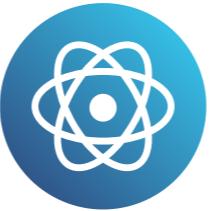


# Dashboards

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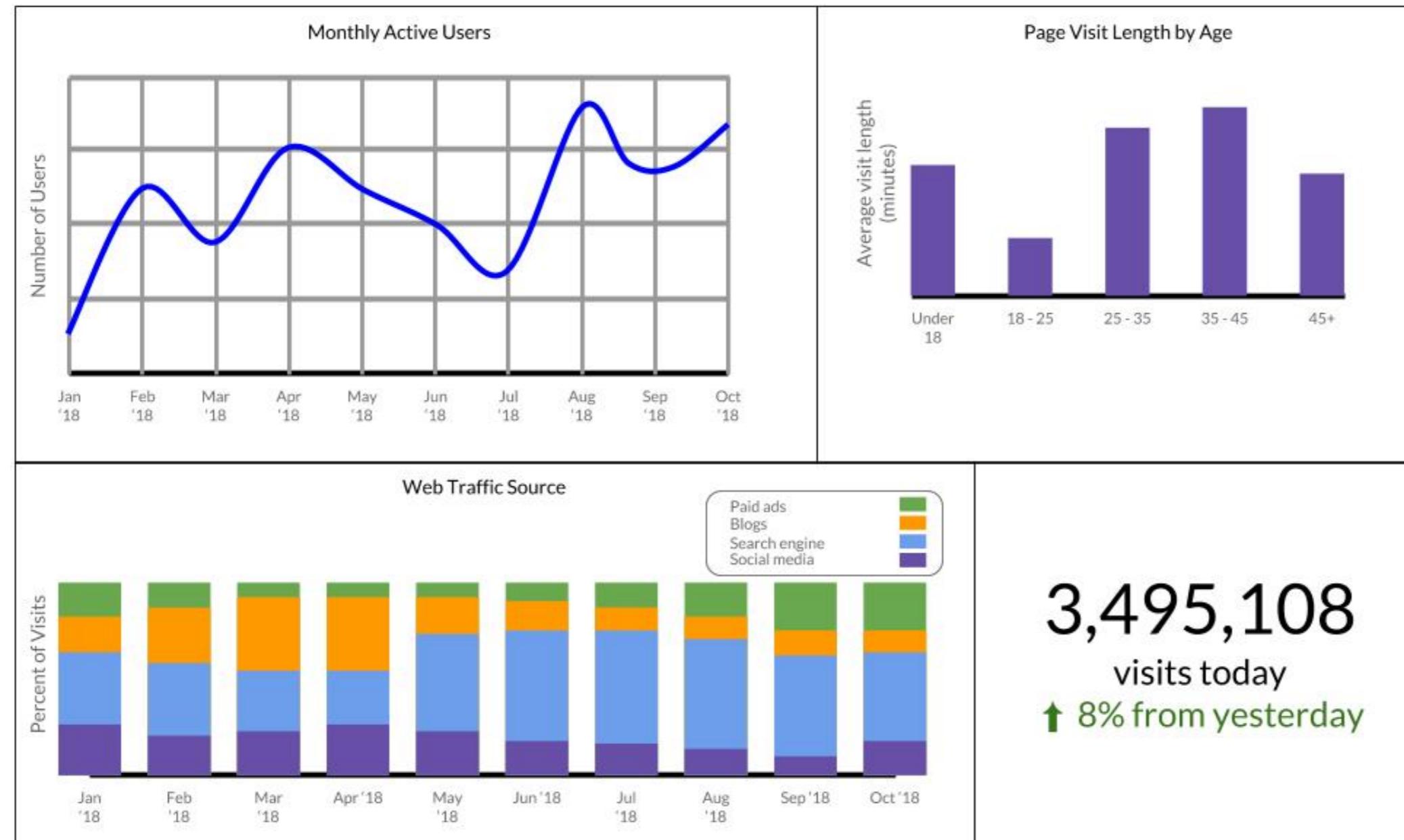


Kaelen Medeiros

Product Data Scientist, DataCamp

# What is a dashboard?

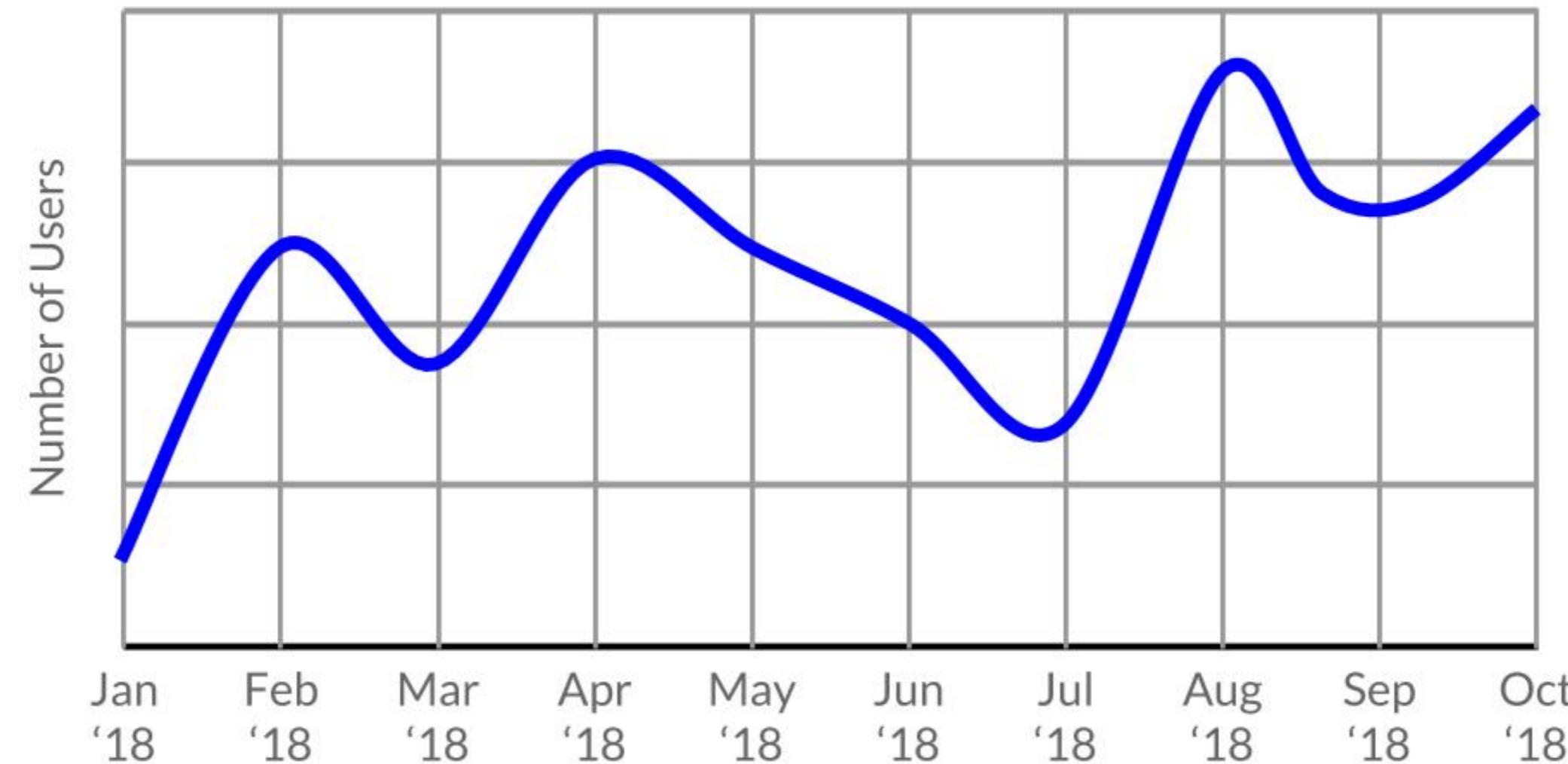
A dashboard is a set of metrics, usually in the form of graphs, that update on a schedule. Some dashboard can update in real-time, but others update daily or weekly.



