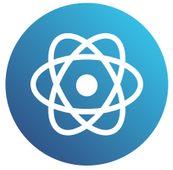
What is Data Science?

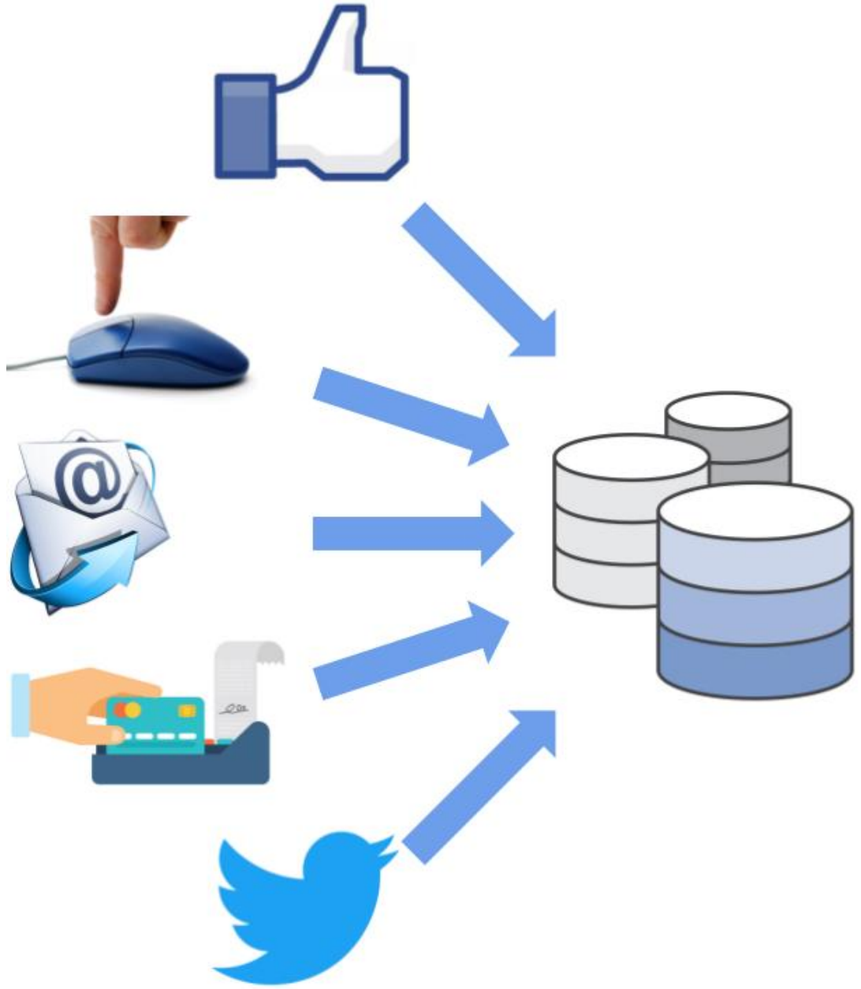
DATA SCIENCE FOR BUSINESS



Mari Nazary
VP of Content, DataCamp

Let's ask Google!

