Introduction to Data Analysis and Course Overview

Therri Usher

An Introduction to Practical Data Analysis in Medicine and Public Health

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What's so great about data?

Data is everywhere!

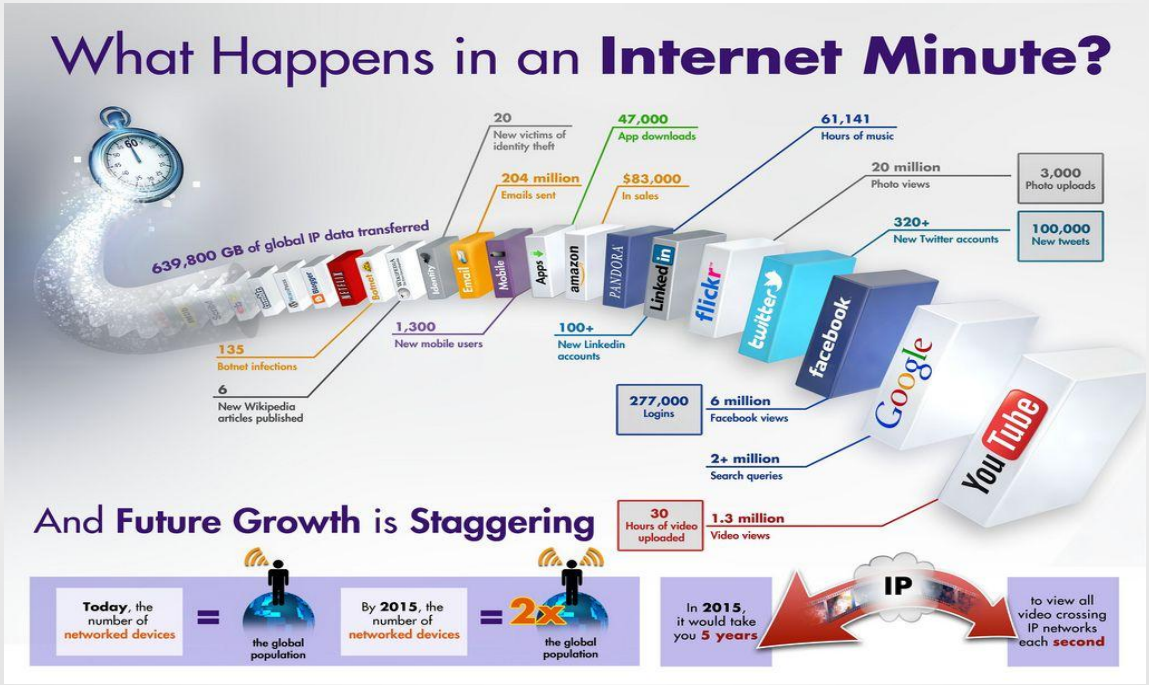
Source: Politico

Source: CBS Dallas/Fort Worth

Source: Her World Plus

What's so great about data?

Data is exploding!



Source: [Intel Free Press]

What is data analysis?

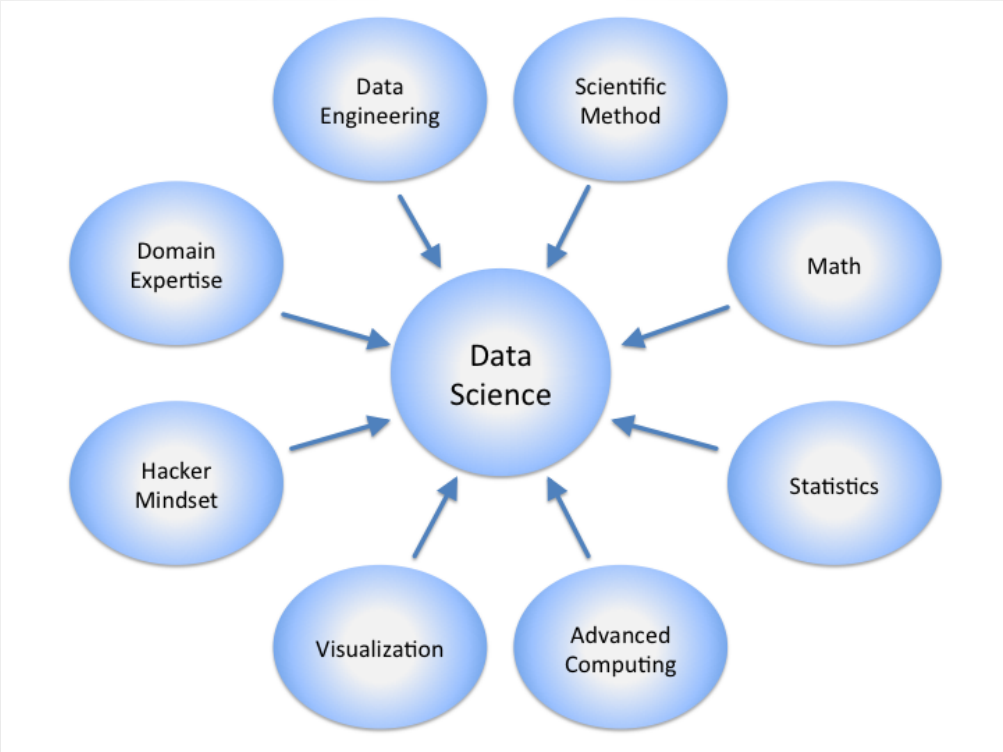
“Data science is the study of generalizable extraction of knowledge from data.”

