Trace Viewer performance improvements

On the human side of things

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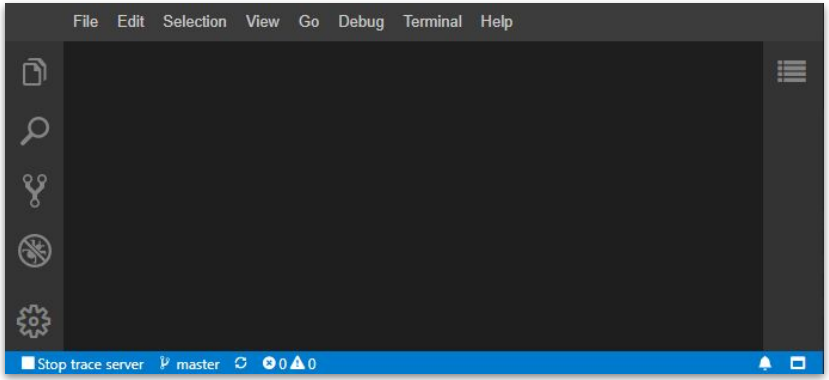
DORSAL Research Associate, Information Design Consultant
January 2021

Rethinking Trace Compass

Before

After



How to improve analytical effectiveness?

How to improve analytical effectiveness?

Look at the human side.

Some human performance issues

1. Time-consuming to install
2. Opening traces was not intuitive

1. Time-consuming to install

Setup steps:

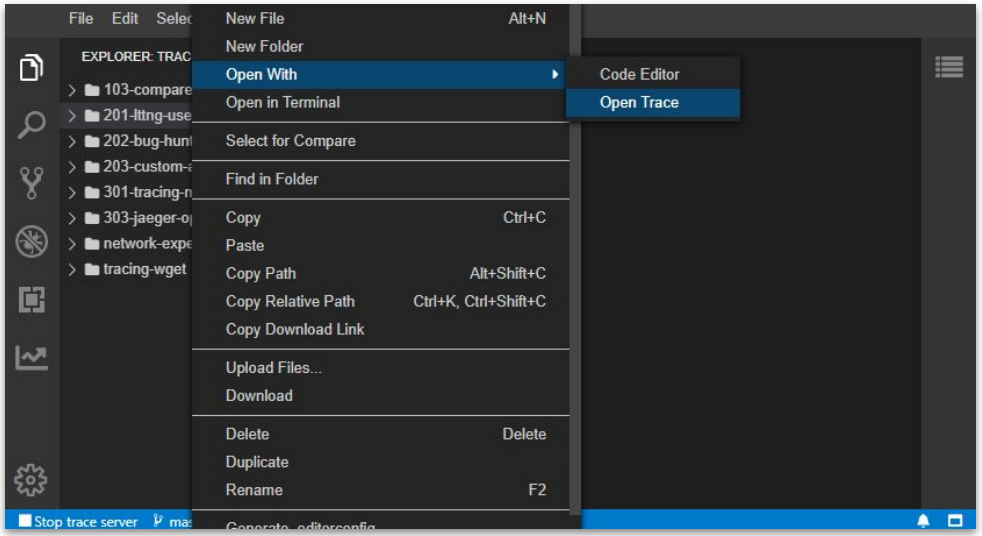
- **Install dependencies**
- **Compile Theia application**
- Download and start trace server
- Start Theia application
- Acquire example trace file
- Open trace file
- Open analysis

Setup time distribution

2. Opening traces was not intuitive

To open a trace:

1. Add trace file to workspace
2. Right-click trace and open via context menu



Opening not possible using:

- File menu
- Trace Viewer tab

In this presentation

- Improved tool setup
- Removed the term “experiment” from front end
- UI that supports good analysis methodology

Improving tool setup

Improving tool setup

1. Installation

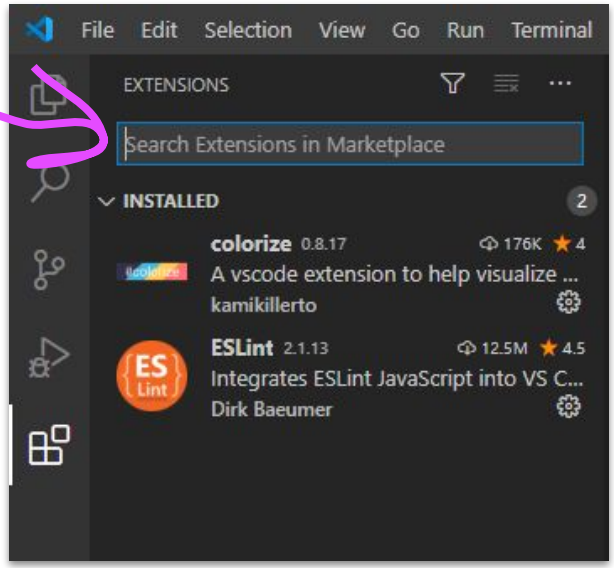
2. Trace server management

3. Opening traces

1. Installation

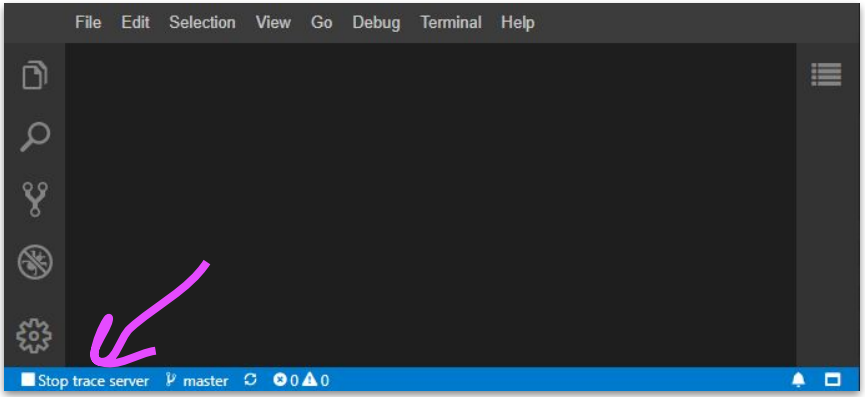
Moving towards **becoming a VS Code extension**:

- Install via the Extensions menu
- Larger user base



2. Trace server management

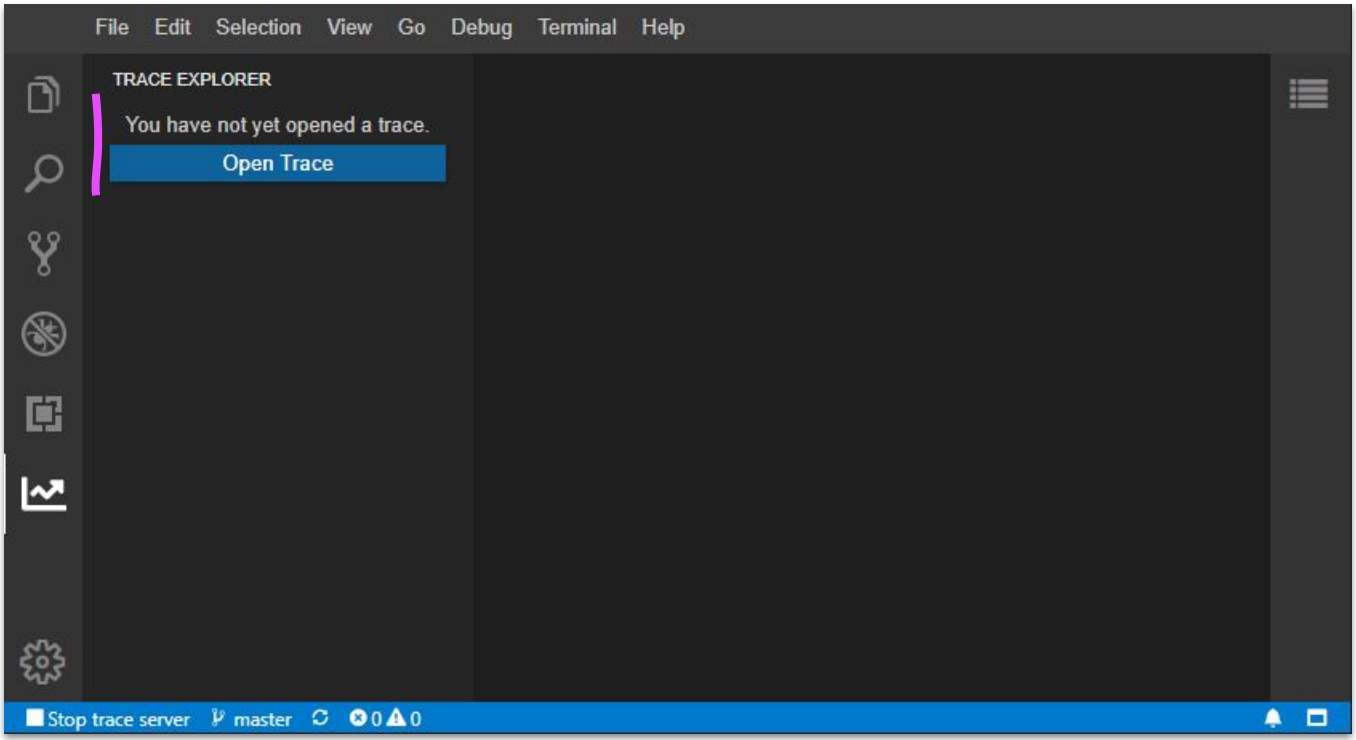
Moving towards **automatic trace server management**.