Making data work for you



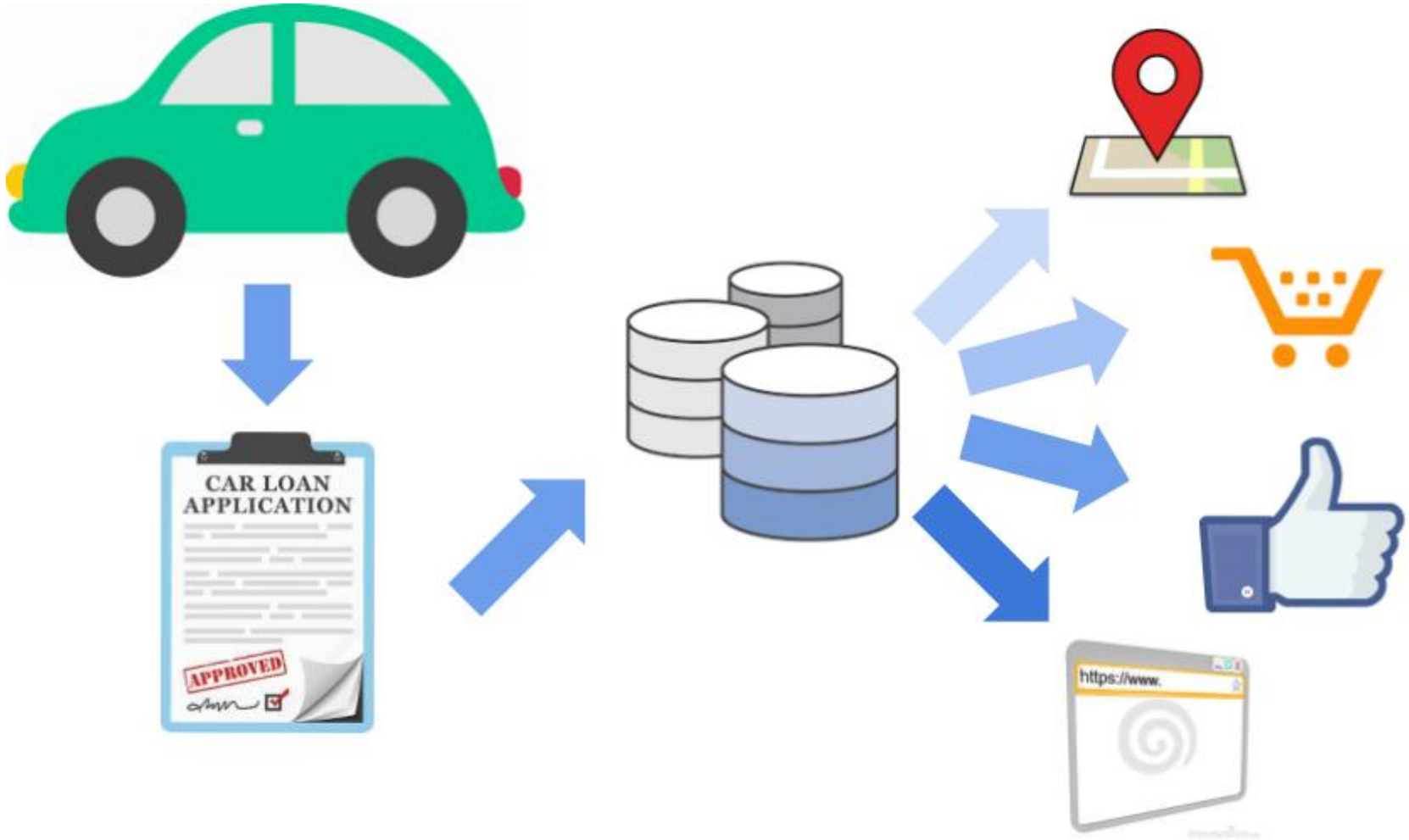
What can data do?

- Describe the current state of an organization or process
- Detect anomalous events
- Diagnose the causes of events and behaviors
- Predict future events

Why now?

Why now?

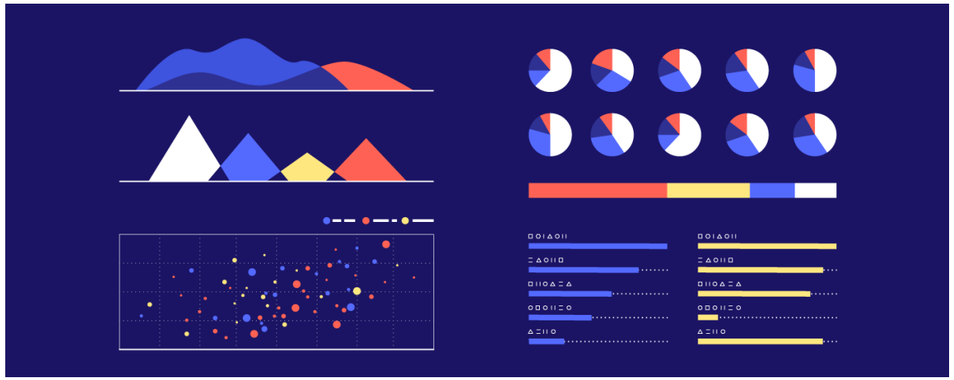
Why now?



