Course 2 Week 2

Data inspired decision making

* Explore different data sources to find out what they have in common

Algorithm

* Process to follow for a specific task

Note: if data is interpreted incorrectly it can lead to huge losses – Coke launch failure, Mars orbiter loss

Note: if data is used correctly and strategically, businesses can transform and grow their revenue

**Qualitative & Quantitative Data**

Quantitative

* Specific
* Objective
* Measures of numerical facts
* The what
* How many
* How often

Qualitative

* Subjective
* Explanatory
* Measures of qualities and characteristics
* Eg. Hair color
* Why
* Visualized as charts and graphs
* Adds a lot of context to a problem

Some data presentation tools

Reports

* Static collection of data given to stakeholders periodically
* Pros
  + Snapshot of high-level historical data
  + Easy to reference
  + Quick to design
  + Easy to use
  + Pre cleaned and sorted data
* Cons
  + Need regular maintenance
  + Aren’t visually appealing
  + Can’t show live data

Dashboards

* Monitors live incoming data
* Pros
  + More access to information
  + Can interact with data
  + Long term value because it is dynamic
  + Time saving
  + Nice to look at
* Cons
  + Take a long time to design
  + Can be less efficient
  + Needs lots of maintenance if anything breaks
  + Can overwhelm people with information

**Data vs Metrics**

Metric

* Single, quantifiable data that can be used for measurement
* Usually involve simple math
  + Eg. Revenue (number of sales \* sales price)
* We need the right metrics to get the answers we are looking for
  + Eg. ROI – how well an investment is doing
  + Eg. Customer retention rates
* Note: data starts as a collection of facts until we organize them into individual metrics that represent a single data type
* Metric goal – a measurable goal set by a company and evaluated using metrics

**Pivot Table**

A data summarization tool used to sort, reorganize, group, count, total, or average data

**Mathematical Thinking**

* Helps us solve problems and find new solutions
* Looking at a problem and breaking it down logically
* Step by step process
* To help find patterns in the data

**Big and small data**

* Small data are
  + Specific
  + Short time period
  + Day to day decisions
  + Spreadsheets
  + Simple to collect, store, manage, sort, visualize
* Big data are
  + Large scale questions and problems
  + Need to be broken down to be analyzed
  + SQL database
  + Less specific
  + Longer time periods
  + Eg. To make business decisions
  + Beneficial for helping organizations spot trends
    - Eg. In buying patterns, to create new products that will make customers happy
  + Beneficial for keeping track of online presence of companies
    - Eg. Feedback, complaints etc. to give insights into how to improve
  + Beneficial for understanding current market conditions
  + Beneficial for helping identify more efficient ways of doing business and saving time and money in the process
  + Cons:
    - Data overload – useless data in the database
    - Data needed is not easily accessible
    - Slower, inefficient decision making time frames
    - Gaps in big data business solutions
  + 4 V’s
  + Volume
    - Amount of data
  + Variety
    - Different kinds of data
  + Velocity
    - How fast the data can be processed
  + Veracity
    - Quality and reliability of the data