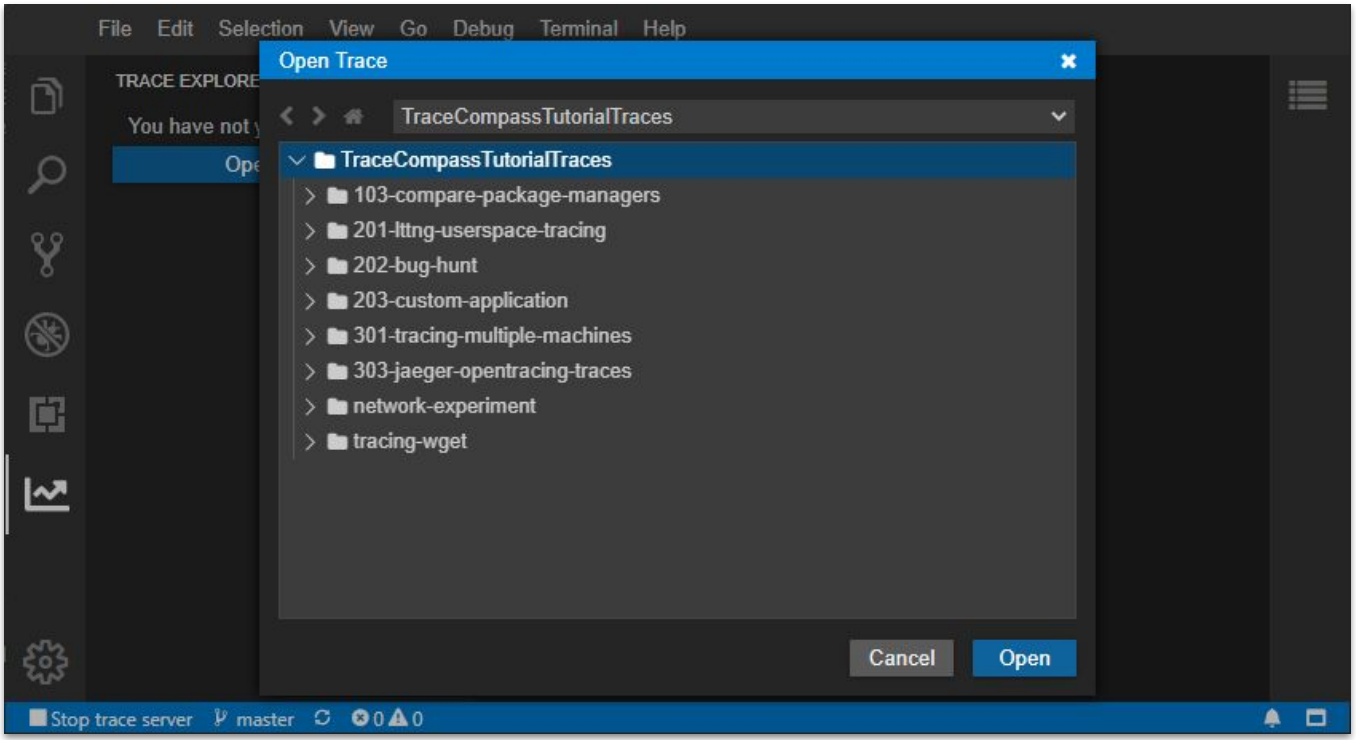
Completed steps:

- Detecting server status
- Manual start/stop of server
- Server stops when tool stops

3. Opening traces

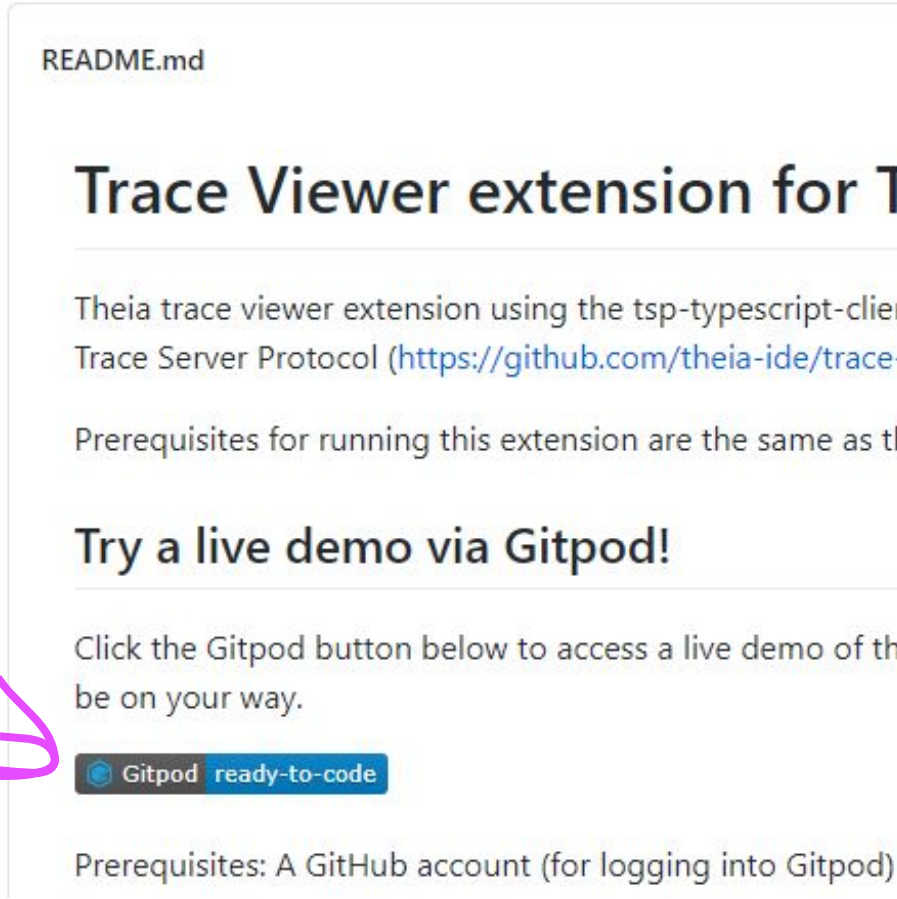


3. Opening traces



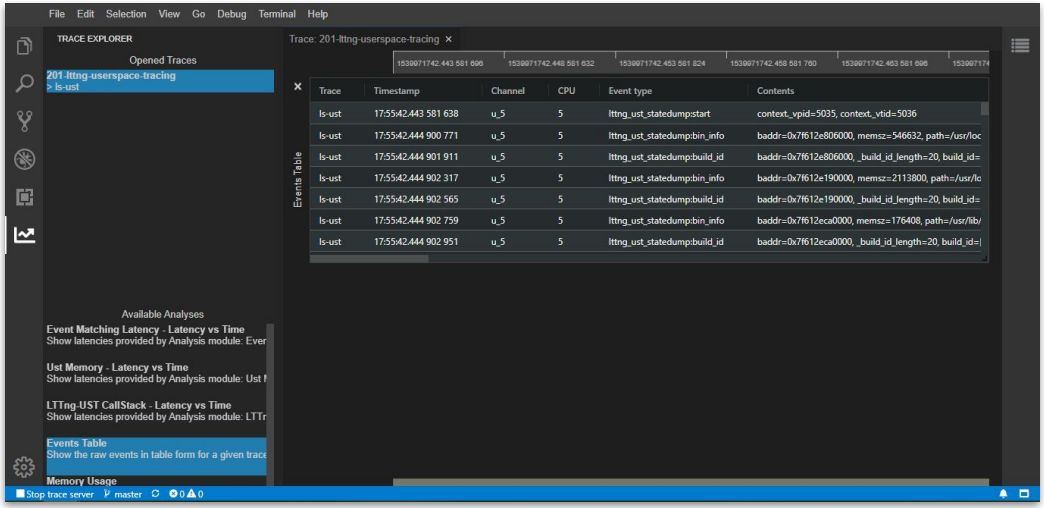
Try the Live Demo

The server starts automatically!



