

Uncovered: The Hard Truth about OTel's Vendor Neutrality

Adriana Villela (Dynatrace)
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How did we get here??



Josh Lee · 1st

Open Source Advocate @ Altinity - ClickHouse®, Kubernetes, & ...

1mo · 🌐



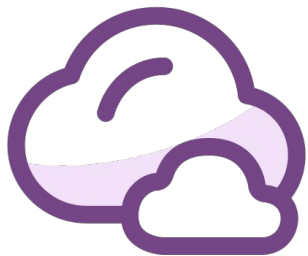
I still hear people saying that "OpenTelemetry is vendor neutral so you can switch vendors any time you want to."

This is like saying that because the vCard format exists, it's easy to switch from iOS to Android. Sure, your core data will ultimately be portable, but you'll be missing a **lot** of other things.

Open formats are awesome — and essential for portability to be possible at all — but they are not a panacea that will save you from understanding your own use case.

[#opentelemetry](#) [#otel](#)

Standardization
is GOOD



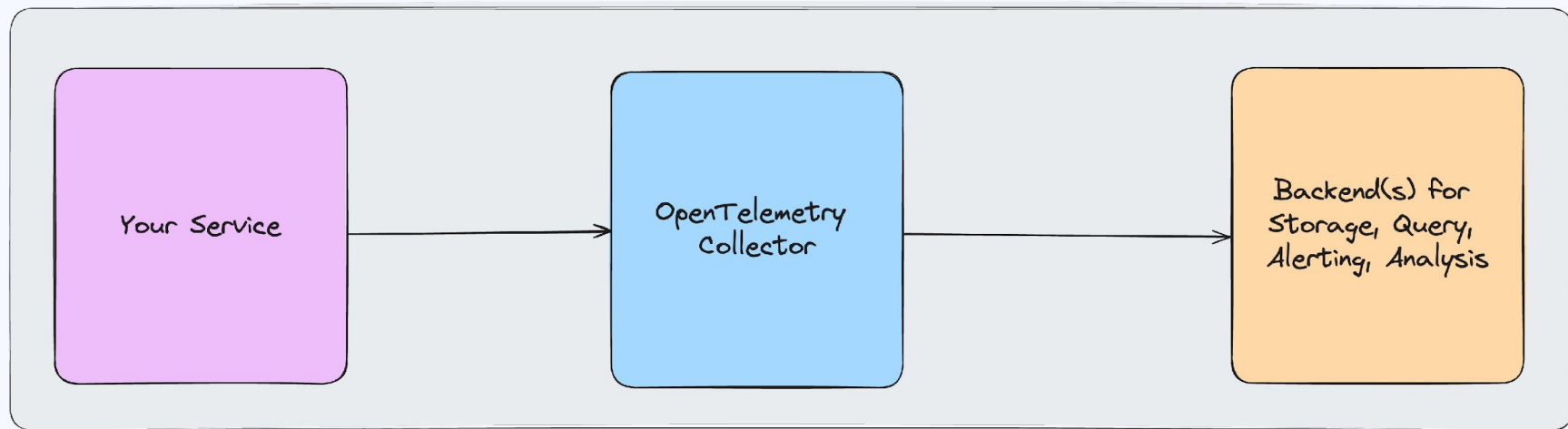
What are some of the standards that you're grateful for?





OpenTelemetry

NET 12 FL. OZ. (355 ml)



Hi!



Adriana Villela

Principal Dev Advocate, Dynatrace
OTel End User SIG Maintainer



Josh Lee

Open Source Advocate, Altinity
ClickHouse®, K8s, & OTel





01

**Why does
OpenTelemetry exist?**

03

**The beauty of
interoperability**

05

How do we change this?
Our vision for the future...

02

What's neutral?
The layers of compatibility
with OpenTelemetry

04

The vendor switch
Know what you're getting
into before taking the plunge

06

Why is OTel successful
How did we get standards
compaction?!

**OpenTelemetry
exists because of
distributed tracing**

OpenTelemetry exists because of distributed tracing...



Open data formats

Observability & monitoring beg to be open.



Distributed computing

Microservices changed the game for monitoring.



Vendor neutrality

OpenTelemetry solves the vendor-neutrality challenge.



**What makes
OpenTelemetry
vendor neutral?**

OpenTelemetry components

01



**Semantic
Conventions**

02



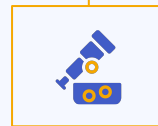
API & SDK

03



OTLP

04



Collector

Semantic Conventions

Naming conventions for various resources (entities) and metadata.

The key enabler of interoperability and standardization.



OTel API

Defines the methods used to instrument applications, and serves as the entry point for instrumentation.

Enables applications and libraries to be instrumented "agnostically".



OTel SDK

Implements the API and determines *how* the telemetry is generated and correlated.

Typically used to translate between API calls and OTLP, but can be used for customization.



OTLP

Specification for encoding, transmitting and delivering OpenTelemetry data.

Enables interoperable pipelines and multicasting.



OTel Collector

A vendor-neutral binary used to ingest, transform, and export data to one or more Observability back-ends.

Think of it as data pipeline swiss-army knife.