Data analysis is “a process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision making.”

Statistics is “the study of the collection, analysis, interpretation, and organization of data.”

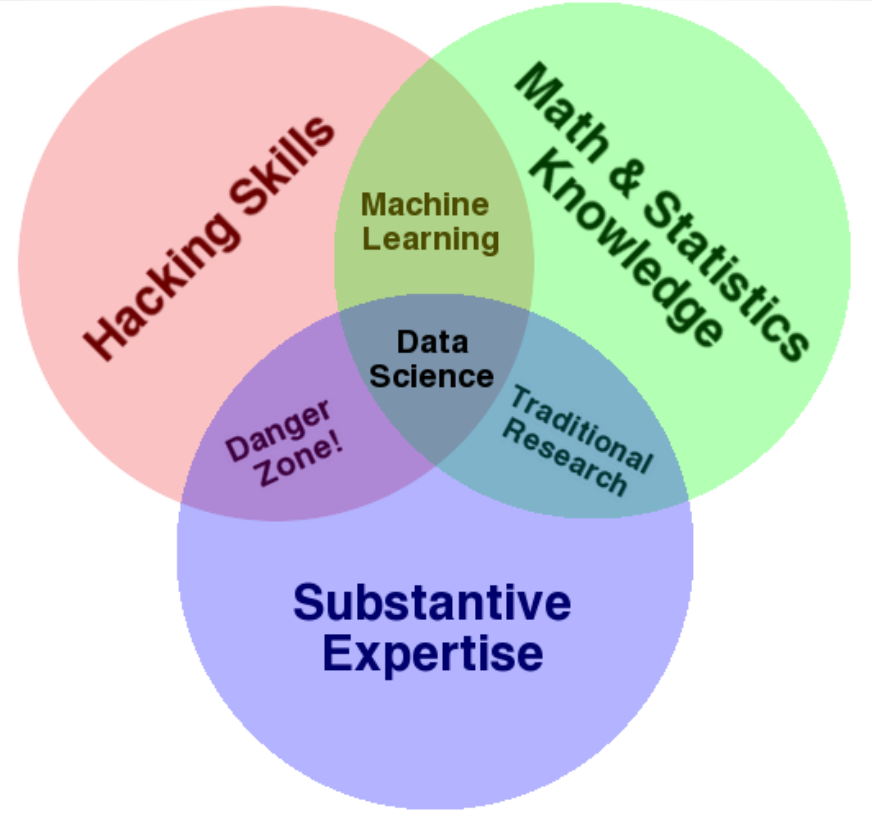
Source: Wikipedia, Wikipedia, and Wikipedia

What is data analysis?



Source: Wikipedia

What is data analysis?



Source: Drew Conway

What does a data analyst look like?

Source: Wikipedia

Source: Prembel Foundation

Source: Wikipedia

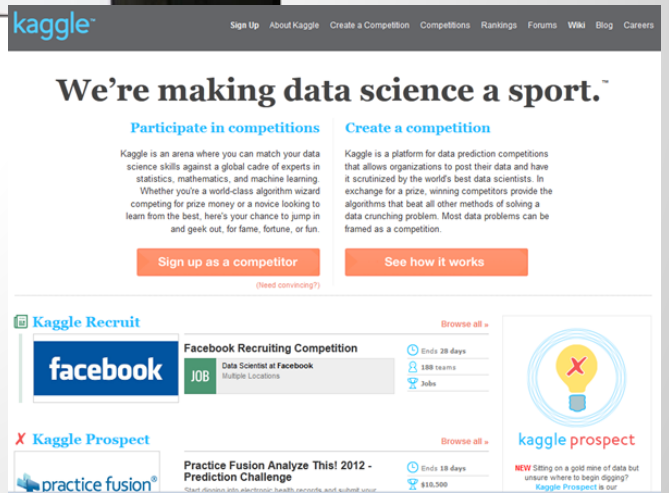
Why should I become a data analyst?