Demo challenge!

Open the **Events Table** for the **LTTng userspace trace** example.



No mention of “Experiments” in front end…
only “Traces”

No mention of “Experiments” in front end… only “Traces”

We define a “Trace” as containing one or more trace data sources.

Distinction not necessary for users.

What’s happening now?

UI that supports good analysis methodology

UI that supports good analysis methodology

An investigation is **iterative**.

- Updating trace data
- Filtering out eliminated hypotheses

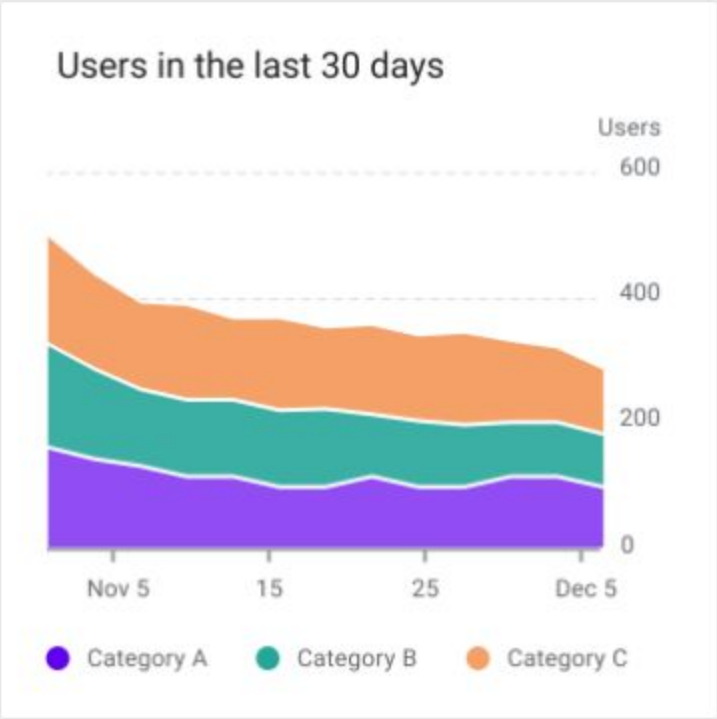
An investigation is **interactive**.

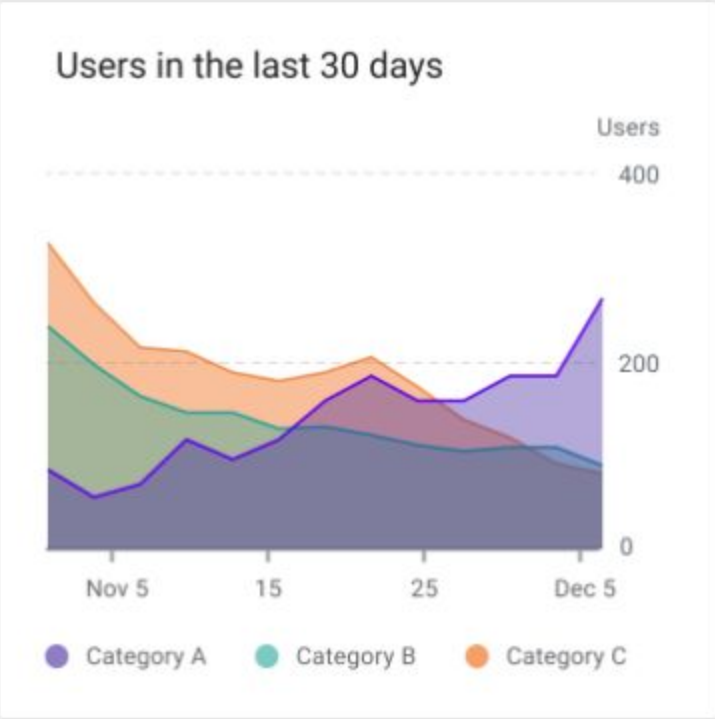
- Emphasis on data manipulation and exploration
- ~~Not a premade static dashboard~~

Come chat with us afterwards!

Visual communication

https://polymtl.webex.com/meet/erica-2.bugden





Source: Material Design, Data Visualisation guidelines

Erica Bugden
erica.bugden@gmail.com

What do you think?

Are we heading in the right direction?
Are we missing something important?

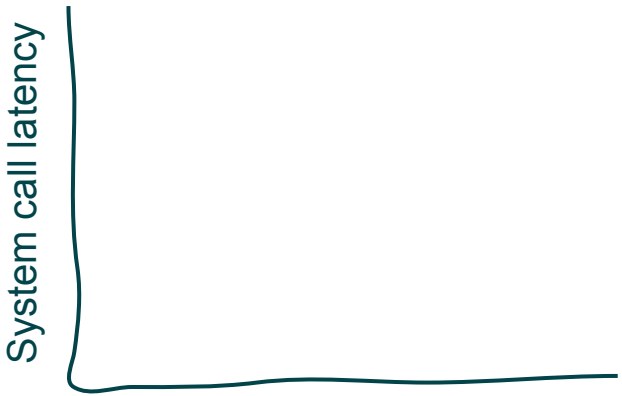
Thank you committers!

Viz Quiz!

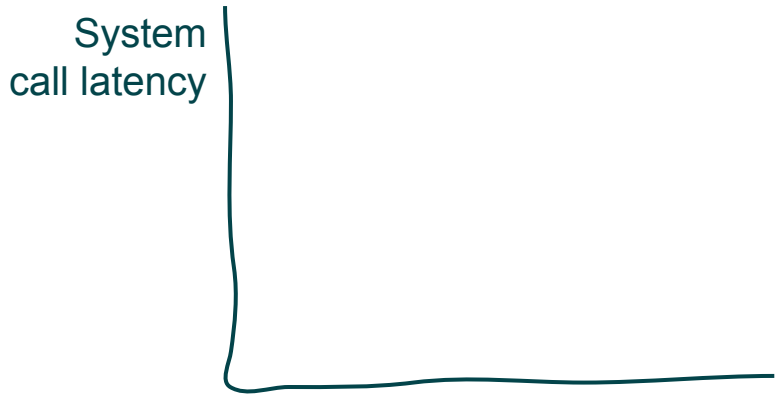
Which example communicates more clearly?

1. Consider the contenders
2. Post your answer in chat
3. Be prepared to defend yourself!
4. Answers are revealed?

Which label communicates more clearly?

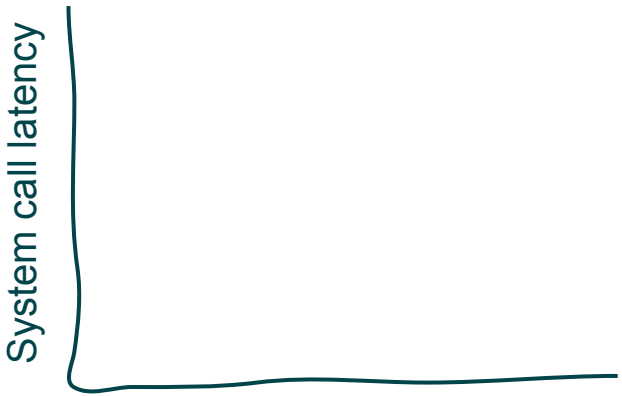


A.