**The beauty of
interoperability**

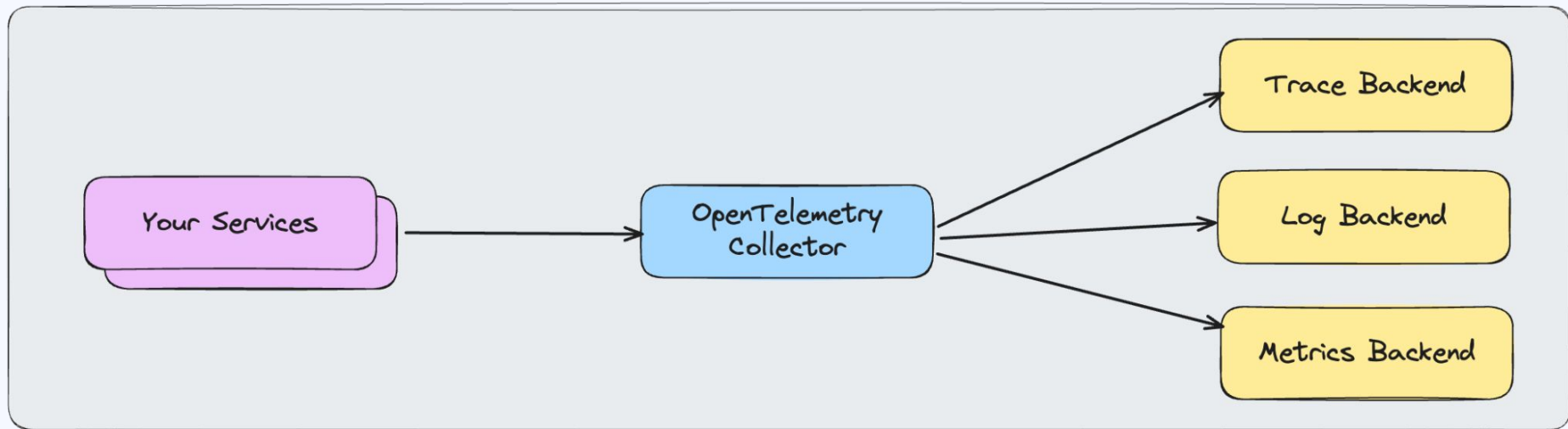
Interoperability means...

Having choices

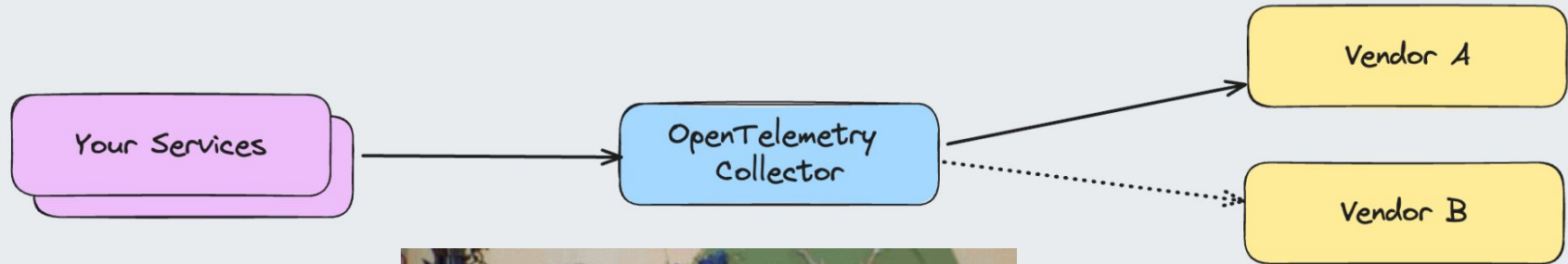
OTel's open formats mean that interoperable tools can be used alongside each other all the time.



