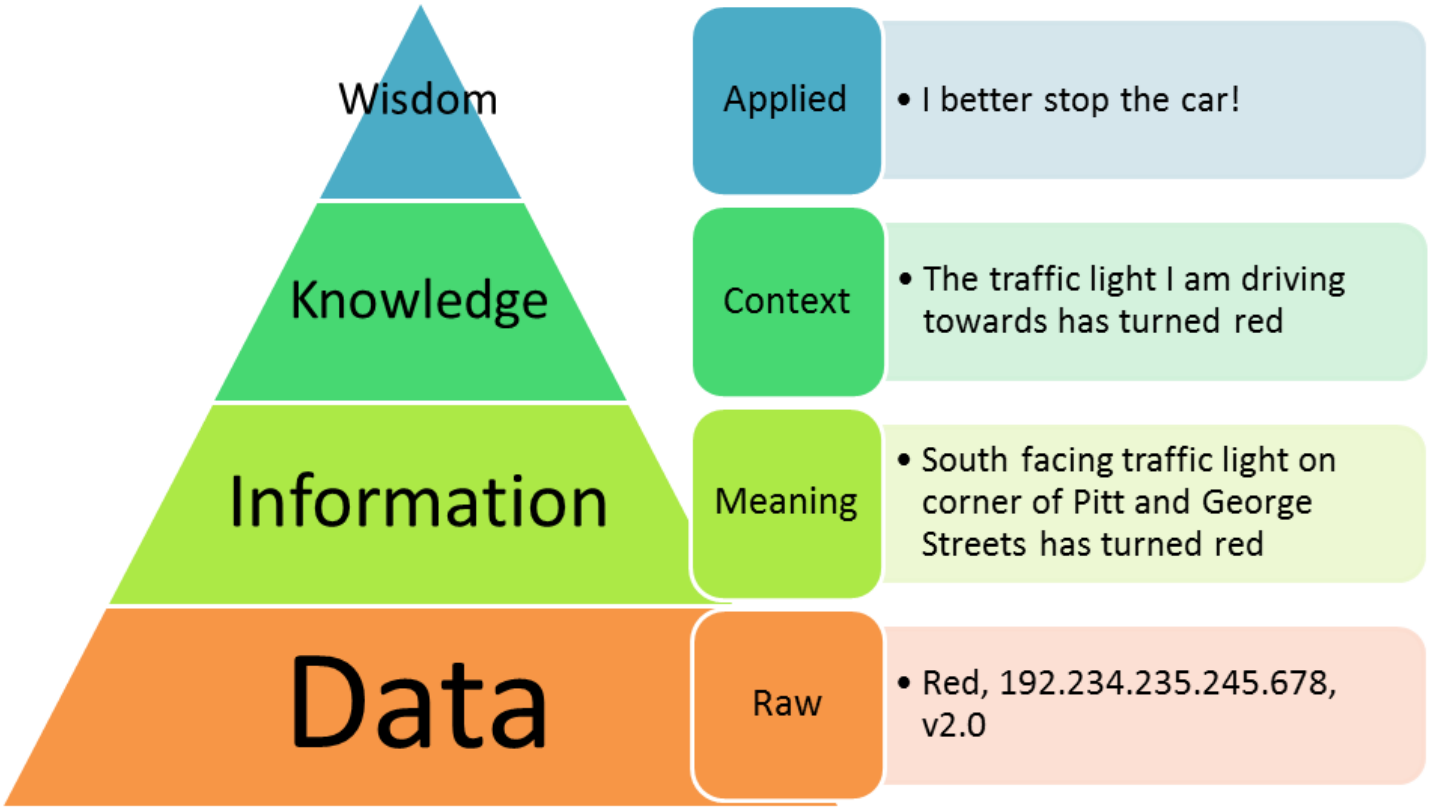
DATA, INFORMATION, KNOWLEDGE

- Data
  - May or may not be correct
  - Eg. Sales order at a restaurant included a large burger, medium fries and milkshake
- Information
  - Subset of data
  - Data possessing context, relevance, and purpose
  - Eg. The numbers indicating the daily sales (in dollars, quantity, etc.) of burgers, fries, vanilla milkshakes

DATA, INFORMATION, KNOWLEDGE

- Knowledge
  - Justified beliefs about relationships among concepts
  - Eg. The relationship between the quantity of bread that should be ordered, the quantity of bread in inventory, and the daily sales of burgers and other products that use bread.

DATA, INFORMATION, KNOWLEDGE, AND DECISIONS



INTRODUCTION

- Data analytics in use:
  - CRM
  - Marketing
  - Production
  - Logistics
  - Sport
  - Telecoms

- Candycrush
- Amazon
- Sailing team

- Banking fraud
- Health care fraud
- Social benefit fraud

DATA SCIENCE - SKILLS

- What skills are needed in the IT industry today?
- http://www.computerworld.com/article/3012033/it-skills-training/10-hottest-tech-skills-for-2016.html
- http://www.computerworld.com/article/3147427/it-skills-training/10-hottest-tech-skills-for-2017.html

BUSINESS ANALYST

- Business analysts focus on database design (database modeling at a high level, including defining metrics, dashboard design, retrieving and producing executive reports, and designing alarm systems), ROI assessment on various business projects and expenditures, and budget issues. Some work on marketing or finance planning and optimization, and risk management. Many work on high-level project management, reporting directly to the company's executives.
- In general, business analysts are hired first, and if data and algorithms become too complex, a data scientist is brought in.

JOBS

- Business Systems Analyst jobs.ie
- Data analyst jobs.ie
- Business Intelligence jobs.ie

DATA ANALYTICS

- Why is data analysis so important?