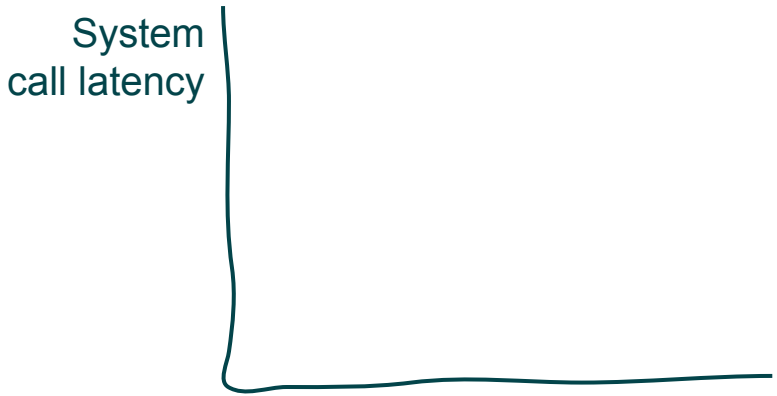


B.

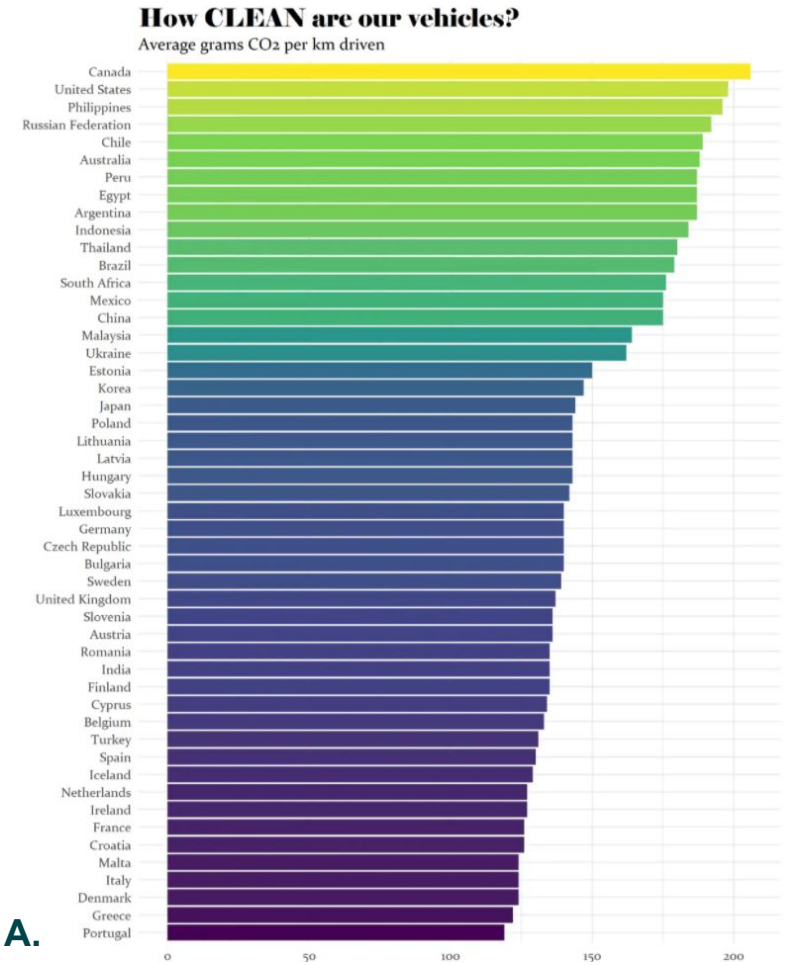
Use horizontal text



A.



B.


How CLEAN are our vehicles?
Average grams CO2 per km driven
Canada
United States
Philippines
Russian Federation
Chile
Australia
Peru
Egypt
Argentina
Indonesia
Thailand
Brazil
South Africa
Mexico
China
Malaysia
Ukraine
Estonia
Korea
Japan
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Slovakia
Luxembourg
Germany
Czech Republic
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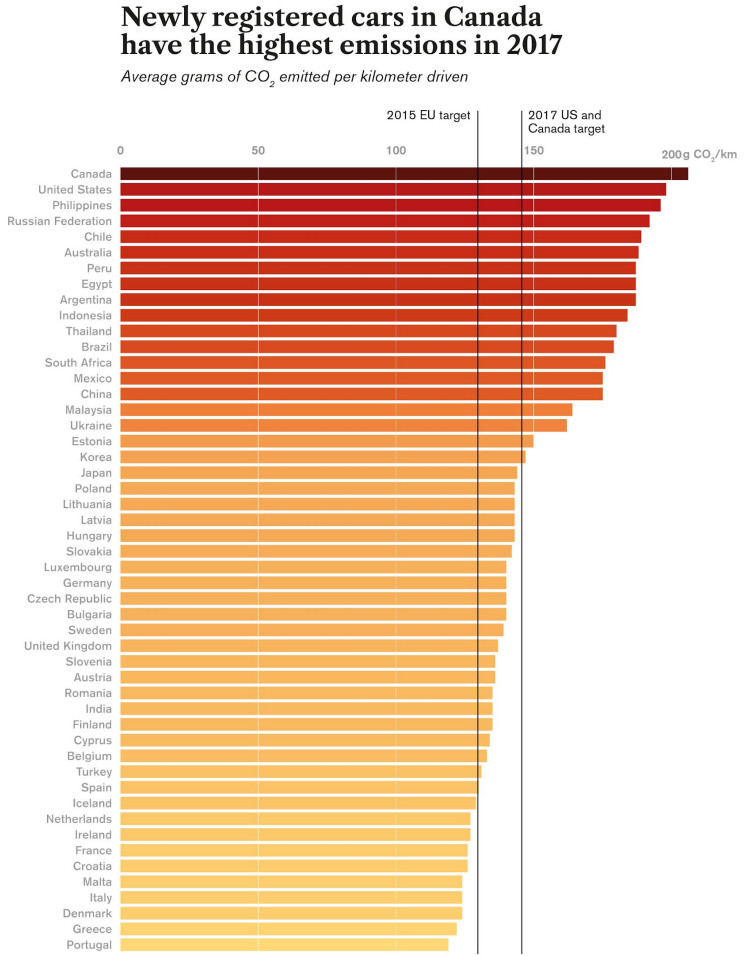
Slovenia
Austria
Romania
India
Finland
Cyprus
Belgium
Turkey
Spain
Iceland
Netherlands
Ireland
France
Croatia
Malta
Italy
Denmark
Greece
Portugal
0
50
100
150
200

A.


Newly registered cars in Canada have the highest emissions in 2017
Average grams of CO2 emitted per kilometer driven
2015 EU target
2017 US and Canada target
0
50
100
150
200g CO2/km
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United States
Philippines
Russian Federation
Chile
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Peru
Egypt
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Indonesia
Thailand
Brazil
South Africa
Mexico
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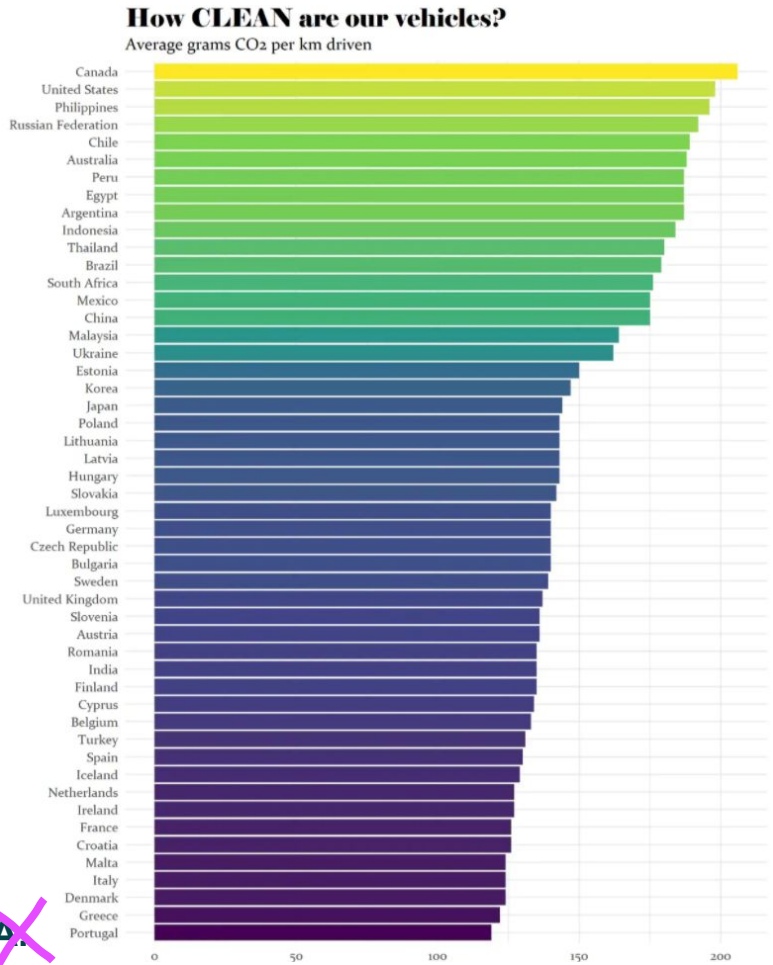
Portugal