# Tracking a value over time

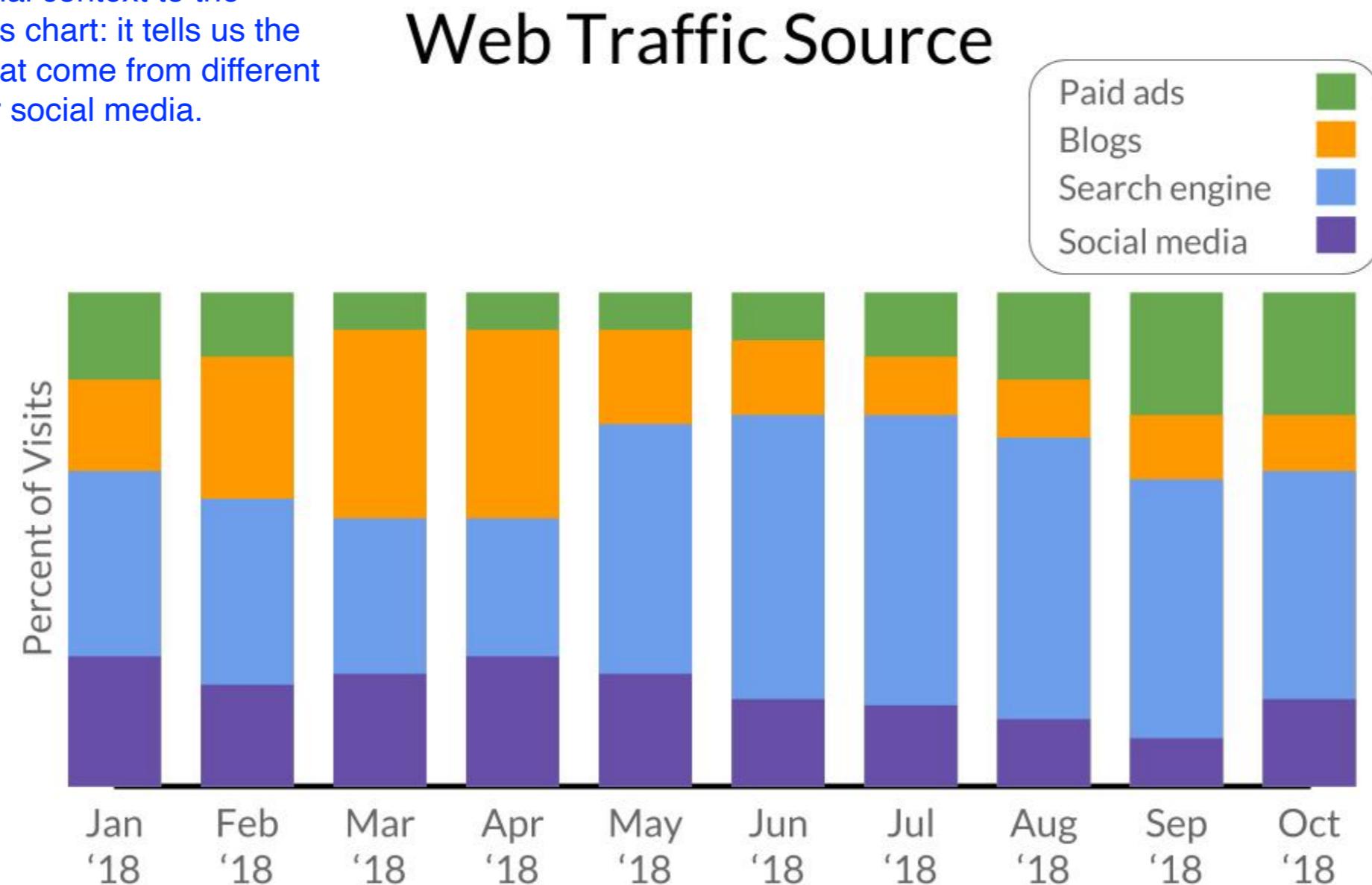
One of the most common dashboard element is a time series that tracks a value over time. This type of plot shows both the current value of a quantity and enough historical data to give context to that value.