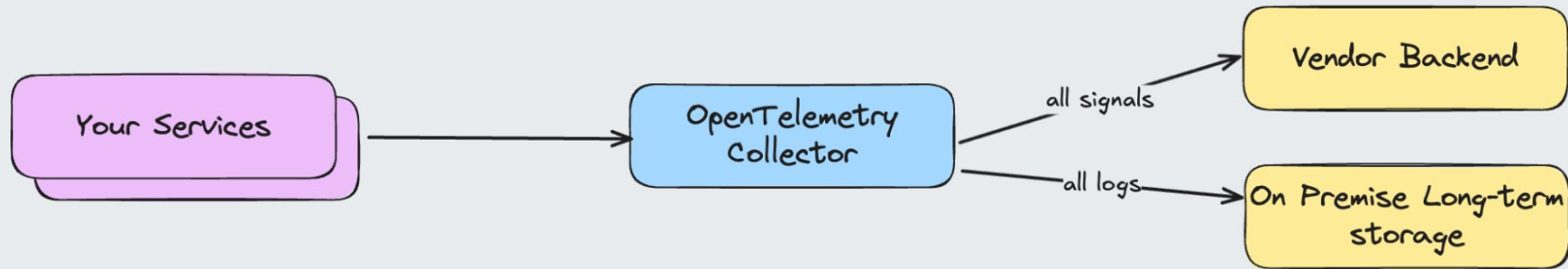
One tool for each signal



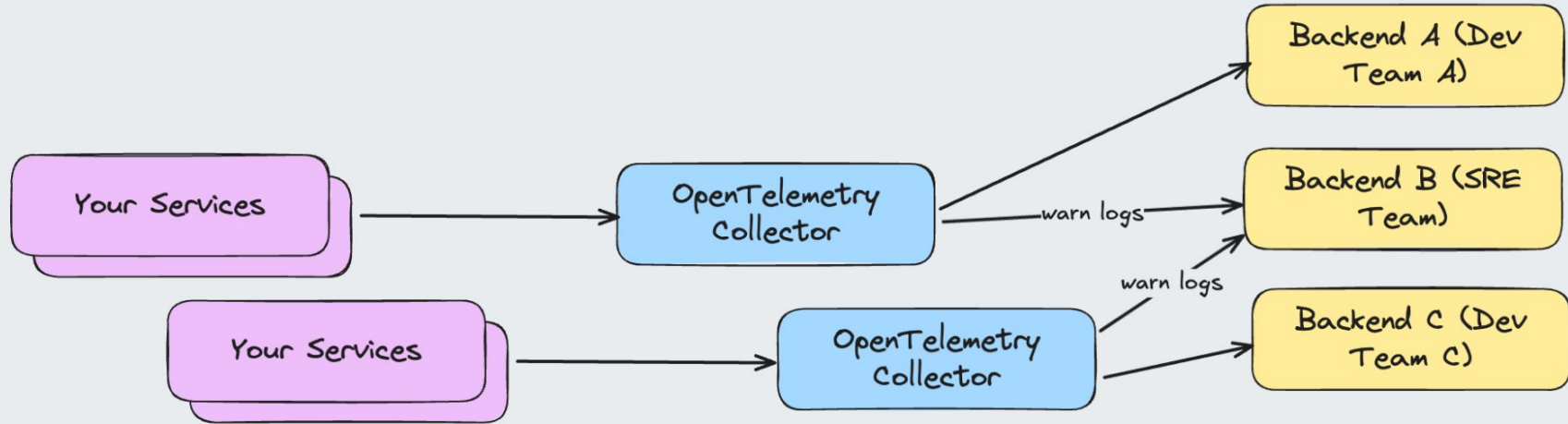
One (or more) tools for all signals



One tool for everything, and a specific tool for something else



Specific pipelines for specific teams



Interoperability means...

Having having your cake
and eating it too



**The vendor
switch: know what
you're getting into**

**Boss: we're
going to lift
and shift**



Not-so-neutral means...



Look & feel

Getting used to a new UI



Queries & dashboards

Redoing dashboards and learning query languages sucks



Not-so-neutral means...



Alerts & SLOs

Creating new alerts and SLOs...if they're supported



laC

Different vendors use different Terraform providers



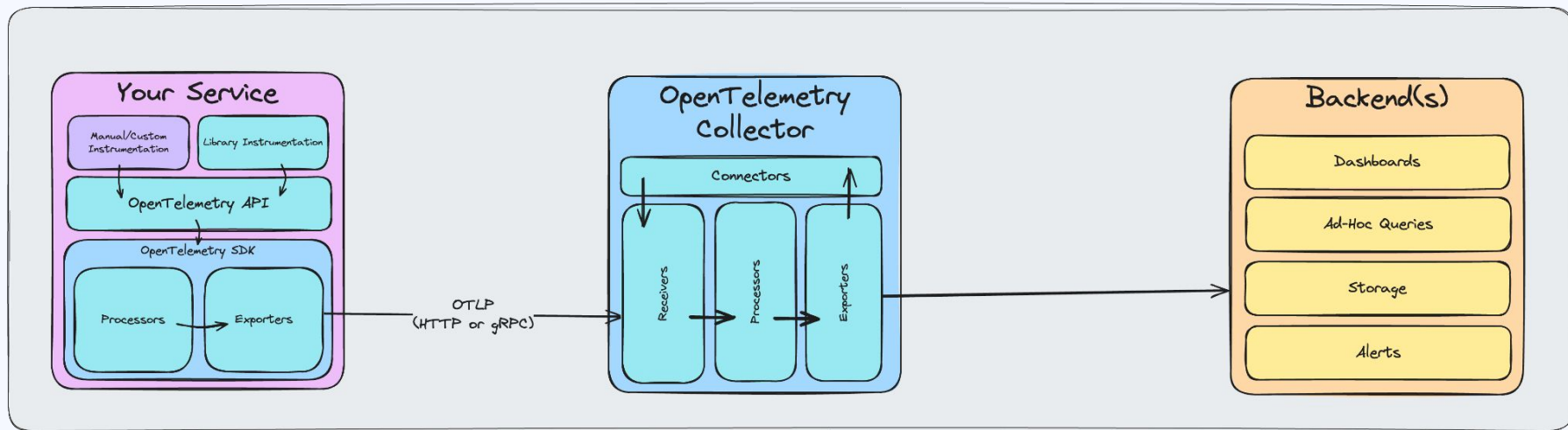
Storage & historical data

Can't easily export historical data (if at all)



Vendor-neutral backends: a vision for the future

Putting it all together...