B.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Denmark
Greece
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0
50
100
150
200

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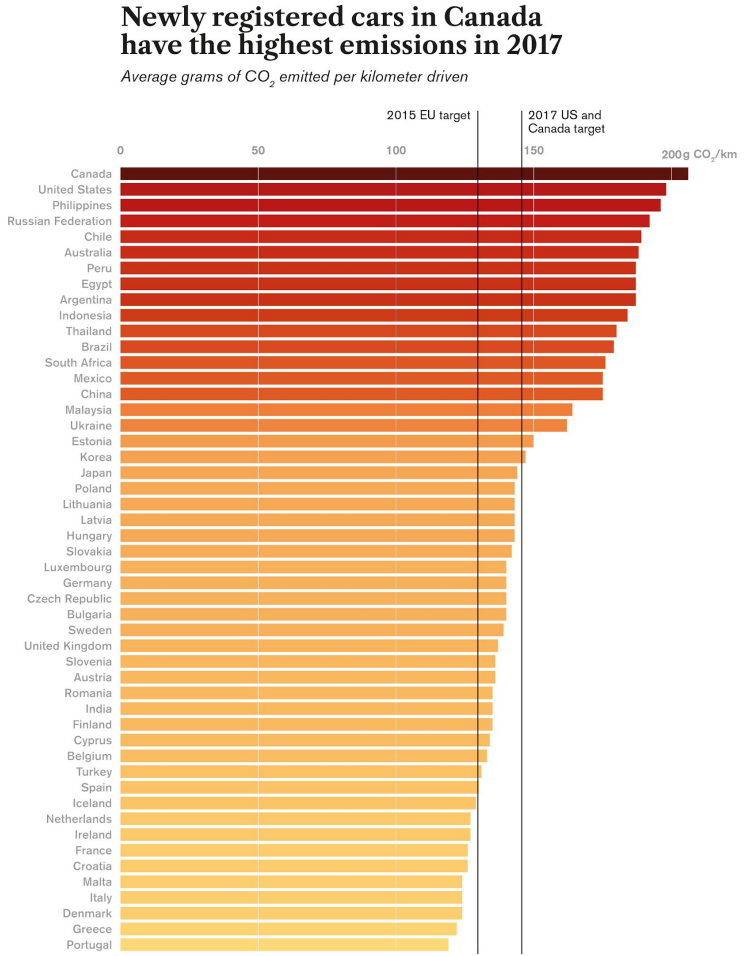
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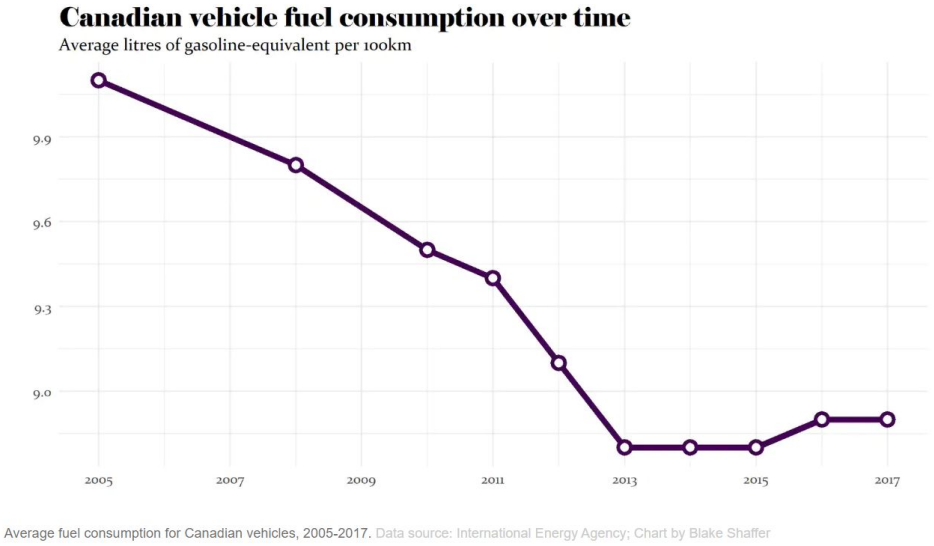
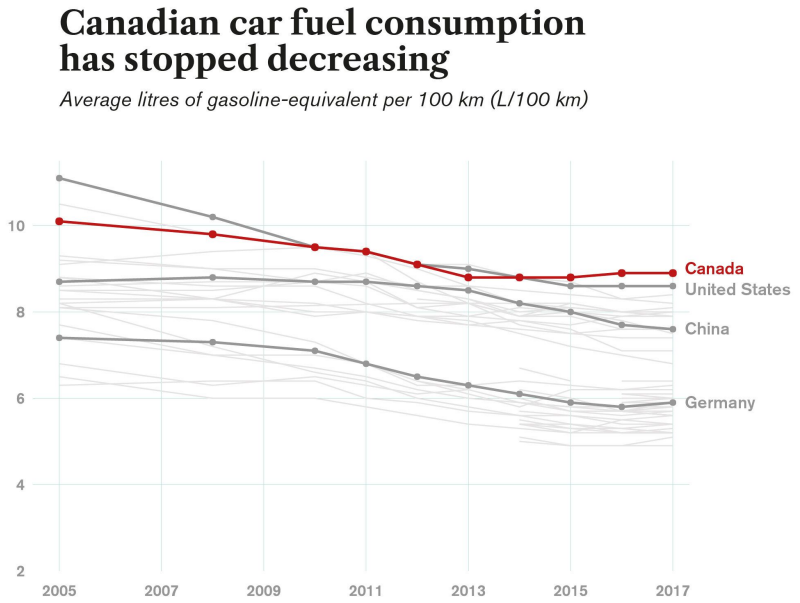
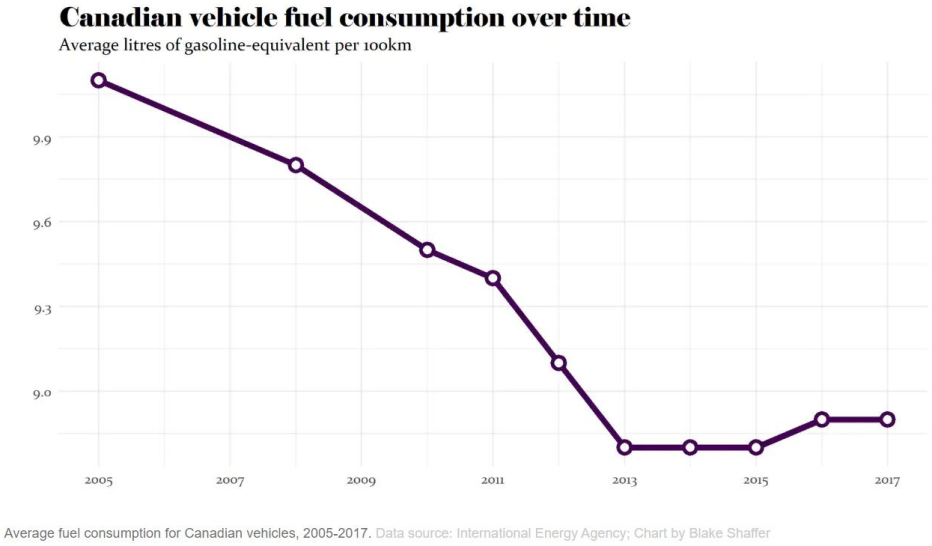


Average fuel consumption for Canadian vehicles, 2005-2017. Data source: International Energy Agency; Chart by Blake Shaffer

A.



B.