## Monthly Active Users



# Tracking composition over time

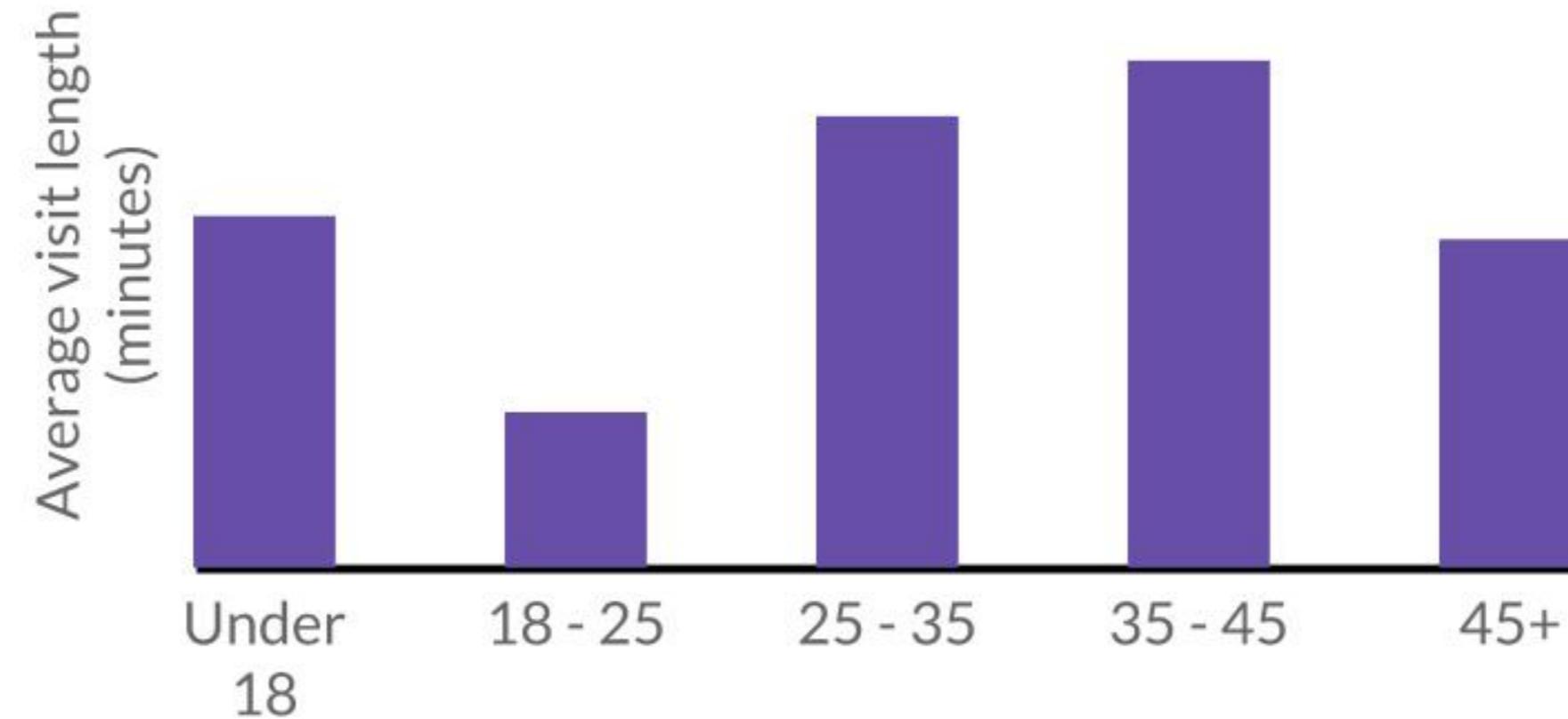
This new chart gives additional context to the previous monthly active users chart: it tells us the percentage of those users that come from different sources, such as paid ads or social media.



# Categorical comparison

Another common dashboard element is a categorical comparison using a bar chart. Here, we see the average number of minutes spent on a web page by different groups.

## Page Visit Length by Age



Data from the past 30 days

# Highlighting a single number

Even when showing just a number, it can be helpful to give a small amount of context for comparison, such as how today's value differs from yesterday's.

**3,495,108**  
visits today  
↑ 8% from yesterday

# Displaying text

Generally, we avoid adding tables to dashboards because graphics are easier to read. Display text is an exception. For example, displaying a small number of customer comments can be a great way to add some qualitative data to an otherwise quantitative picture.

Timestamp	Comment
Oct 9, 2018 12:57:05	Awesome website! Loved the new layout.
Oct 10 2018 03:16:00	Had trouble getting the website to load. I couldn't buy my favorite product!

# Where can we build a dashboard?

- Spreadsheets: Excel or Google Sheets
- BI Tools: Power BI, Tableau, Looker
- Customized tools: R Shiny or d3.js

Be consistent across an organization!

# Requesting a dashboard

## Is a dashboard the correct solution?

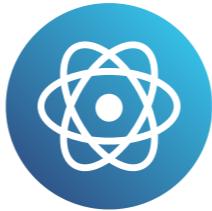
- Will you use it multiple times?
  - Does it need to be updated daily or weekly?
  - Will the request always be the same?
- Be specific
  - Specify your use case

