

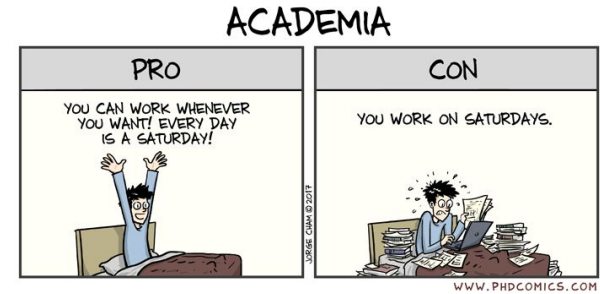


Data Science: Applications

Lecturer: Mohammad Taha Fakharian

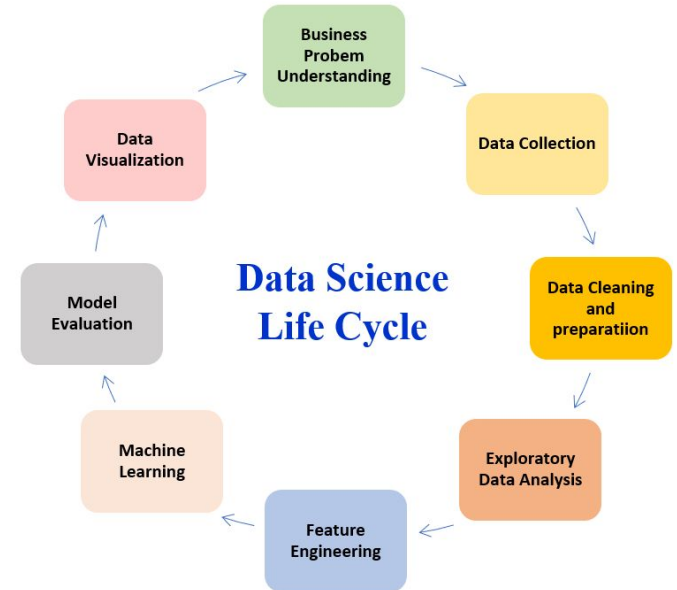
Academia vs industry

- Priorities
- The 80/20 rule
- Which mindset is better?



What we have learnt so far

1. Asking question and data gathering
2. Data preprocessing
3. Data analysis
4. Feature engineering
5. Modeling
6. Data visualization



Let's solve some real-life problems!

Problem 1: billboard advertising



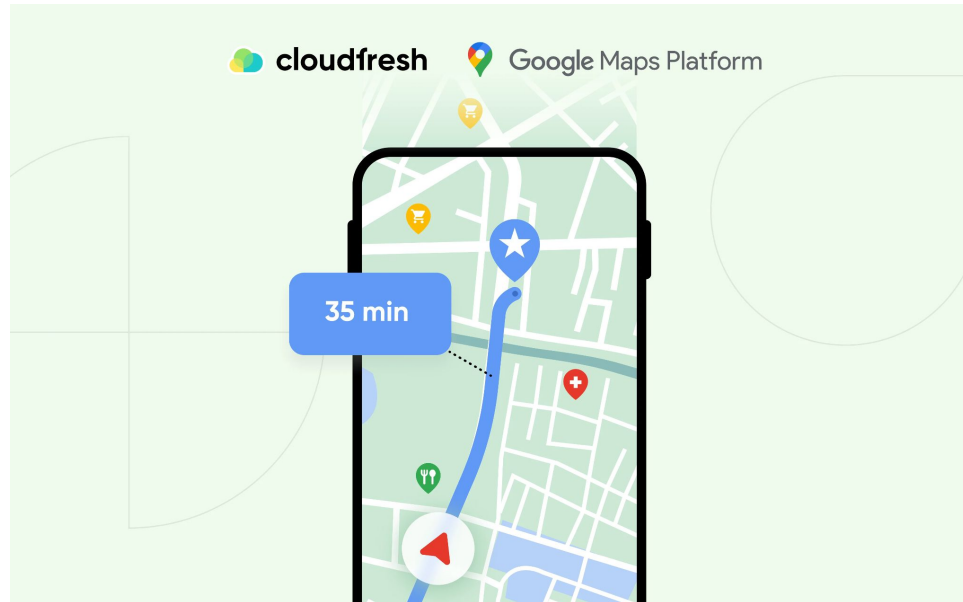
Problem 2: ATM transactions



Let's make it harder!