- For the glory
- For the money
- For the fun
- To save lives
- Because you are needed

Source: Jeff Leek

Source: The New York Times

Source: CDC



Source: PsPrint via Kaggle

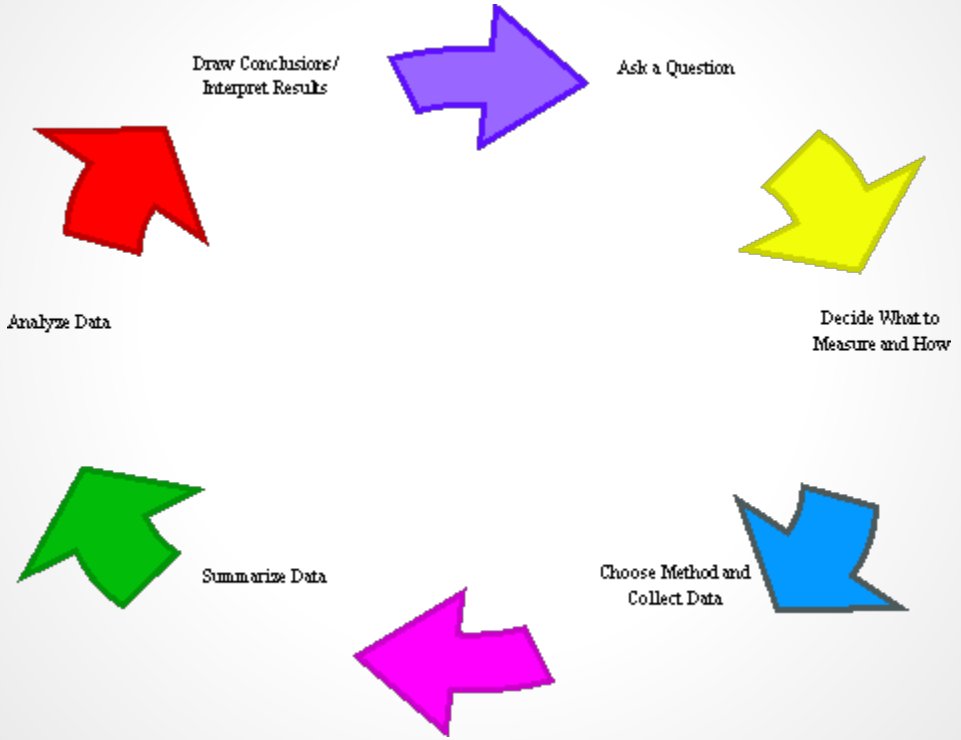
How can I become a data analyst?

- Take my course!
- Take an applied statistics course (Jeff Leek, Brian Caffo)
- Find online and book resources (Wikipedia, Springer, blogs, etc.)
- Complete Coursera's data science and analysis specializations
- Practice!