# Let's practice!

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# Ad hoc analysis

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Kaelen Medeiros

Product Data Scientist, DataCamp

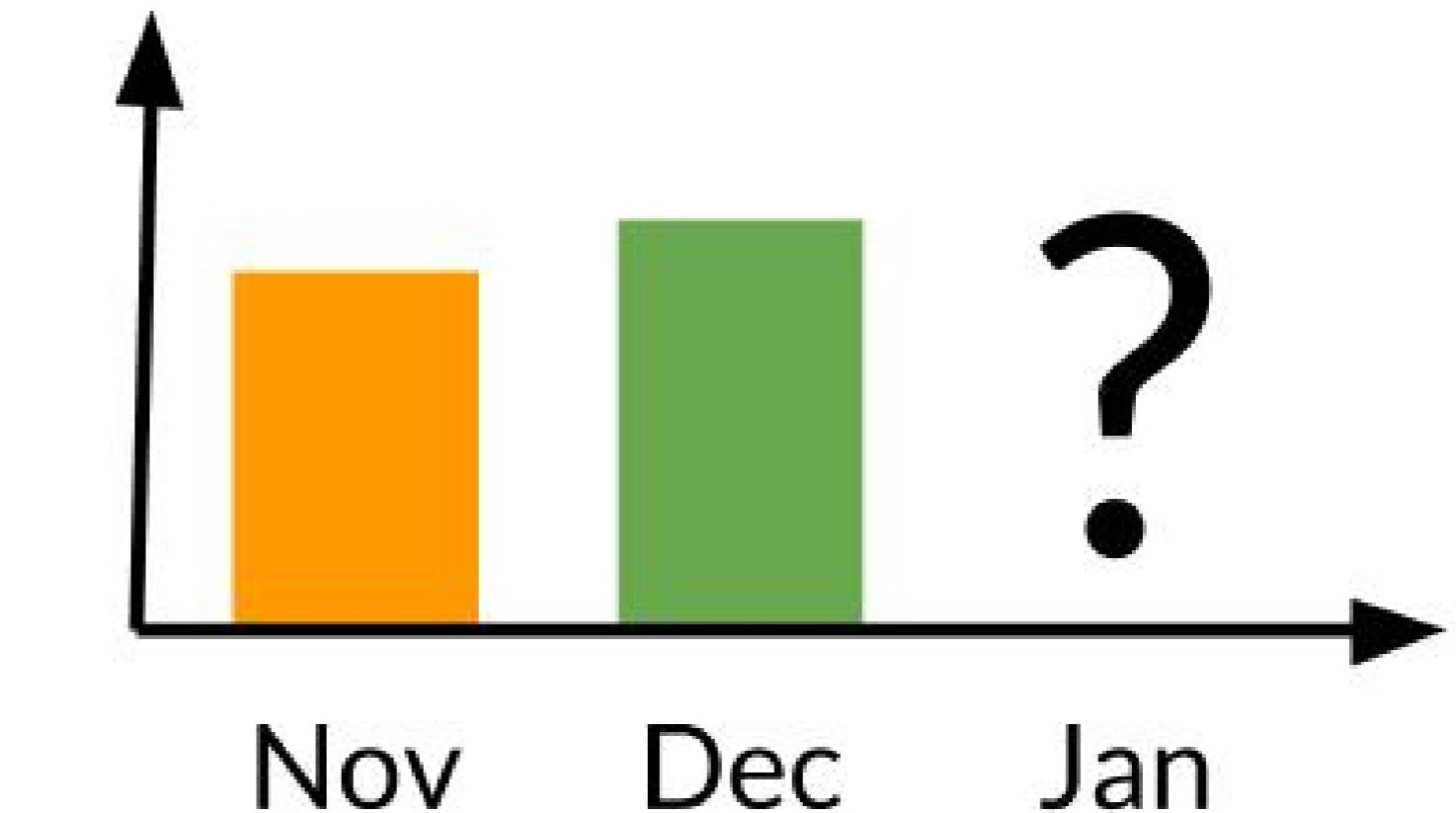
# What is an ad hoc request?

- Not repeated on a weekly or daily basis
- Can come from many places
  - Product
  - Finance
  - Engineering

Please,  
help me !



# Case study: ad campaign performance



# Making an ad hoc request

- Be specific
- Include context
- Include a priority level and due date

# Handling ad hoc requests

- Ticketing system
  - Ex: Trello, JIRA, Asana
- Require fields
  - Due date
  - Priority

**Create a new ticket**

Title

Request

We launched a New Year's Resolutions ad campaign in January. How much revenue was generated by this campaign during that month?