The data science workflow

Data collection

Exploration and visualization



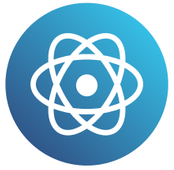
Experimentation and prediction

Let's practice!

DATA SCIENCE FOR BUSINESS

Applications of Data Science

DATA SCIENCE FOR BUSINESS



Mari Nazary
VP of Content, DataCamp

More case studies

- Traditional machine learning
- Internet of Things (IoT)
- Deep Learning

Case study: fraud detection

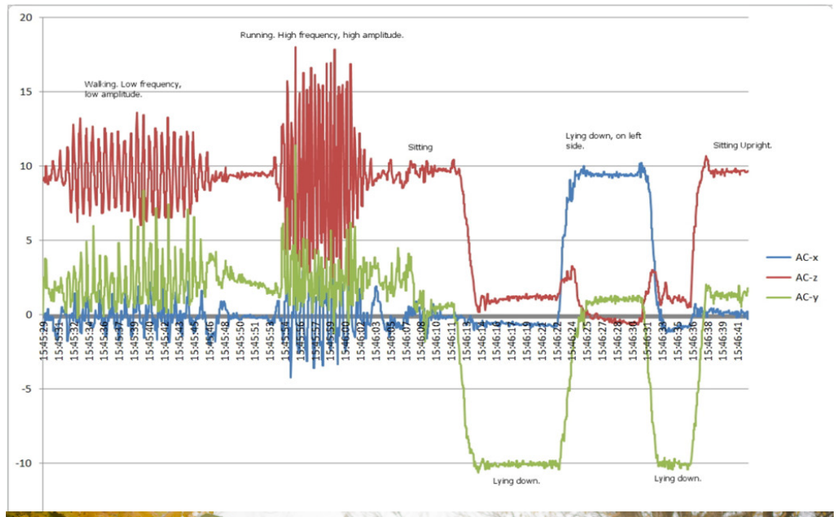
Case study: fraud detection

Amount	Date	Type	...
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

What do we need for machine learning?

- A well-defined question
  - *"What is the probability that this transaction is fraudulent?"*
- A set of example data
  - *Old transactions labeled as "fraudulent" or "valid"*
- A new set of data to use our algorithm on
  - *New credit card transactions*