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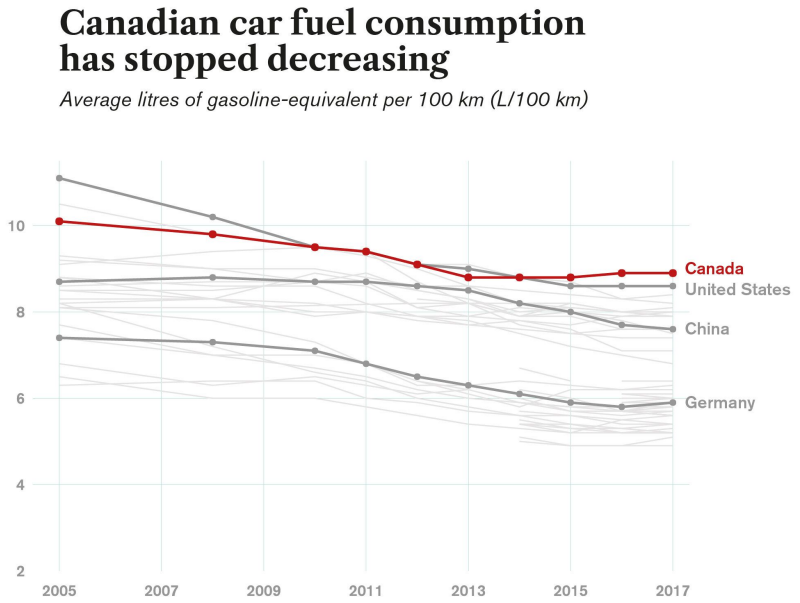

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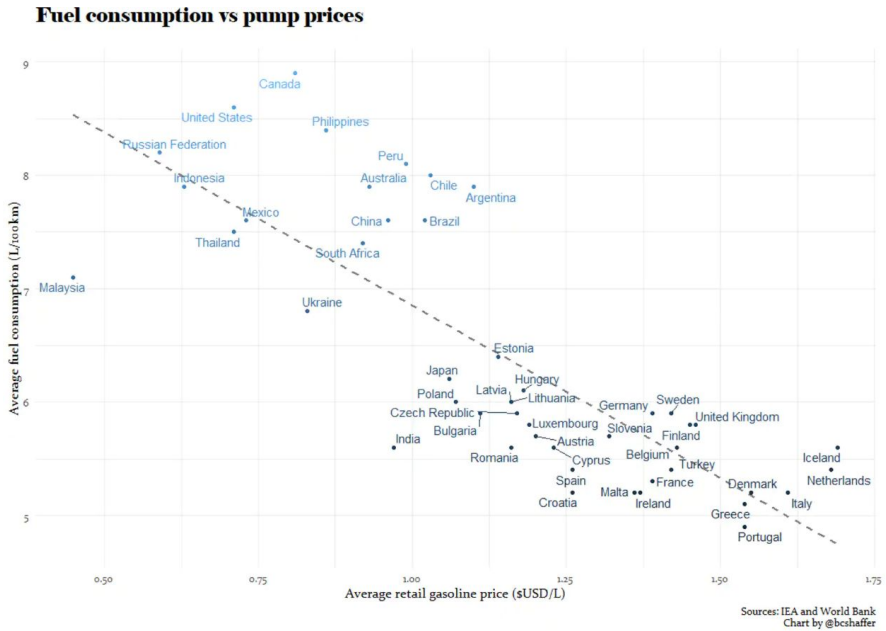
Fuel consumption vs pump prices
Average fuel consumption (L/100km)
Average retail gasoline price ($USD/L)
Canada
United States
Philippines
Russian Federation
Peru
Indonesia
Australia
Chile
Argentina
Mexico
China
Brazil
Thailand
South Africa
Malaysia
Ukraine
Estonia
Japan
Hungary
Poland
Latvia
Lithuania
Germany
Sweden
Czech Republic
Luxembourg
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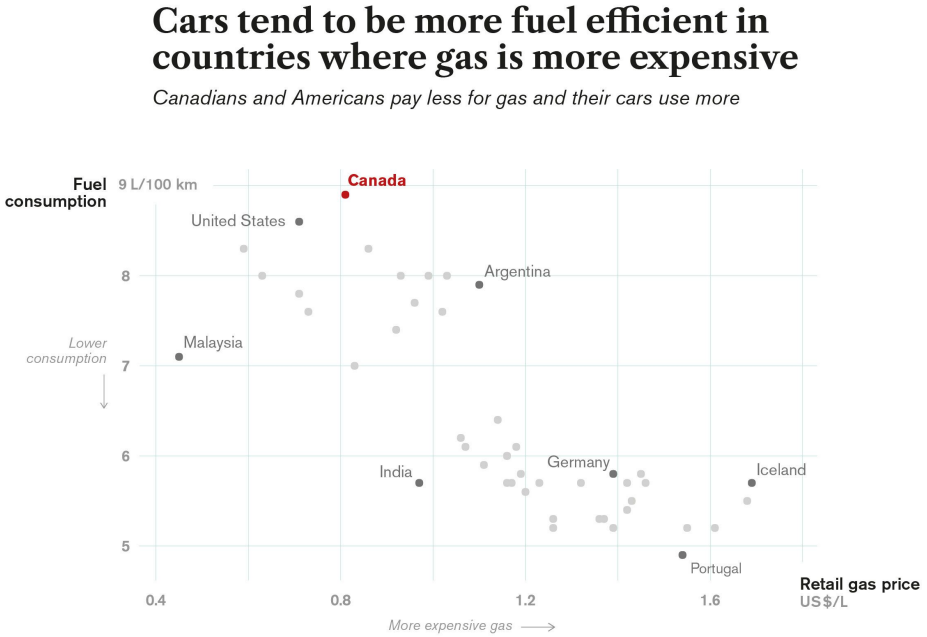
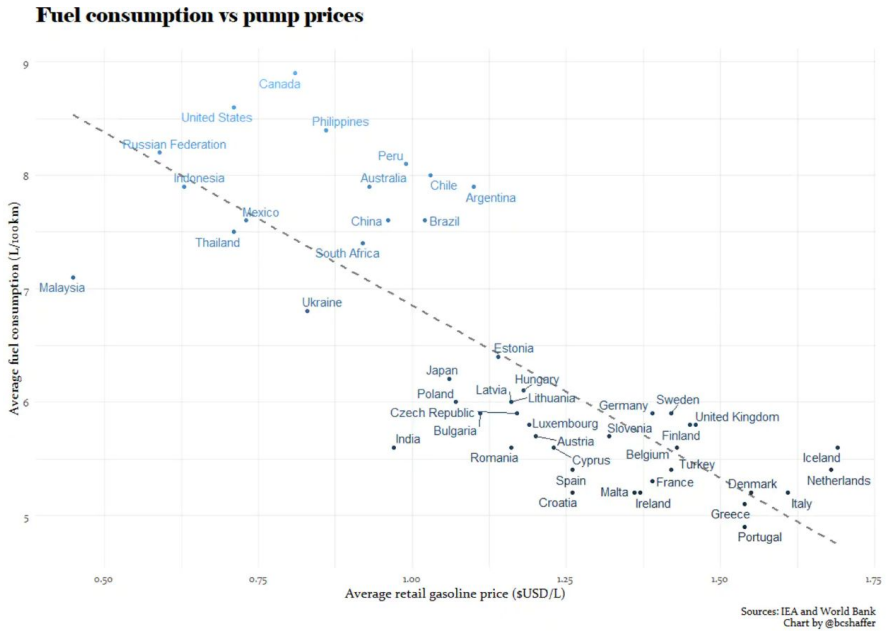
Sources: IEA and World Bank
Chart by @bcshaffer


Cars tend to be more fuel efficient in countries where gas is more expensive
Canadians and Americans pay less for gas and their cars use more
Fuel consumption
9 L/100 km
Lower consumption
Canada
United States
Argentina
Malaysia
India
Germany
Iceland
Portugal
Retail gas price
US$/L
More expensive gas

A.