Priority  ▾

Due date

**Create**

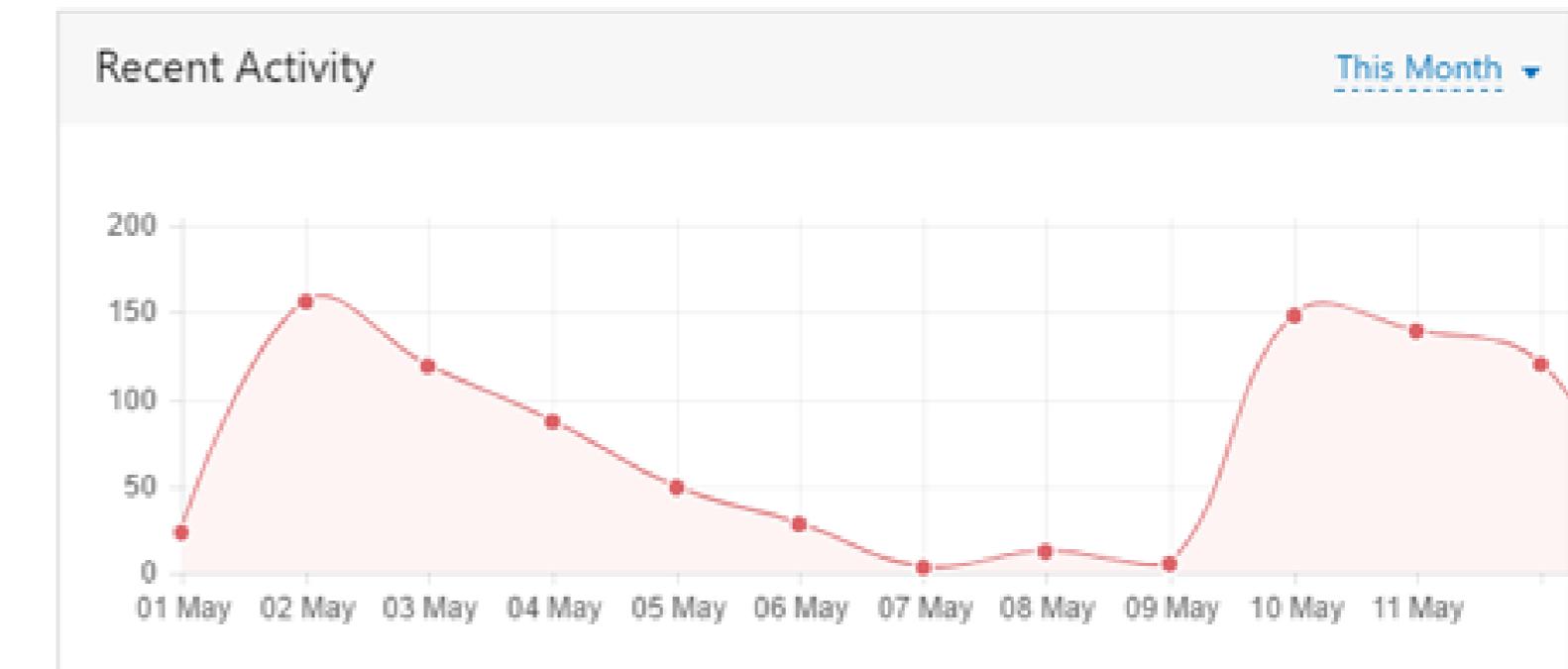
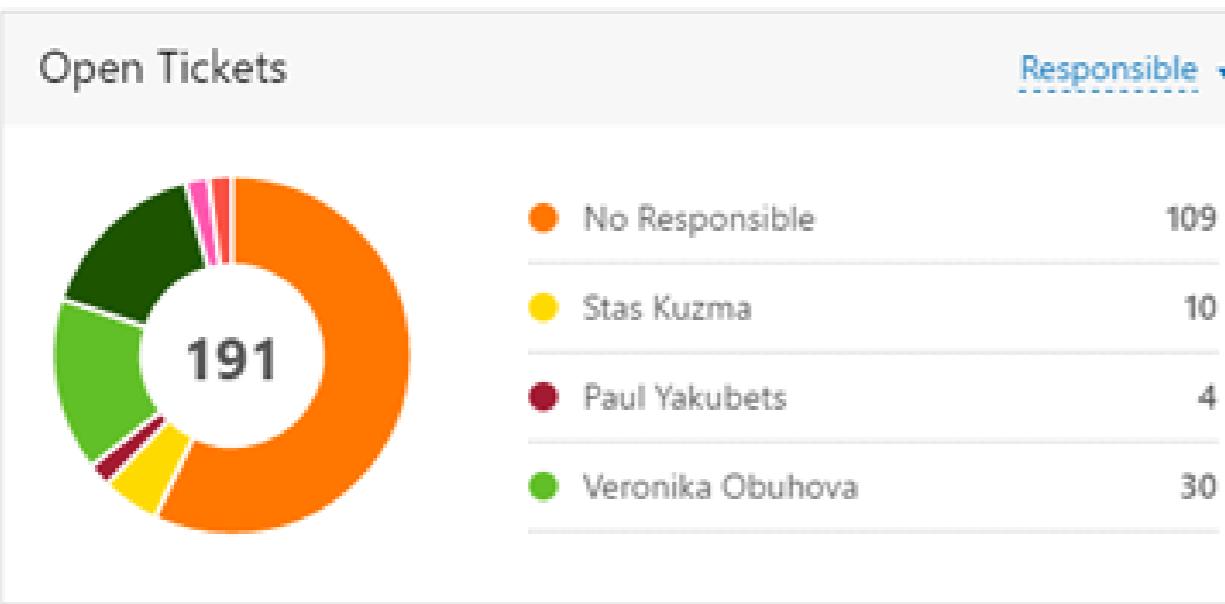
# Meta-analysis of Ad Hoc Requests

New Tickets  
29

My Assignments  
14

Open Tickets  
192

Unassigned Tickets  
109

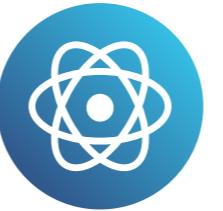


# Let's practice!

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# A/B Testing

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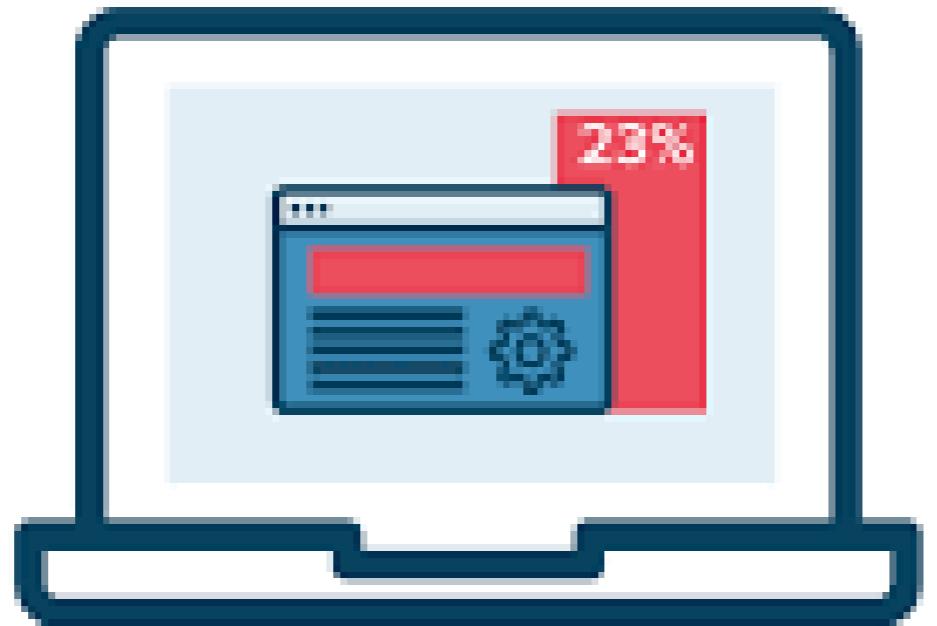
Kaelen Medeiros