Case study: smart watch



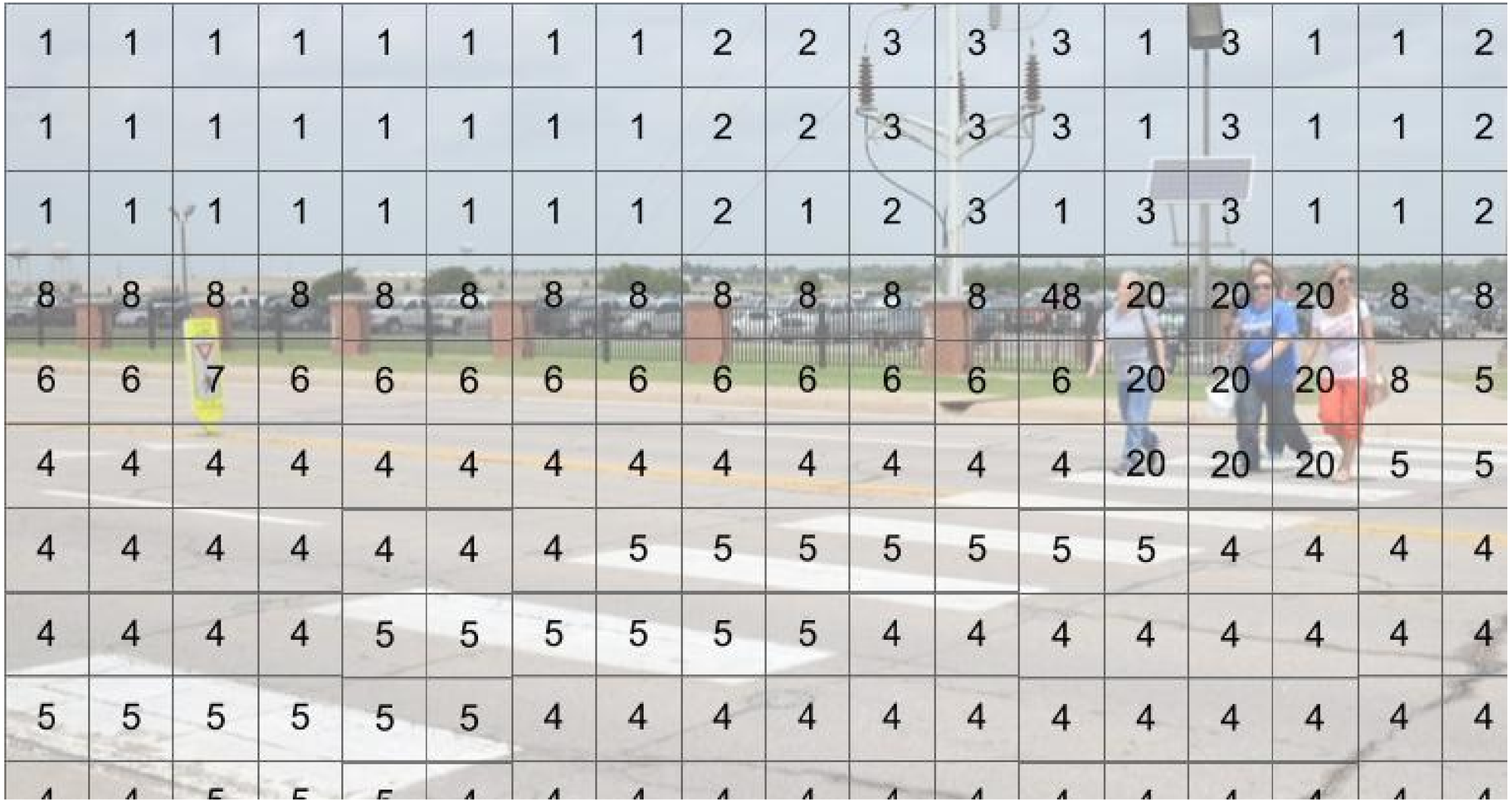
Internet of Things

Anything involving a physical device is probably an IoT problem.

- Smart watches
- Internet-connected home security systems
- Electronic toll collection systems
- Building energy management systems
- Much, much more!

Case study: image recognition

Case study: image recognition



Deep learning

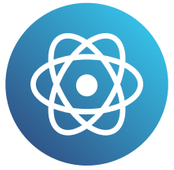
- Many neurons work together
- Requires much more training data
- Used in complex problems
  - Image classification
  - Language learning/understanding

Let's practice!

