Data Science and the Data Scientist Toolkit

// FLATIRON SCHOOL

Agenda

- What is Data Science?
  - Roles and Responsibilities
  - The Process
- The Data Science Toolkit (Phase 1)

So:
What is
Data Science?

What is Data Science?

Find out for yourself!

Prompt: Spend the next 10 minutes skimming and discussing your assigned blog post, then come back and report your findings to the rest of us.

1. A Deep Look Into 13 Data Scientist Roles and Their Responsibilities
2. The Data Science Process
3. Most In Demand Data Science Technical Skills
4. A Learning Path to Becoming a Data Scientist
5. Compilation of Advice for New and Aspiring Data Scientists

Let’s Discuss!

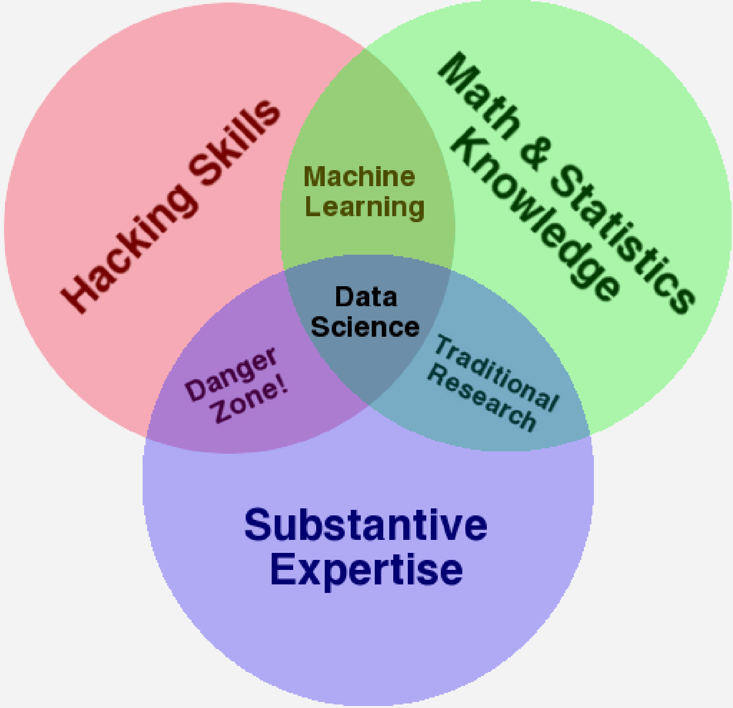
What does a “data scientist” do?

What are the main skills you need to be a “data scientist” ?

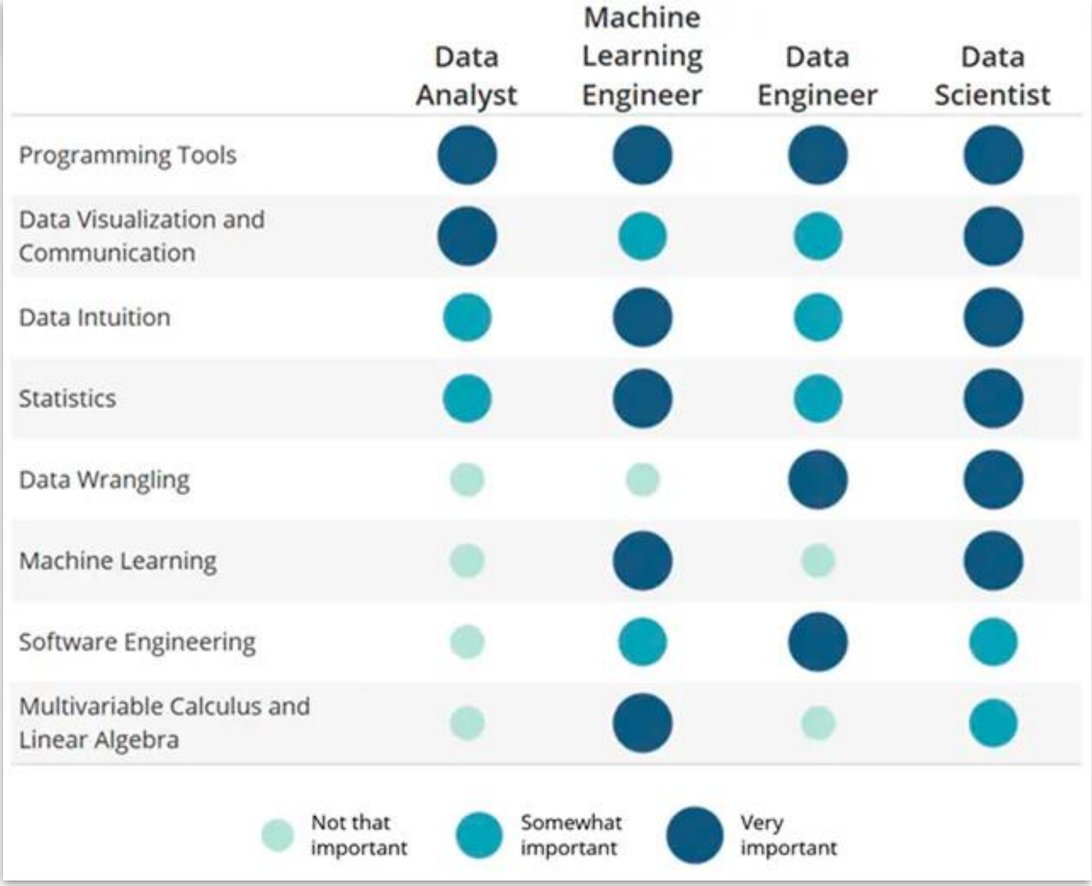
What is consistent among these posts, and what is in dispute?