Product Data Scientist, DataCamp

# What is A/B Testing?

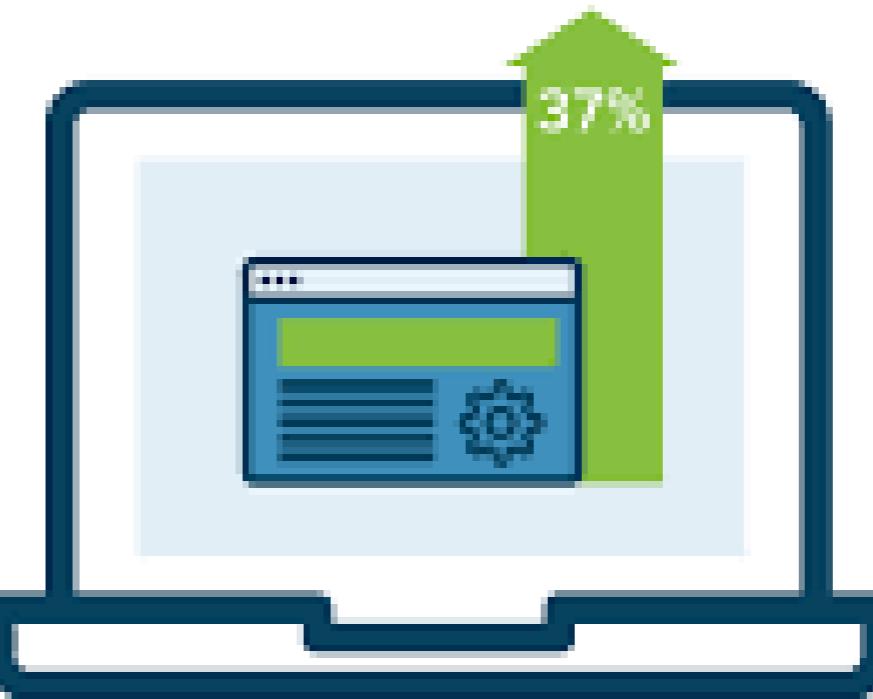
A/B Testing is a type of experiment for de-risking choices between two options, such as changes to a website, addition of new features, or wording of email subjects.

A



CONTROL

B



VARIATION

# Case study: article headlines

A

Become an  
expert Data  
Scientist with  
this one weird  
trick!



B

You won't  
believe these  
tips for  
becoming a  
Data Scientist!

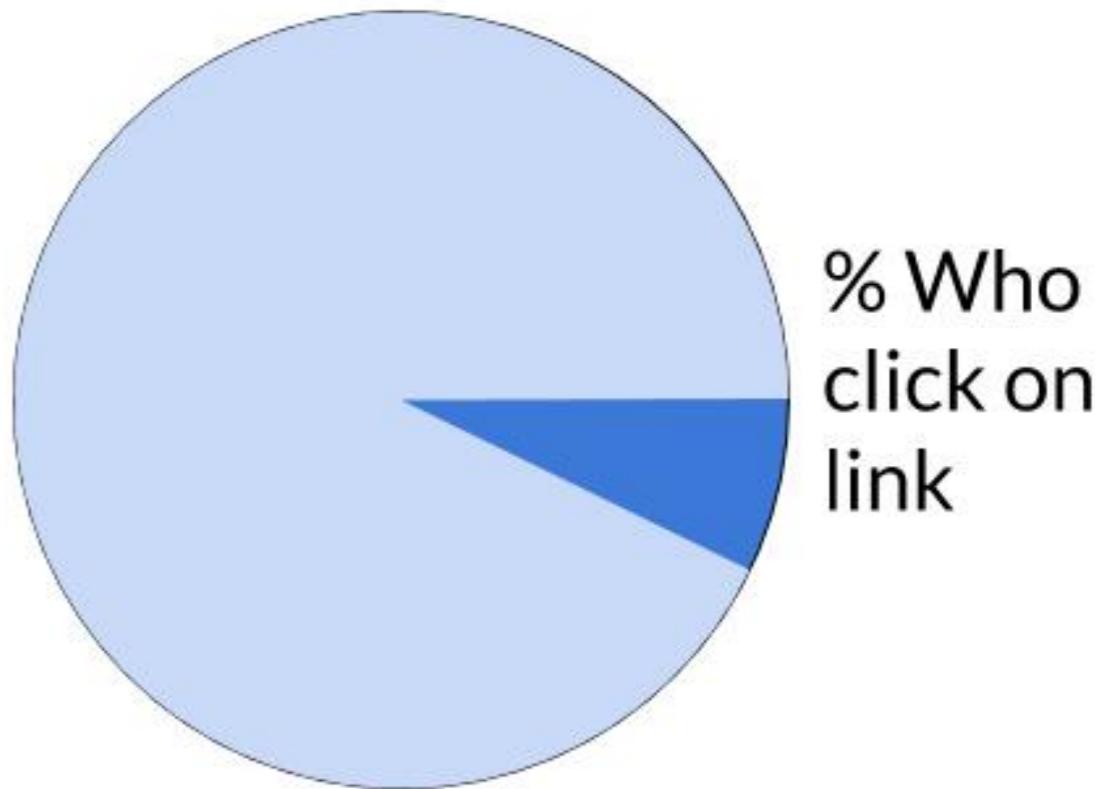


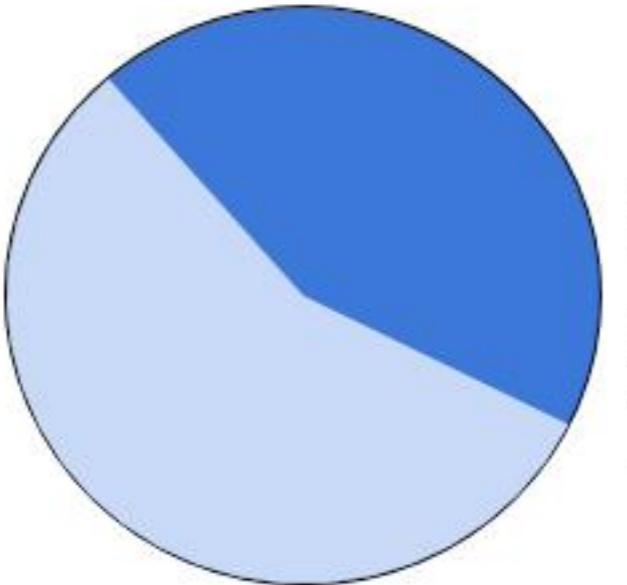
# A/B Testing Steps

- Picking a metric to track
- Calculating sample size
- Running the experiment
- Checking for significance