DATA SCIENCE FOR BUSINESS

Building a data science team

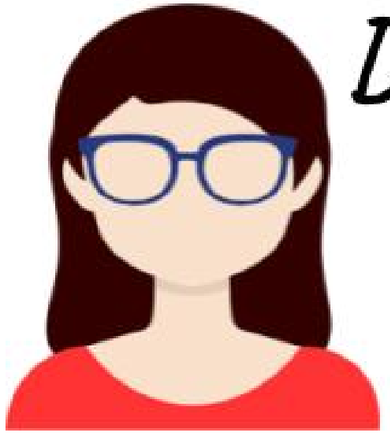
DATA SCIENCE FOR BUSINESS



Mari Nazary
VP of Content, DataCamp

Members of your team

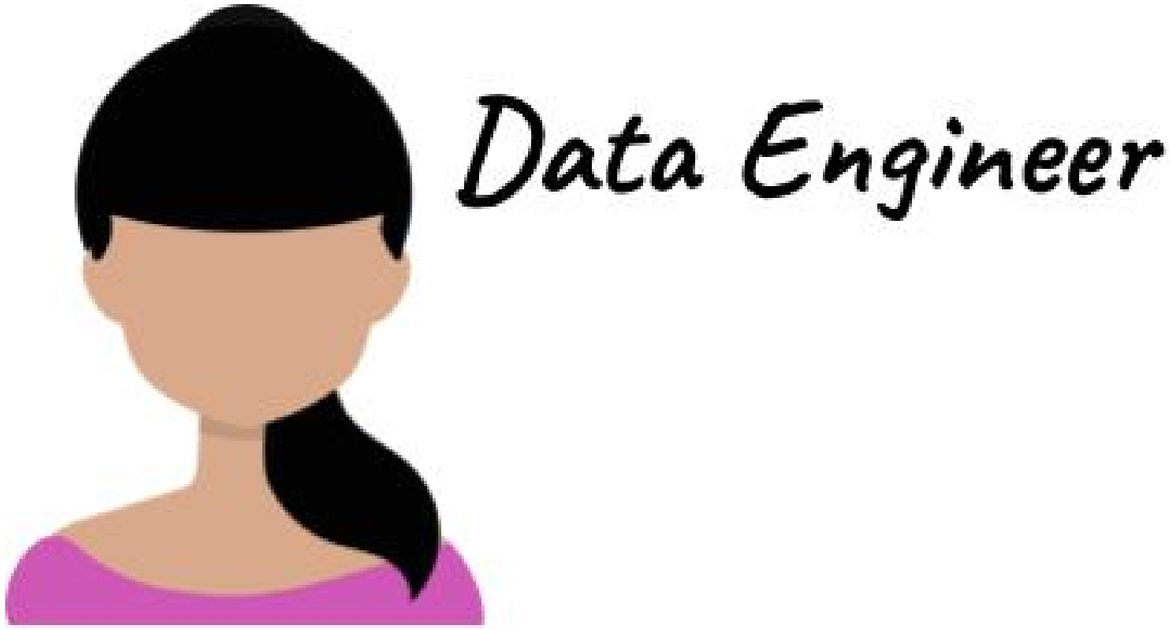
Data Engineer



Data Analyst

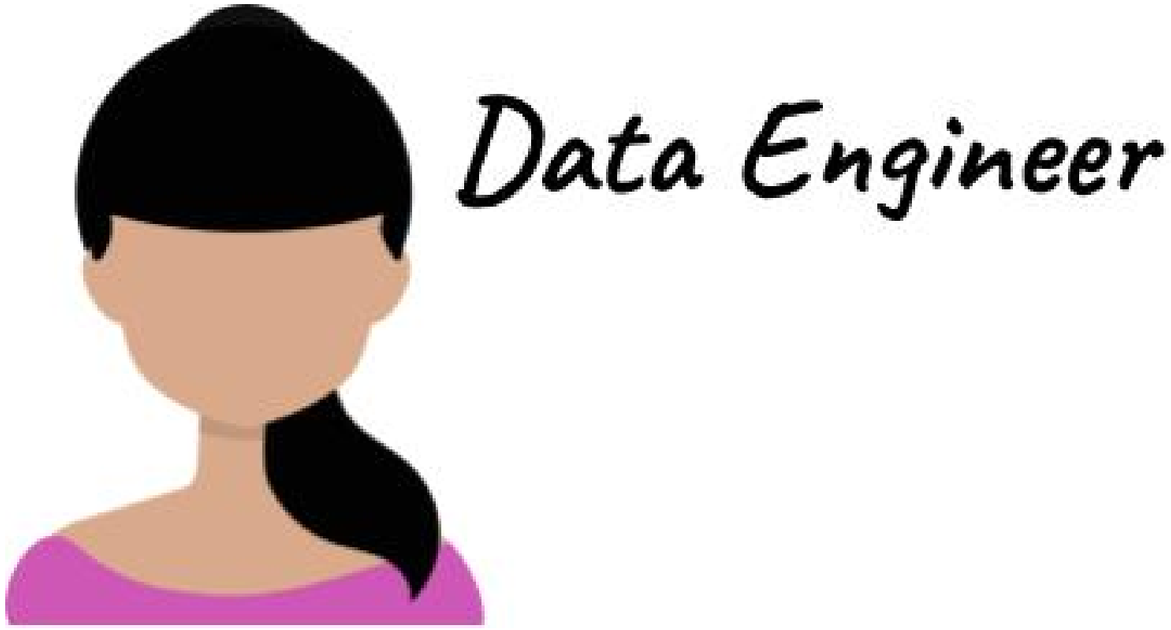
Machine Learning Scientist

Data engineering



- Information architects
- Build storage solutions
- Maintain data access

Data engineering tools



- SQL
  - Storing large quantities of data
- Java, Scala, or Python
  - Programming languages for processing data and automating tasks

Data analysis

- Creating dashboards
- Hypothesis testing
- Data visualization

Data analysis tools

- Spreadsheets (Excel or Google Sheets)
  - Simple storage and analysis
- SQL
  - Large-scale analysis

business intelligence

- BI Tools (Tableau, Power BI, Looker)
  - Dashboarding and sharing information

Machine learning

- Predictions and extrapolations
- Classification
- Stock price prediction
- Image processing
- Automated text analysis

