Data analysis, data science, data engineering

an overview

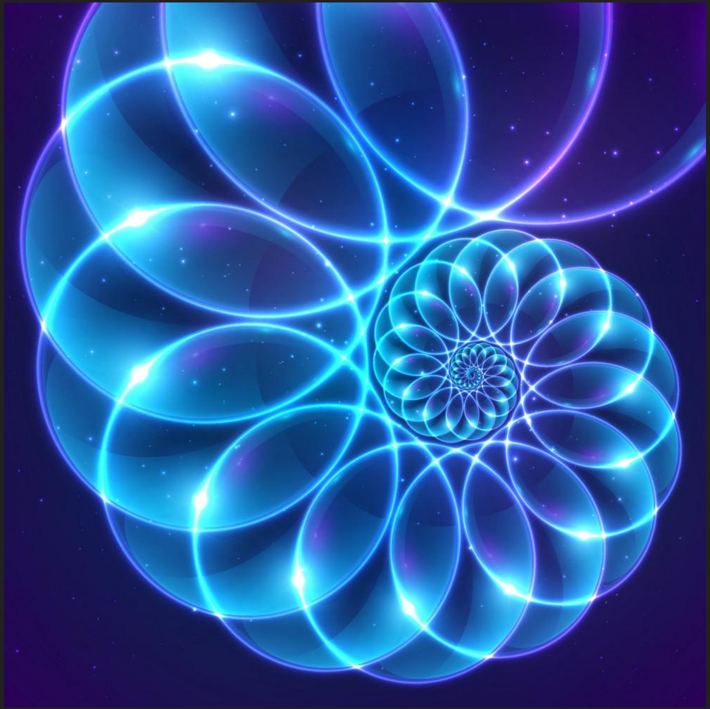
What we talk about when we talk about data work

“All models are wrong, but some are useful”

Box, 1979

What is data analysis?

1. categorize
2. → count
3. → compare
4. → consider
5. → communicate
6. … and spiral back around
7. a particular form of **organized thinking**
8. 30 minute interactive: https://git.io/datatalk



What is data engineering?

- categorize → count → compare → consider → communicate
- … → count → …

- “Import CSV: there’s your ‘engineering’, Mr. Pretentious Hacker.”
    - … hhmm, this data is kind of messy.
- Hey, Jane knows Python! Maybe she could write a short script ...
- … Jane is managing a Github repo to host the Python library ...
- … we’re adding 2GB/day: let’s hire another developer ...
- … Jane thinks about starting a company of her own ...

How should we think about data engineering?

- I am a **brilliant code poet**
- I am a ~~brilliant code poet~~ **cost center**
- I am a means, towards the end of ...
- … data analysis?
- **How do I know if I have done a good job?**

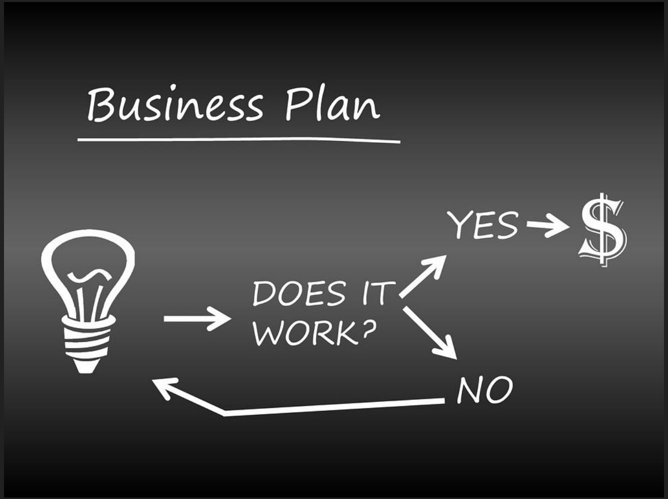
What is data science?

- categorize → count → compare → consider → communicate
- … → compare → …   (with higher mathematics)
- … → consider → communicate

Once more, with feeling

- categorize → count → compare → communicate → consider
- data eng data science

Who is data analysis for?



Data analysis for decision making ...

… is an organizational skill

- categorize → count → compare → communicate → consider → **CHOOSE**
- client eng data eng data science **PRODUCT**
- (cost) (cost) (cost) **REVENUE!**

Notice ….

1. Hey, where is “coordination?”
2. The causal flow is **from** means **to** ends
3. We’re “data-driven” … in the worst way ...

Reverse the default flow

- decider → analyst → engineers
- data, “like fire, will be a good servant, [but] an ill master.”

Data engineering #protips

1. Airflow is at least half of the right model (categorization serves counting) ...
2. … is it the decision-makers’ servant?
3. Transmit strongly-typed, offset-oriented protocols (i.e. protobuf) …
4. … at scale, JSON becomes an awful serialization format.

The model

categorize → count → compare → consider → communicate

Thank you

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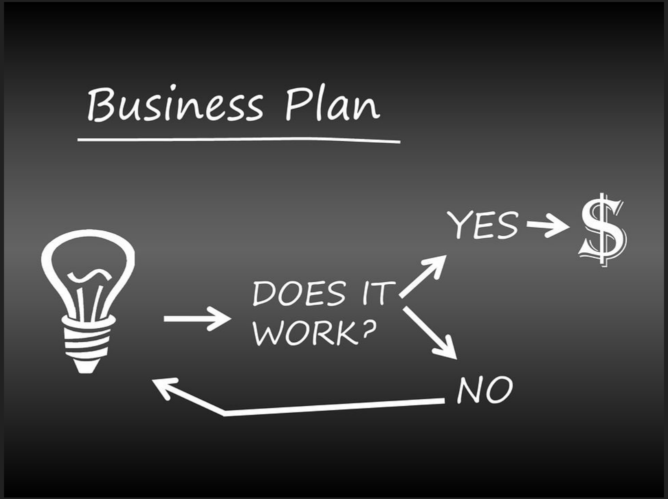
https://git.io/datatalk2 (these slides)

https://git.io/datatalk

https://twitter.com/sampenrose

http://www.sampenrose.net

Who is data analysis for?



Business Plan
DOES IT WORK?
YES
$
NO