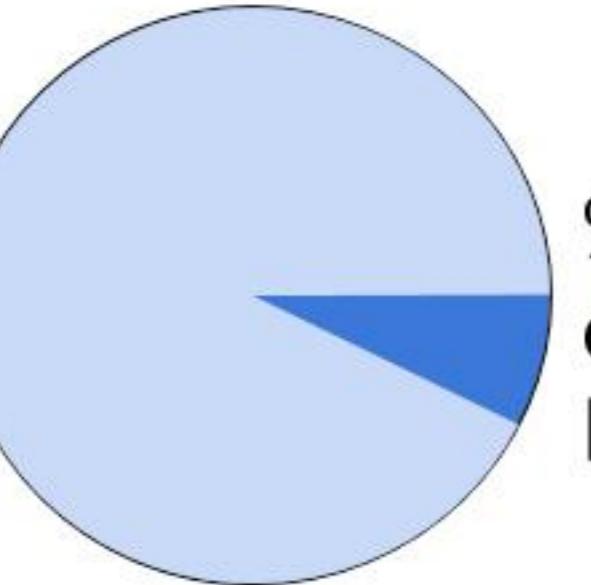
# Pick a metric to track

First, we pick a measurable outcome to track. In this case, we'll examine the percent of people who click on a link with the title of the article.





% Who  
click on  
link

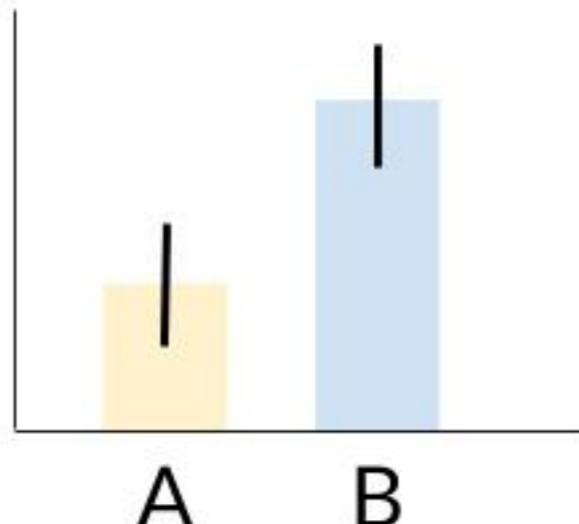


% Who  
click on  
link



Next, we'll decide how long to run the experiment. We will run the experiment until we reach a sample size large enough to be certain that any difference we observe is not due to random chance. The necessary sample size depends on a 'baseline metric'. In this case, our baseline metric is how often people generally click on a link to one of our blog. If this rate is close to 50%, we'll need a smaller sample size. If the rate is much larger or much smaller, which is typical for something like clicking a link, then we'll need a larger sample size.

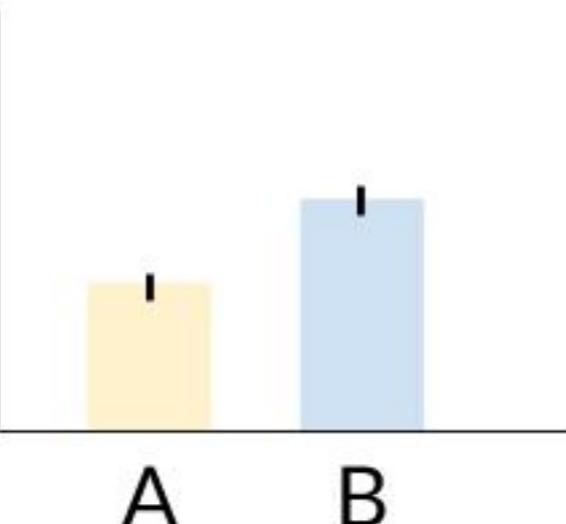
Low sensitivity, detects  
large differences



The sample size also depends on how sensitive we need our test to be. A test's sensitivity tells us how small of a change in our metric we are able to detect. Larger sample sizes allow us to detect smaller changes.

You might think that we always want the highest possible sensitivity, but we actually want to optimize for an amount of sensitivity that is meaningful for our business problem. For example, if the first title is clicked by 5% of viewers and the second title is clicked on by 5.01% of viewers, we don't actually care about the difference; it doesn't affect our profits by enough. Generally, we care about a relative increase of between 10% and 20% of baseline metric.