Machine learning tools

- Python and R
  - Programming languages for creating predictive models

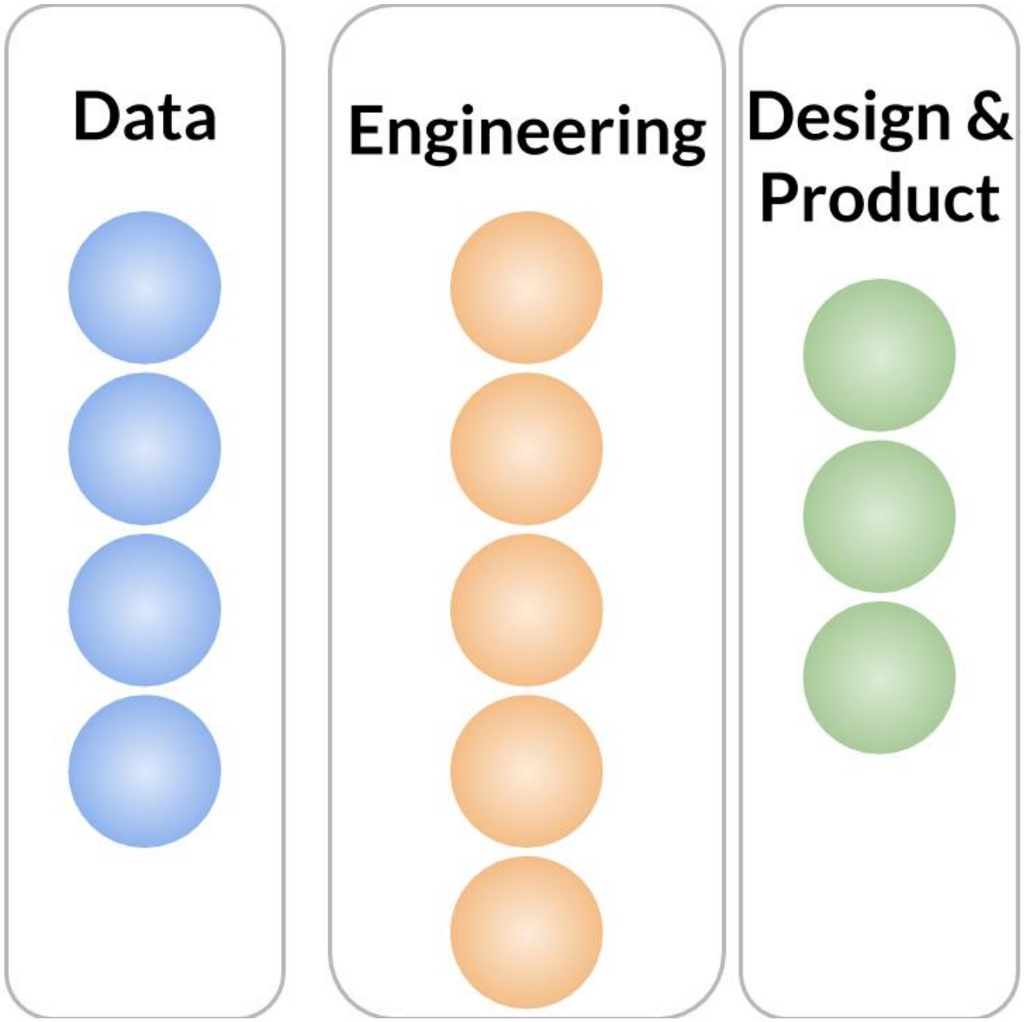
Review: members of your team

Data Engineer	Data Analyst	Machine Learning Scientist
Store and maintain data	Visualize and describe data	Model and predict with data
SQL + Java/Scala/Python	SQL + BI Tools + Spreadsheets	Python/R