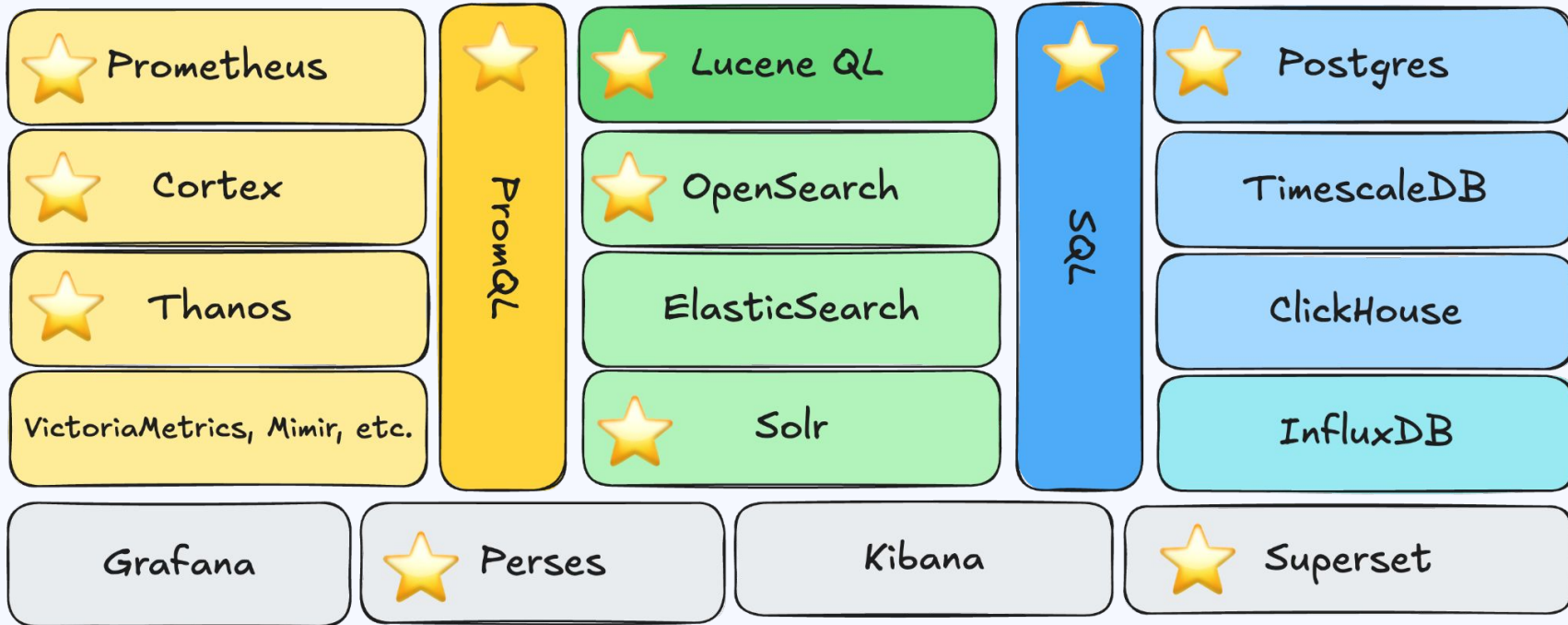


A Lucene Query

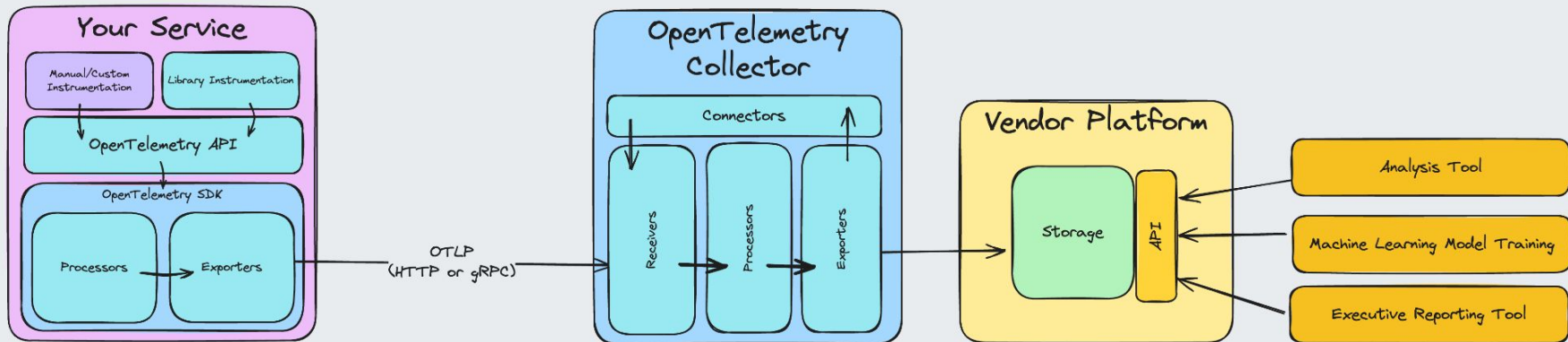
```
service:"recommendation"  
AND timestamp:[2025-01-01 TO 2025-12-31]
```

Open-source storage, query, and UI

★ = under a foundation



What if...



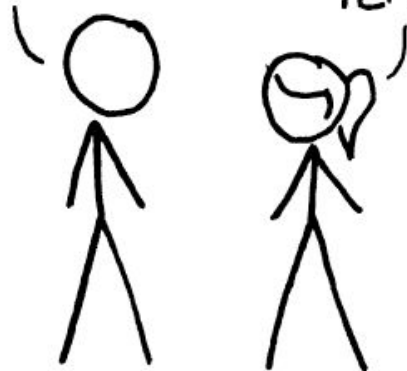
**Why is OTel
successful?**

HOW STANDARDS PROLIFERATE:

(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)

SITUATION:
THERE ARE
14 COMPETING
STANDARDS.