High sensitivity, detects  
small differences

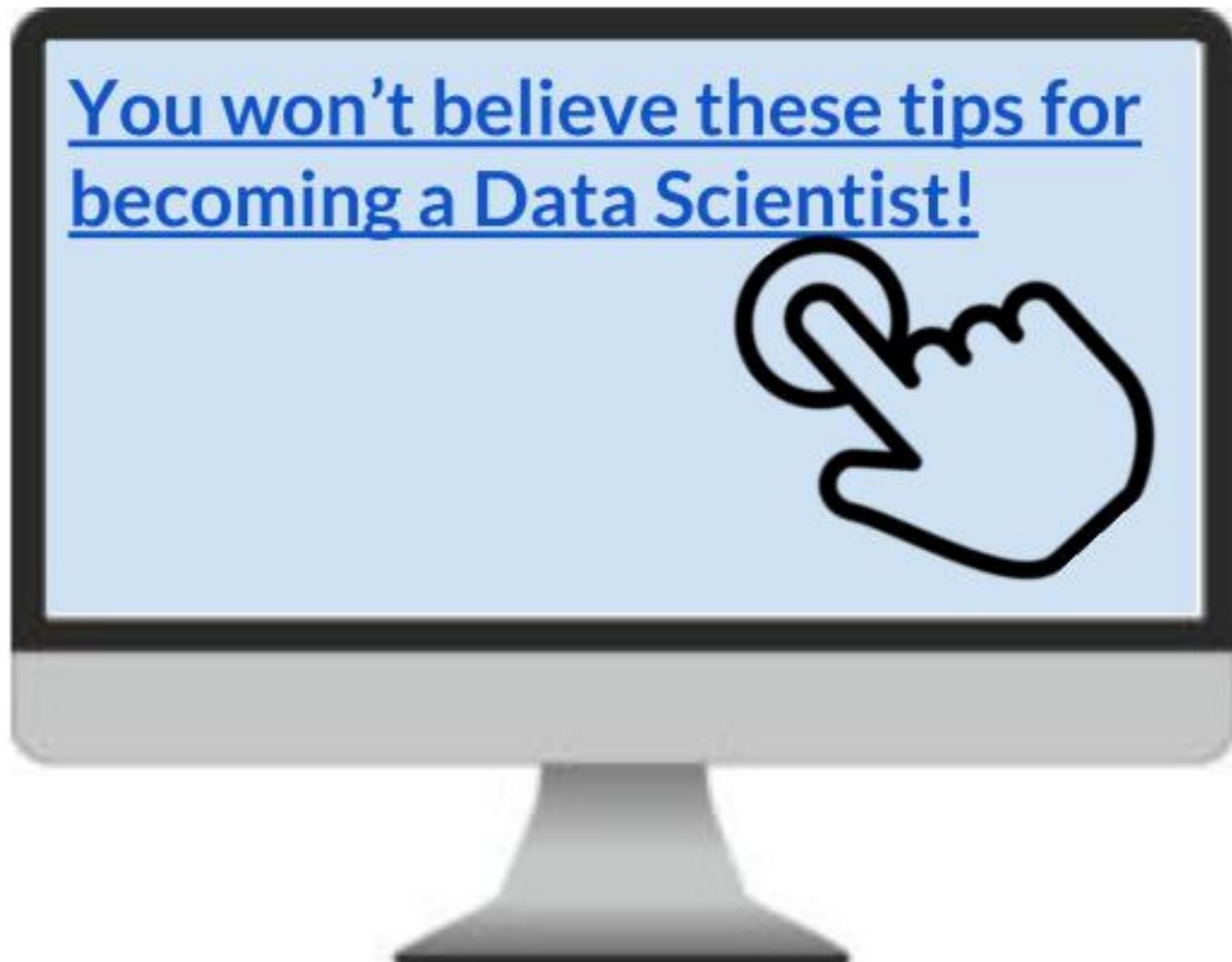


# Run your experiment

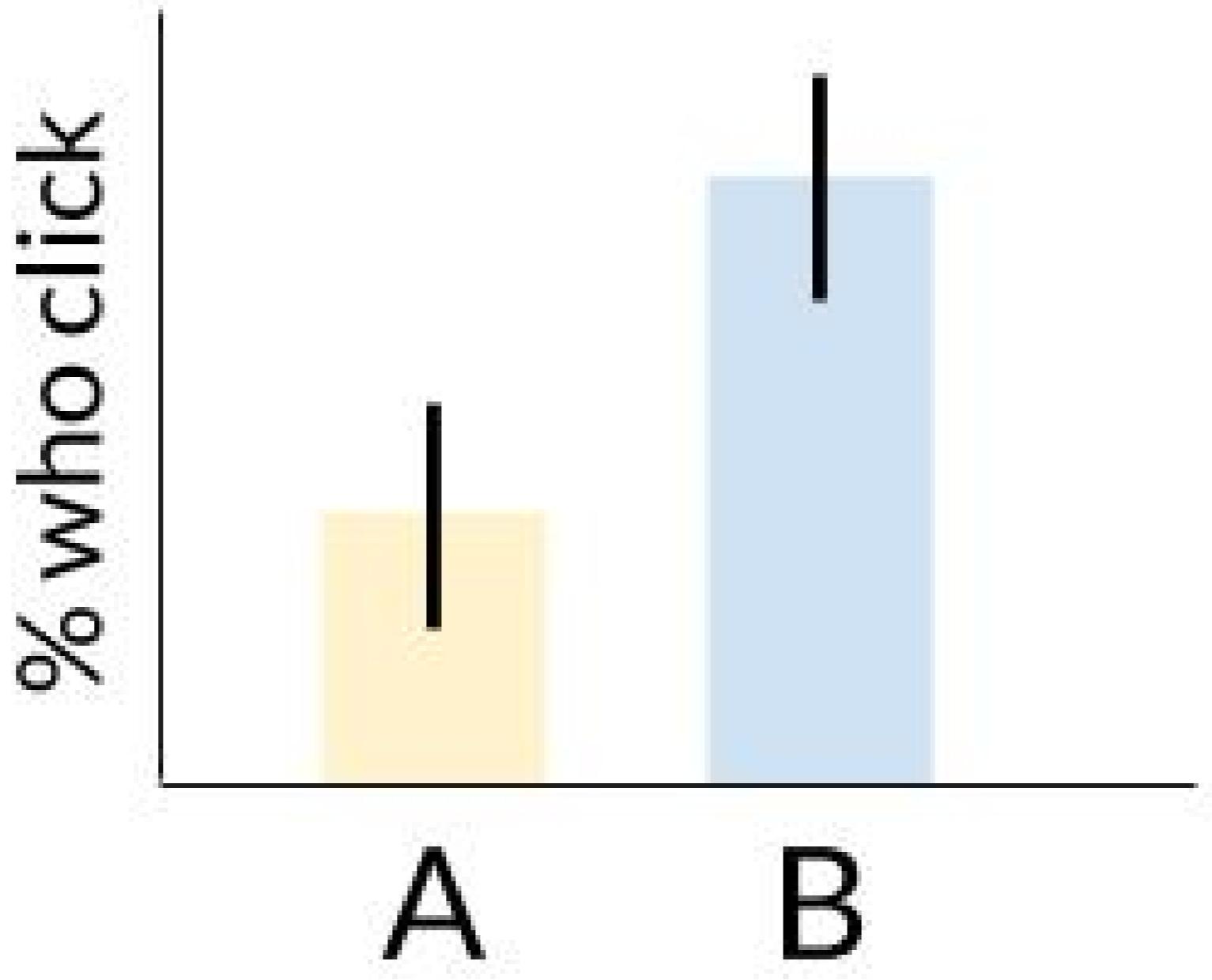
A



B



# Check for significance



# What if the results aren't significant?

- Difference is smaller than the threshold we chose
- Running our test longer won't help
- Still might be a difference; it's just small

# Let's practice!

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