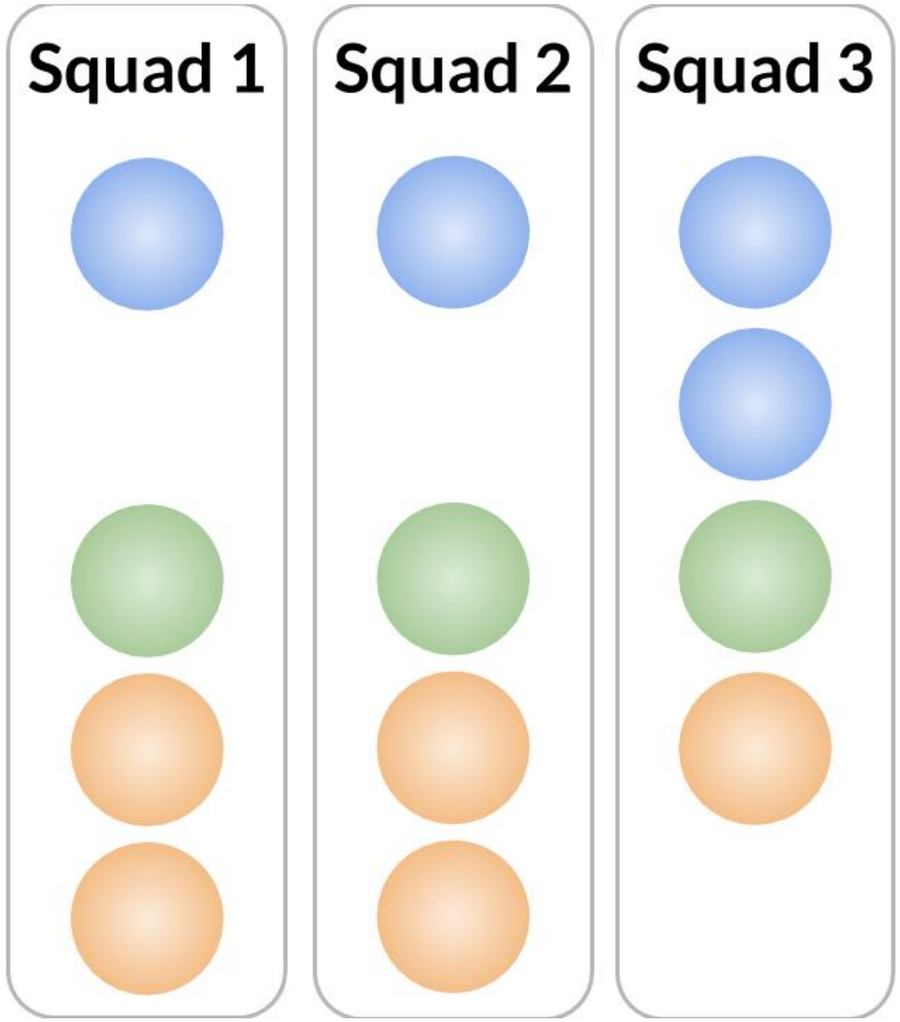
Data science team structure

- Isolated
- Embedded
- Hybrid

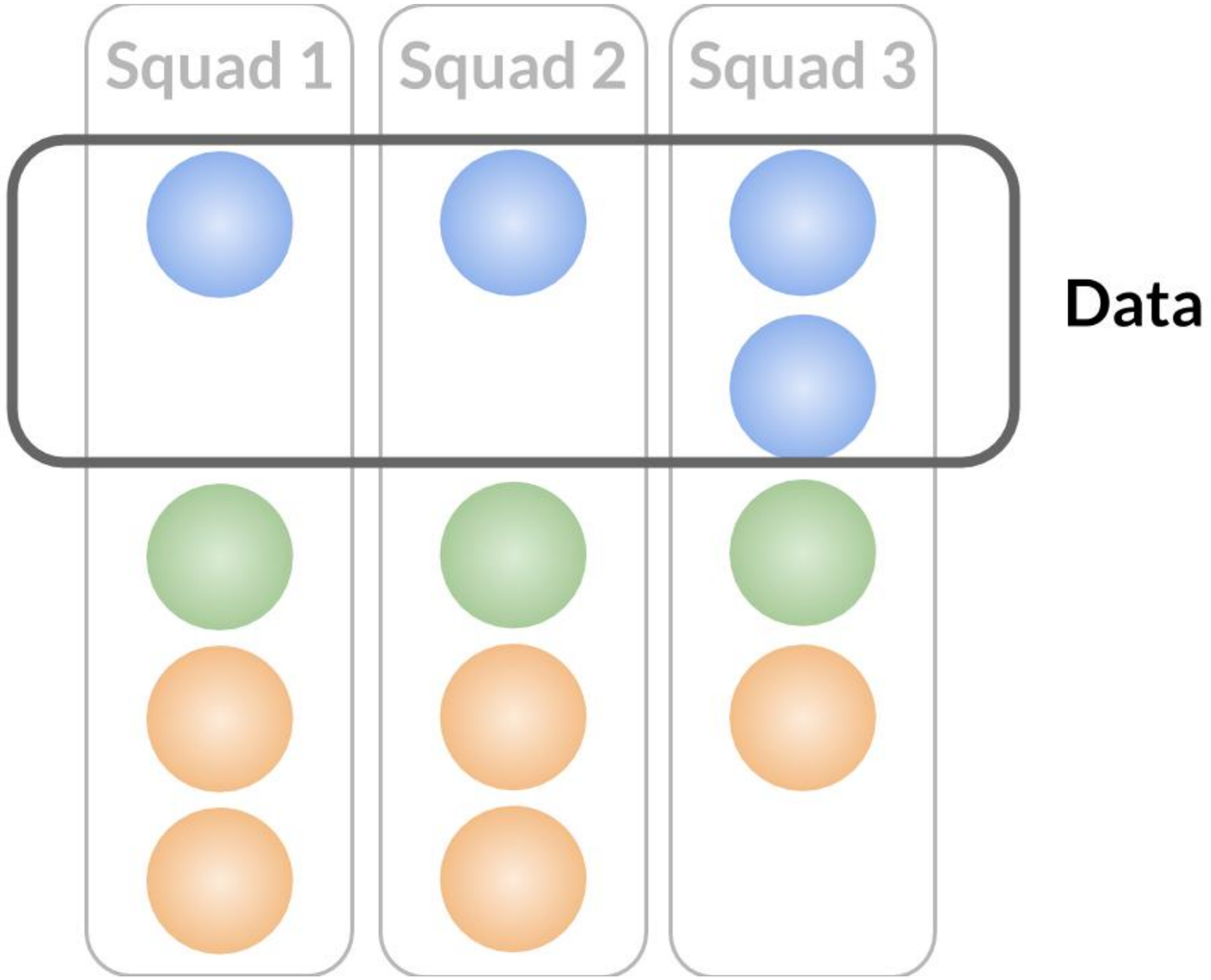
Team structure: isolated



Team structure: embedded



Team structure: hybrid



Let's practice!

DATA SCIENCE FOR BUSINESS