14?! RIDICULOUS!
WE NEED TO DEVELOP
ONE UNIVERSAL STANDARD
THAT COVERS EVERYONE'S
USE CASES.



SOON:

SITUATION:
THERE ARE
15 COMPETING
STANDARDS.

Why is OTel successful?



Openness

Observability begs to be open!



Co-operation

Supported by multiple vendors, with no single vendor taking the spotlight.



Stewardship

As a CNCF project, everyone works towards a common goal!



How this benefits YOU!



Portability

Change tools if you want to!



Interoperability

Work with multiple tools if you want to.



Choice

As OTel continues to evolve, so will your options!

**Ask meaningful
questions**

Get useful answers

Take action!

References & shameless self-promos



Josh's LinkedIn post on
vendor neutrality



Geeking Out Podcast



Adriana's blog post on
vendor neutrality



Unevenly Distributed



Adriana's O'Reilly
Course on Observability
with OTel



OTel End User SIG



Thanks!



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ClickHouse®, K8s, & OTel



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01

Theory lesson

You can enter a subtitle here if you need it

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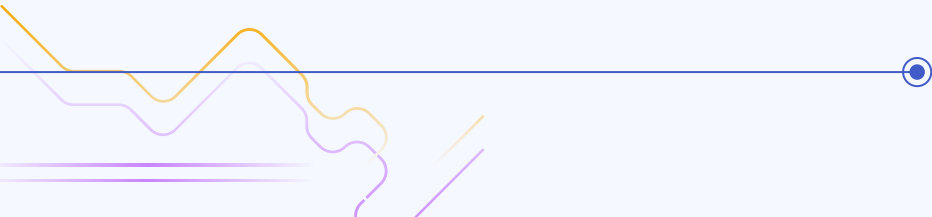
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Introduction

Mercury is the closest planet to the Sun and the smallest one in the entire Solar System. **This planet's name has nothing to do with the liquid metal,** since Mercury was named after the Roman messenger god. Mercury's surface is filled with craters

Mercury takes a little more than 58 days to complete its rotation, so try to imagine how long days must be there! **Since the temperatures are so extreme, albeit not as extreme** as on Venus, Mercury has been deemed to be non-habitable for humans





"This is a quote, words full of wisdom
that someone important said and can
make the reader get inspired"

—Someone Famous



Concepts



Mercury

Mercury is the closest planet to the Sun and **the smallest one** in the Solar System—it's only a bit larger than the Moon



Venus

Venus has a beautiful name and is the **second planet from the Sun**. It's hot and has a poisonous atmosphere

What is this topic about?



Mercury

It's the closest planet to the Sun and the **smallest** in the Solar System



Venus

Venus has a beautiful name and is the second planet from the Sun



Mars

Despite being red, Mars is actually a **cold place**. It's full of iron oxide dust

Features of the topic

Mars

Despite **being red**,
Mars is very cold

Neptune

It's the farthest planet
from the Sun

Jupiter

Jupiter is the biggest
planet of them all

Saturn

Saturn is a **gas giant**
and has several rings



Examples



Mercury

It's the closest planet to the Sun and the **smallest** in the Solar System



Venus

Venus has a beautiful name and is the second planet from the Sun



Mars

Despite being red, Mars is actually a **cold place**. It's full of iron oxide dust

Recommendations



Mars

Despite being red, Mars is very cold



Venus

Venus is the second planet from the Sun



Neptune

Neptune is the farthest planet from the Sun



Mercury

Mercury is the closest planet to the Sun



Saturn

Saturn is a gas giant and has several rings



Jupiter

Jupiter is the biggest planet of them all

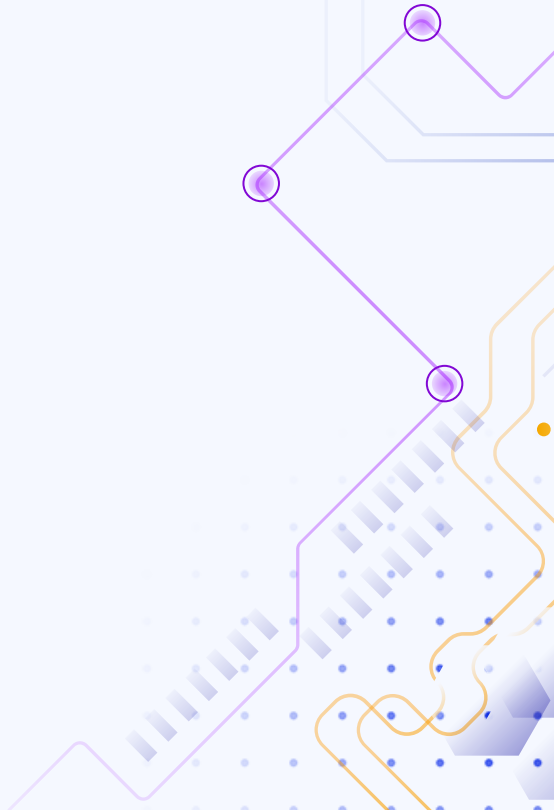
Image always reinforce the concept

You can give a brief description of the topic you want to talk about here. For example, if you want to talk about Mercury, you can say that it's the smallest planet in the entire Solar System