B.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Hungary
Poland
Latvia
Lithuania
Germany
Sweden
Czech Republic
Luxembourg
Slovenia
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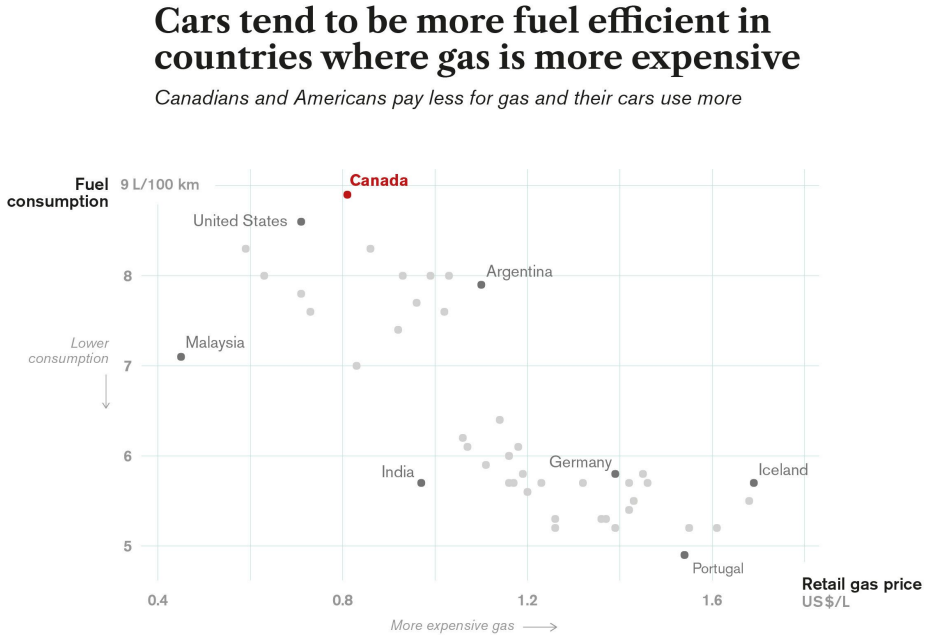
Chart by @bcshaffer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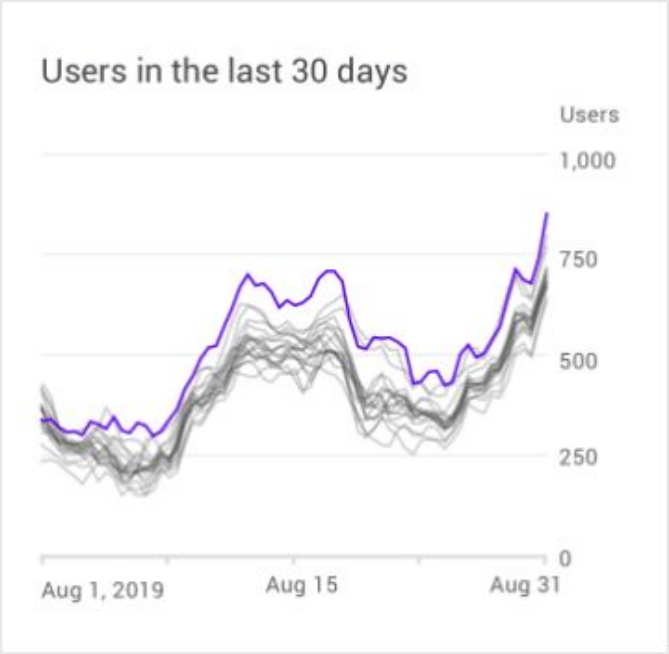
Retail gas price
US$/L
More expensive gas

A.

B.



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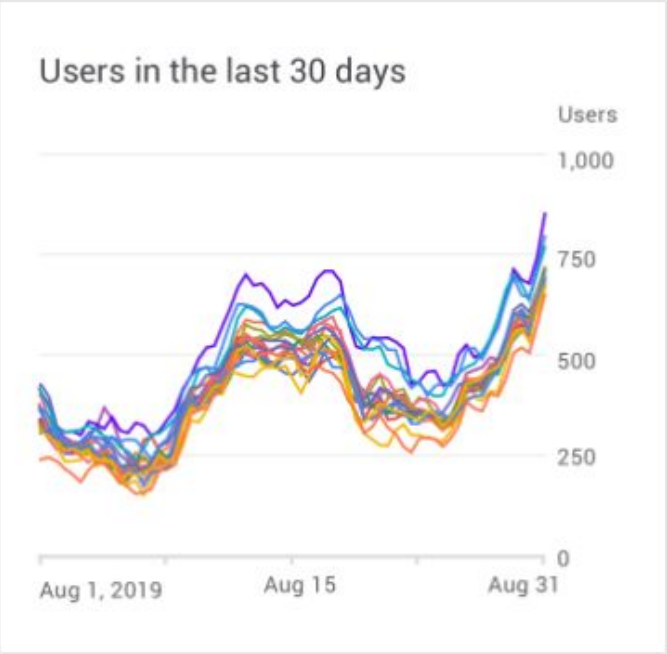
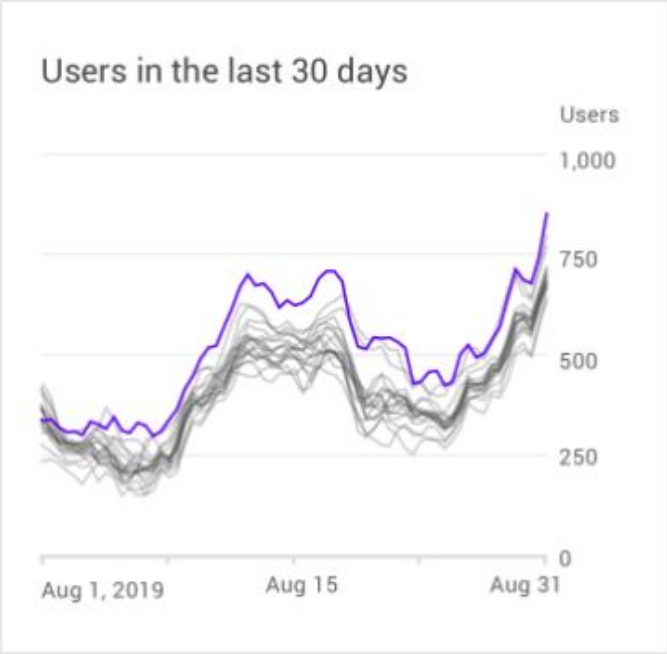
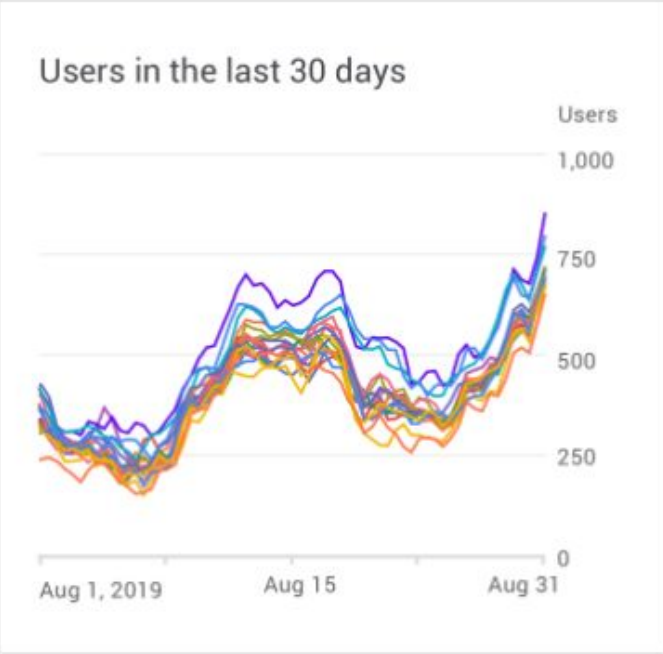


B.

Source: Material Design, Data Visualisation guidelines


Users in the last 30 days
Users
1,000
750
500
250
0
Aug 1, 2019
Aug 15
Aug 31

A.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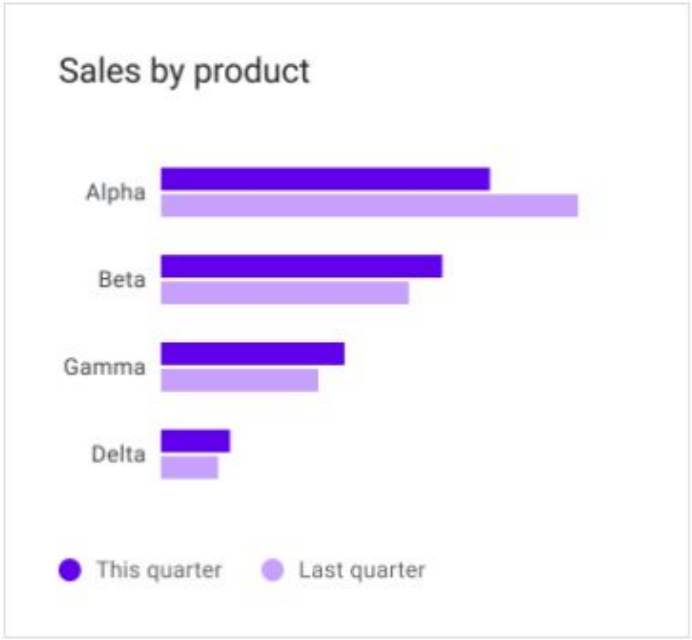

A.