Source: TIBCO Spotfire

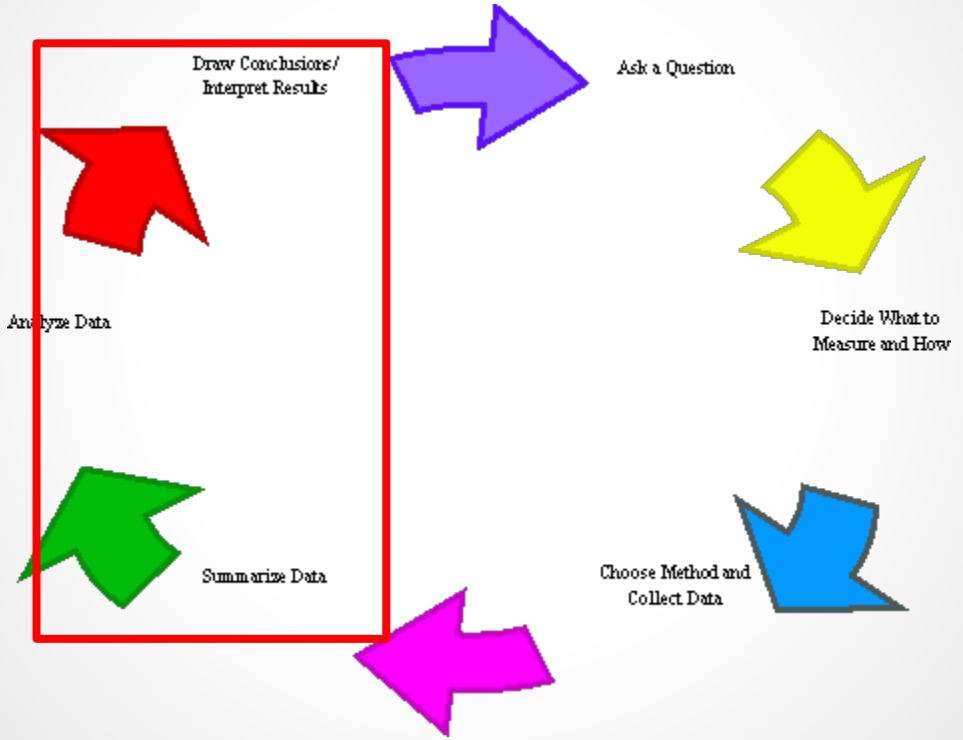
Bottom line: The amount of data and the need for data analysts are increasing rapidly. You could be the data analyst that changes the world. Data is knowledge, knowledge is power.

Process of Statistical Analysis



Source: [The Role of Statistics in Research]

Process of Statistical Analysis



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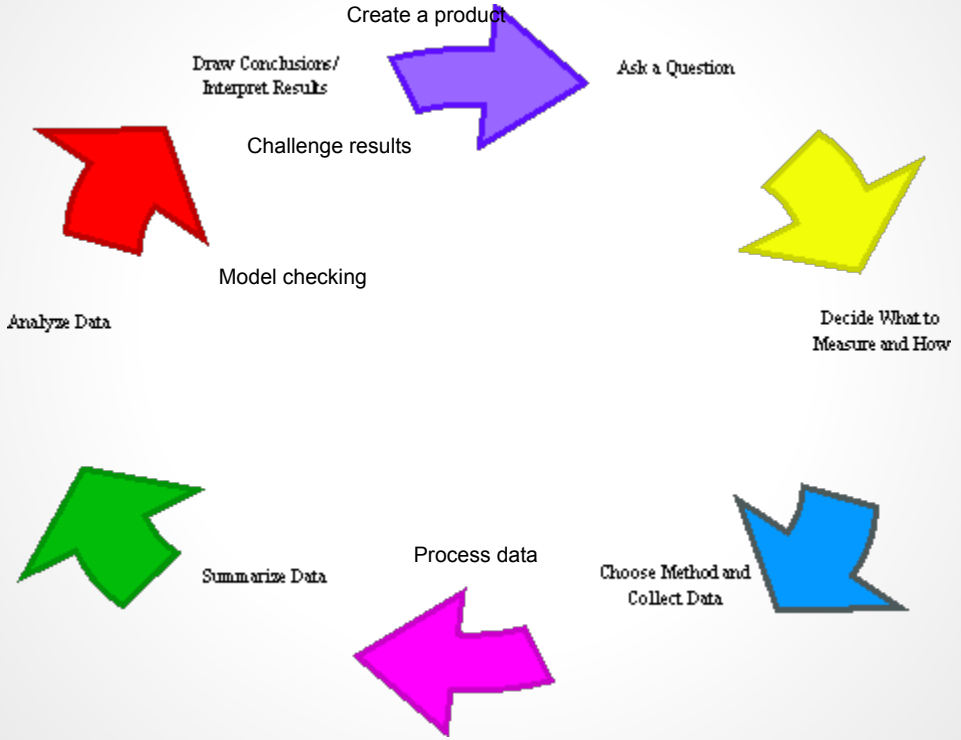
Process of Data Analysis



Source: [The Role of Statistics in Research]

Syllabus Review

- Brief overview
- Feel free to ask any questions!

Class Structure

- Quick evaluation of a portion of a data analysis
- Introduction of new information or review and continuance of information from previous class
- Informal active learning activity

KEYWORD: **Active**

Next Class: Review of R

- Create a FREE account at Code School (https://www.codeschool.com/)
  - You will be completing the FREE Try R course and submitting a screenshot of your report card as verification. Feel free to complete the course before class!
- Download R (http://www.r-project.org/)
- Download RStudio (http://www.rstudio.com/products/rstudio/download/)