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Problem 3: ETA (Estimated Time of Arrival)



Problem 4: retail sells



LLM era!

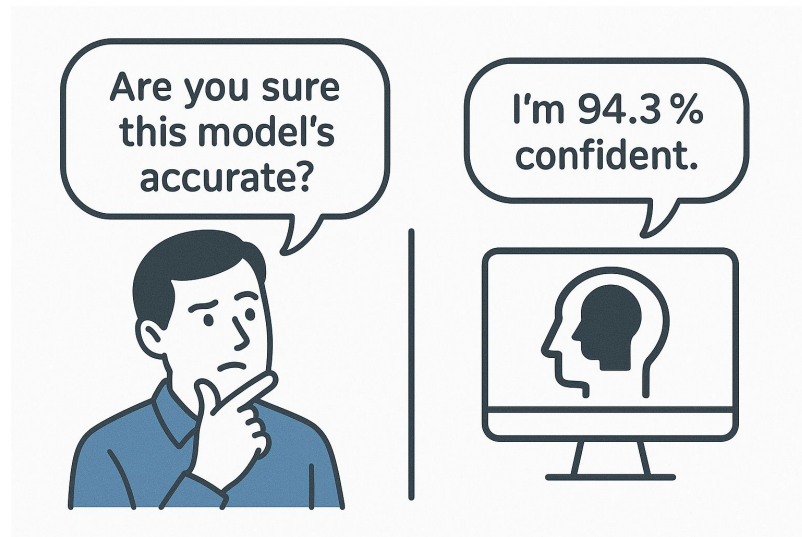
The rise of LLMs in data science

- Natural Language Interfaces for Data
 - Query databases or dashboards using plain language
- Automated exploratory data analysis
- Code generation & acceleration
- Document understanding at scale!
- Impact across domains



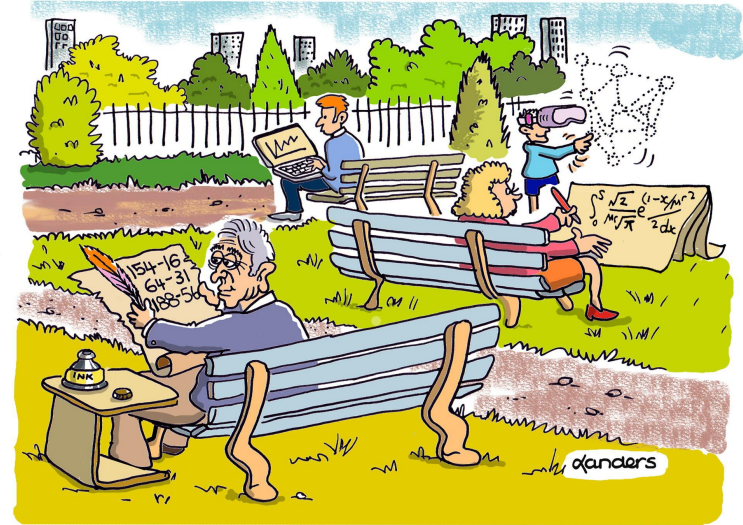
Using LLMs responsibly in data science!

- Hallucination Risk
- Privacy & compliance
- LLMs as tools, not oracles!
- Combining with traditional models
- Prompt engineering is a skill
 - Why not programming LLMs instead?



Final Notes

- Understand business metrics
- Understand your limitations
- Understand the 80/20 rule
- Data that matters! Speak with analytics, not just words!



The many generations of data science