4,498,300,000

Big numbers catch your audience's attention





9h 55m 23s

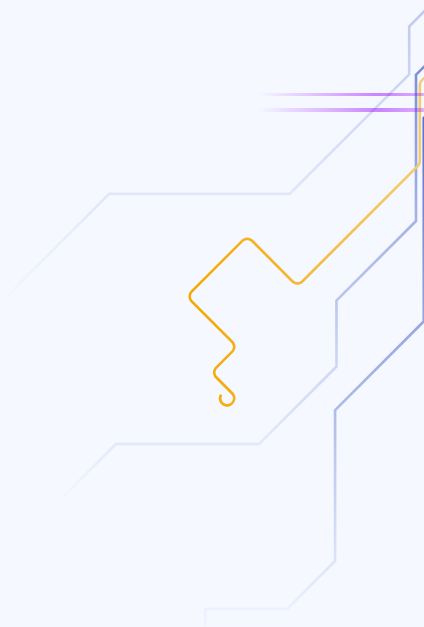
Jupiter's rotation period

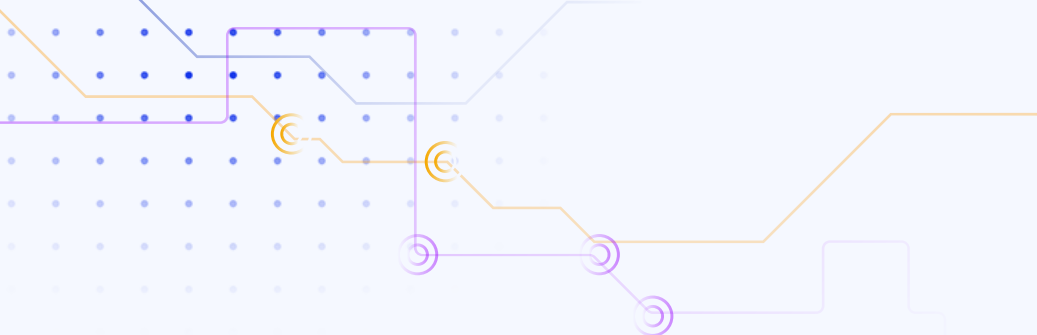
333,000

The Sun's mass compared to Earth's

386,000 km

Distance between the Earth and the Moon





Awesome words



**A picture is worth a
thousand words**



Practical exercise - calculator

Objective:

Introduce participants to basic coding concepts by building a **simple calculator**

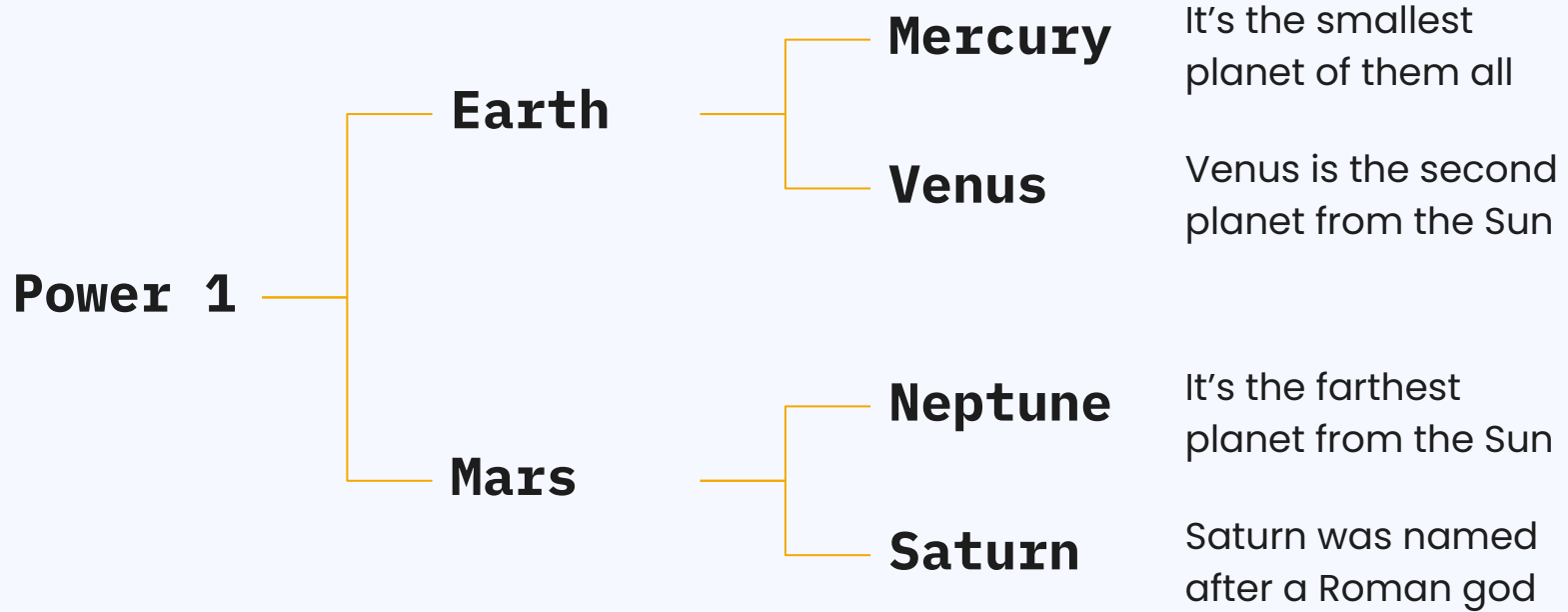
Instructions:

1. Open a Python development environment and write the following code:

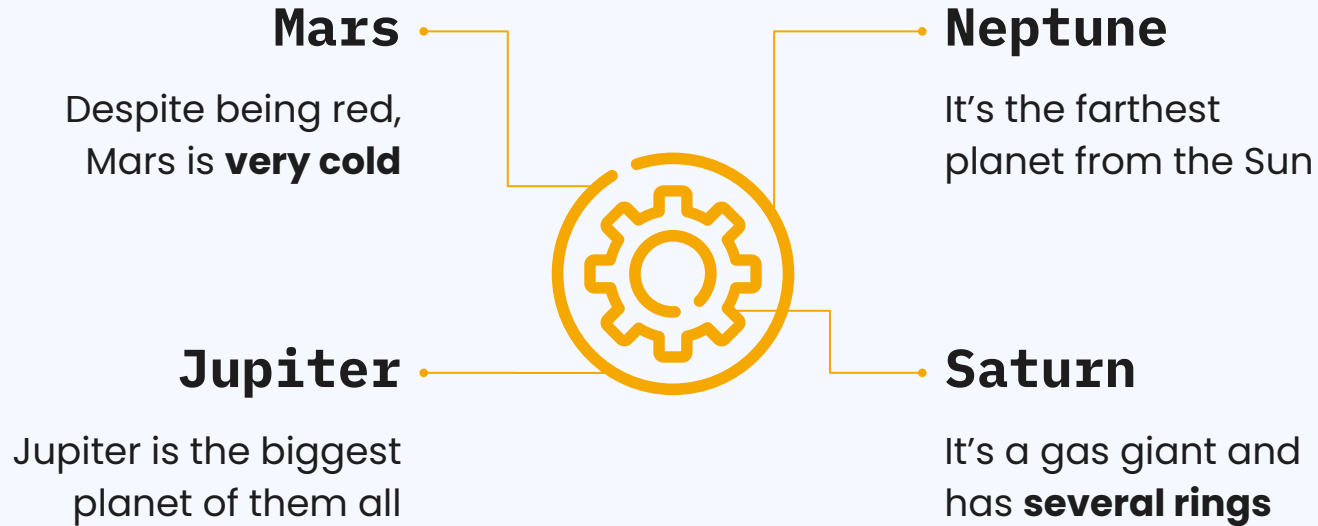
```
# Simple Calculator
num1 = int(input("Enter the first number: "))
num2 = int(input("Enter the second number: "))
print("Sum:", num1 + num2)
print("Difference:", num1 - num2)
print("Product:", num1 * num2)
print("Quotient:", num1 / num2)
```

2. Run the program and experiment with different numbers
3. Observe the output

Brainstorm and idea generation



Main topic and details





Popular programming languages

01 — **Neptune** — Mercury is the closest planet to the Sun and the **smallest** of them all

02 — **Venus** — Venus has a beautiful name and is the **second planet from the Sun**

03 — **Earth** — Earth is the third planet from the Sun and the only one that harbors life in the Solar System

04 — **Saturn** — Saturn is a gas giant and has several rings. It's composed mostly of hydrogen and helium

Sequences

Saturn is composed of
hydrogen and helium

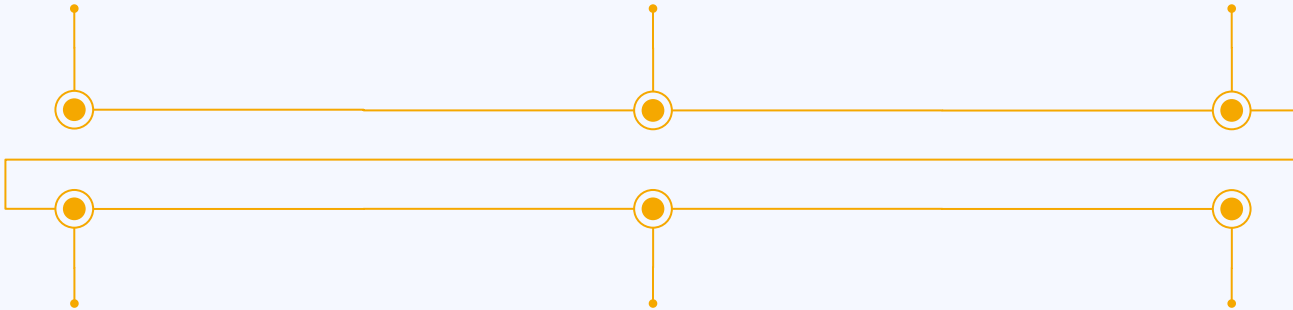
Mercury is the **closest**
planet to the Sun