“A data scientist is a professional responsible for **collecting, analyzing and interpreting** data on various scales. The data scientist role is an **offshoot of several traditional technical roles**, including mathematician, scientist, statistician and computer professional.”

The Data Science Venn Diagram



Common Roles & Responsibilities

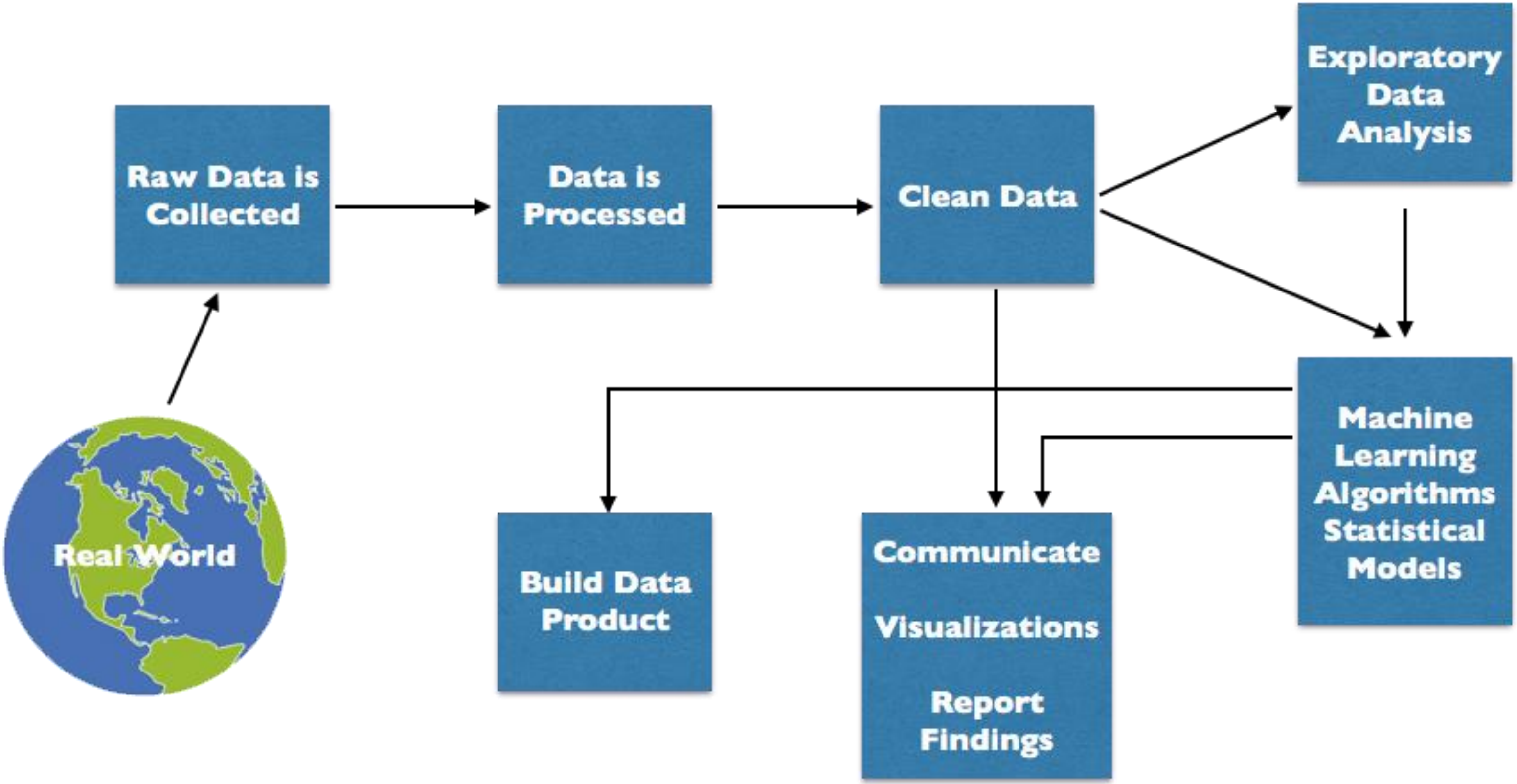


	Data Analyst	Machine Learning Engineer	Data Engineer	Data Scientist
Programming Tools	●	●	●	●
Data Visualization and Communication	●	◐	◐	●
Data Intuition	◐	●	◐	●
Statistics	◐	●	◐	●
Data Wrangling	○	○	●	●
Machine Learning	○	●	○	●
Software Engineering	○	◐	●	◐
Multivariable Calculus and Linear Algebra	○	●	○	◐