B.

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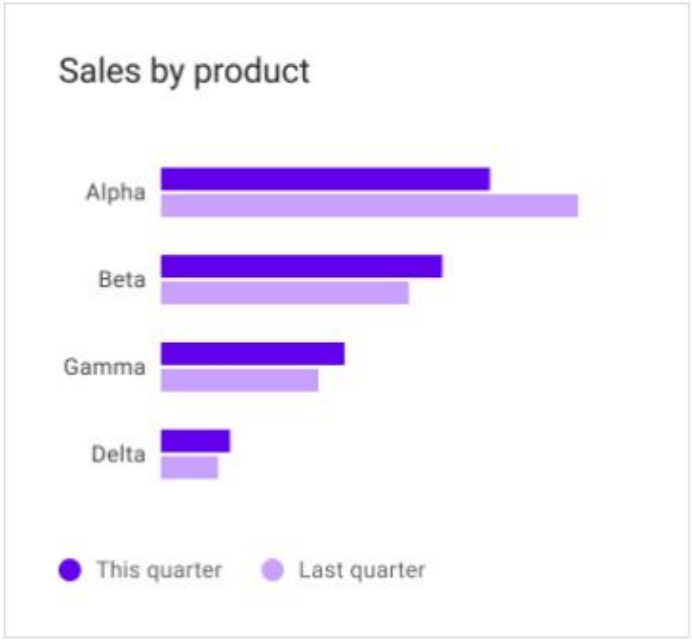
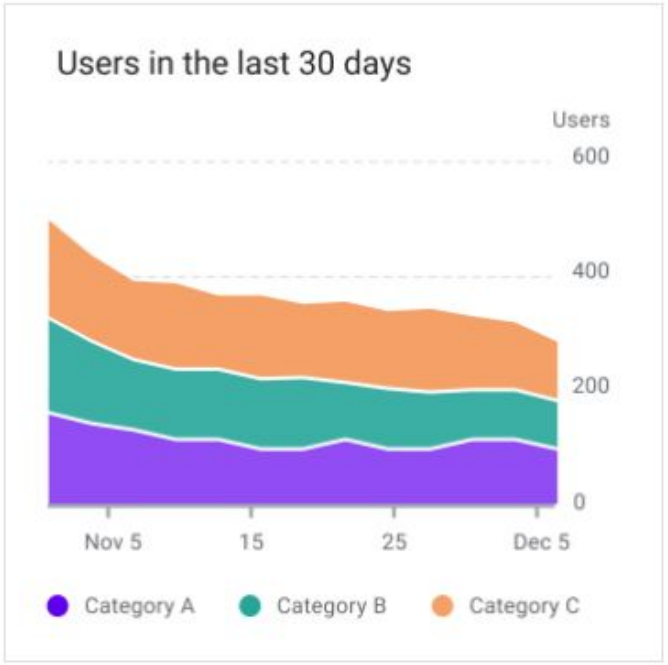

Sales by product
Alpha
Beta
Gamma
Delta
This quarter
Last quarter

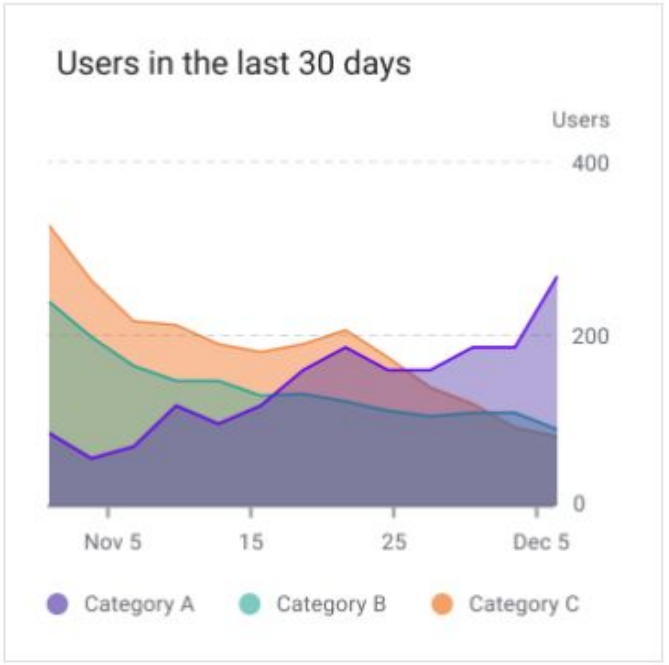
A.

Sales by product
This quarter
Last quarter
Alpha
Beta
Gamma
Delta

B.

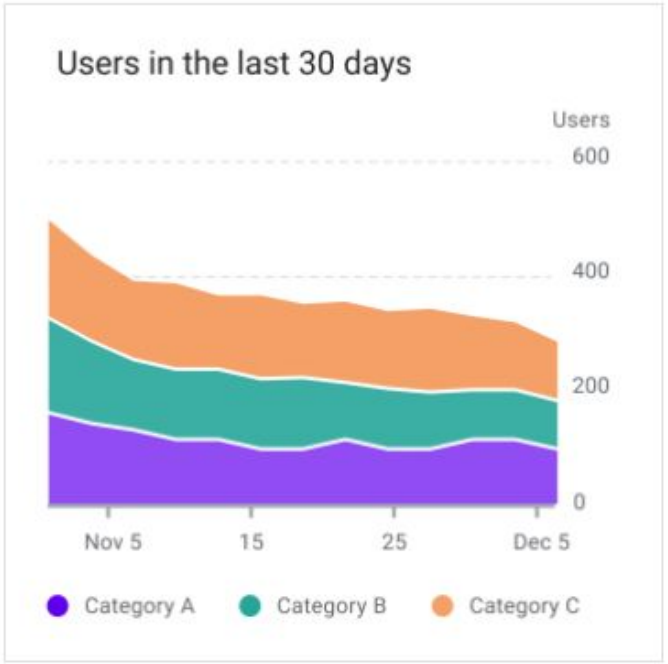


A.

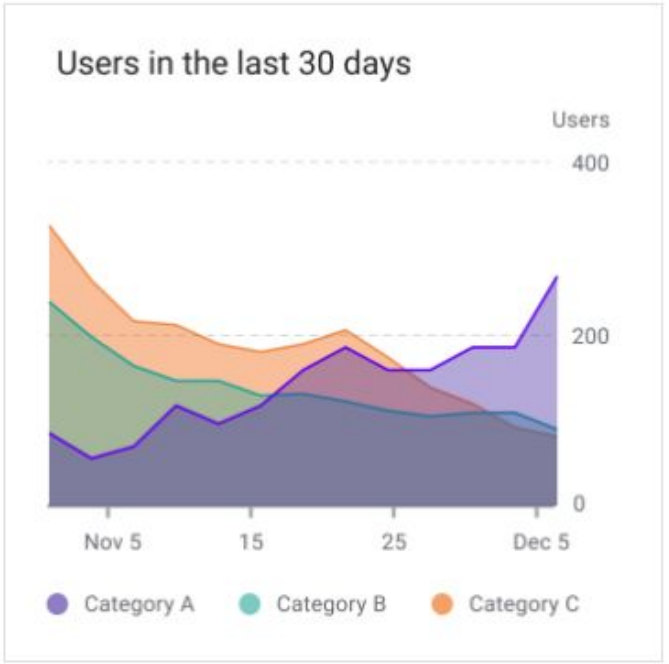


B.

Source: Material Design, Data Visualisation guidelines


Users in the last 30 days
Users
600
400
200
0
Nov 5
15
25
Dec 5
Category A
Category B
Category C

A.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B.