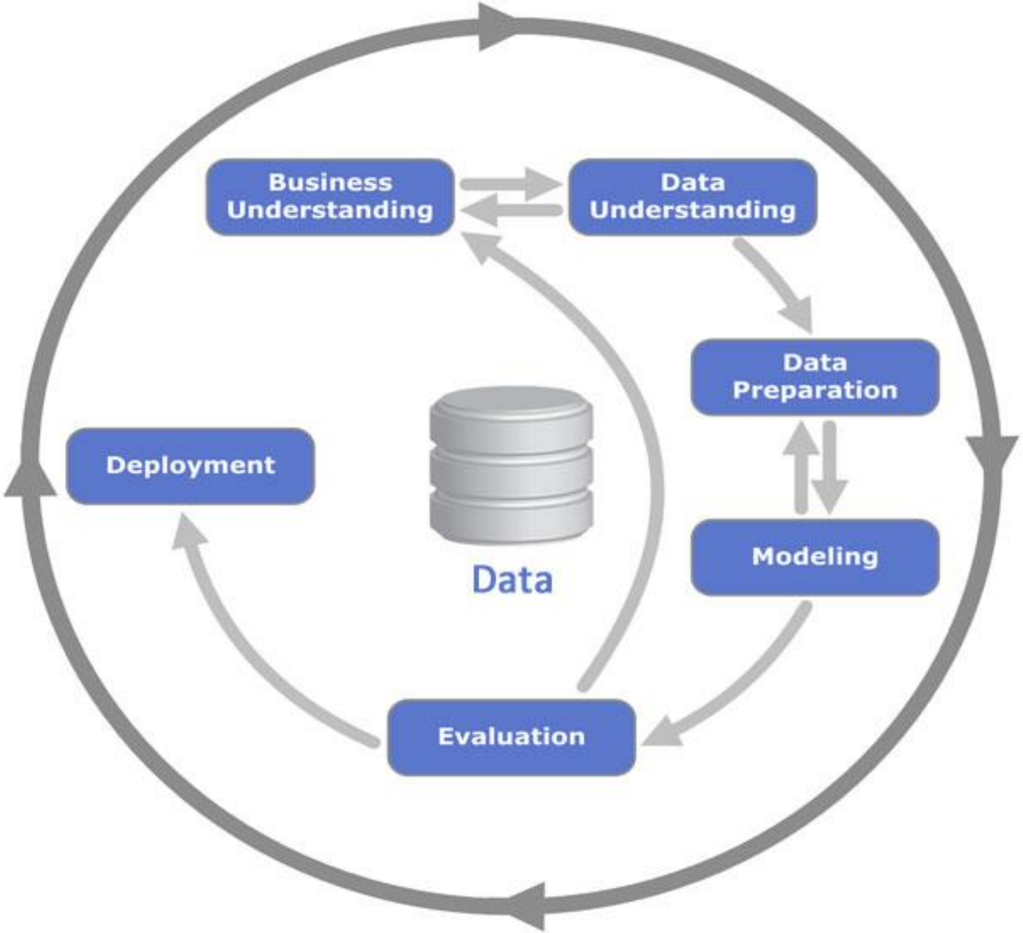
○ Not that important ◐ Somewhat important ● Very important

“Regardless of your exact job title, if you’re in the field of data science, you’ll be expected to be **involved in a lot of different steps** in the data-driven product development cycle. You should be ready to discover new areas to **optimize**, figure out the **metrics** that matter, find the **data** to inform these metrics, design and execute **experiments**, and **present the results** of experiments/models in concise, accurate, and convincing ways.”

The Data Science Process



CRISP-DM Process Diagram



Source: Kenneth Jensen

The Data Science Toolkit

Data Science Toolkit - Phase 1

Languages

python™

SQL

Interfaces

jupyter

illumiDesk

Version Control

git

GitHub

Versioning

ANACONDA.

PyPi

Languages

Python

- Free, open source, versatile, powerful
- Not just for data science!
- Object-oriented (everything is an ‘object’)
- The Zen of Python

Structured Query Language (SQL)

- Connect to, change, and retrieve data from relational databases
- Developed in the 1970s, still going strong
- Many flavors

Interfaces

Jupyter Notebooks

- Streamlined document-centric interface for running and sharing code

IllumiDesk

- Hosts Jupyter Notebooks in the cloud

Code-Focused Text Editor

- Write text files in a code-native format
- **VS Code** is one of many that would work

Version Control

Git

- Distributed version tracking on any files
- Folder → "Repository"

GitHub

- Hosts Git repositories
- Collaborate and share code with others
- Backbone of the open source community
- Your Data Science portfolio!

Versioning

Anaconda

- Package management and deployment
- Designed with Data Science in mind
- Create and share environments

Python Package Index (PyPi)

- Database of public Python libraries
- Package installer (pip)
- Not everything is on Anaconda

Now:
Time to Get Started!