Jupiter was named
after a Roman god

First

Next

Next



Next

Next

Last

Despite being red,
Mars is **very cold**

Earth is the third
planet from the Sun

Venus has extremely
high temperatures

Classification

Mars	Venus	Mercury	Jupiter
• Small • Red • Cold • Rocky	• Small • Hot • Dry • Volcanic	• Small • Hot • Rocky • Cratered	• Large • Cold • Gassy • Striped
Mars is full of iron oxide dust	Venus has high temperatures	Mercury is quite a small planet	Jupiter is a huge gas giant



Cause and effect

Problem

• Mars

Despite being red,
Mars is very cold

• Venus

Venus is the second
planet from the Sun

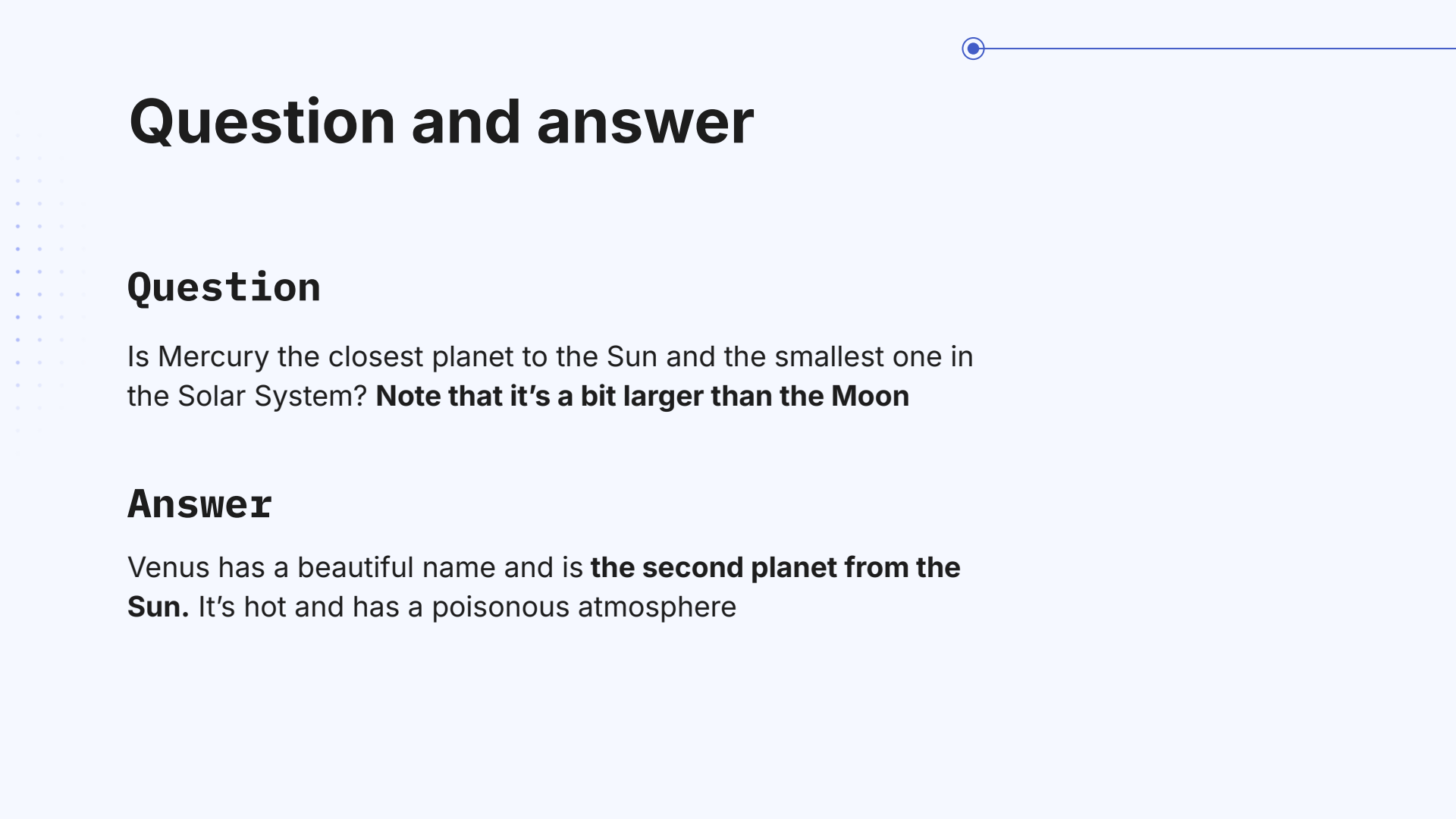
Solution

• Mercury

Mercury is the closest
planet to the Sun

• Saturn

Saturn is a gas giant
and has several rings



Question and answer

Question

Is Mercury the closest planet to the Sun and the smallest one in the Solar System? **Note that it's a bit larger than the Moon**

Answer

Venus has a beautiful name and is **the second planet from the Sun**. It's hot and has a poisonous atmosphere

Step-by-step coding

01



Earth

It's the only planet known to **harbor life**

02



Mercury

Mercury is the closest planet to the Sun

03



Jupiter

Jupiter is the **biggest** planet of them all

04



Saturn

Saturn was named after a Roman god



Parts and whole

The whole objective

Mercury is the closest planet to the Sun and the smallest one in the entire Solar System

Parts of the object

- Mercury
- Jupiter
- Venus
- Mars
- Earth
- Saturn
- Mercury

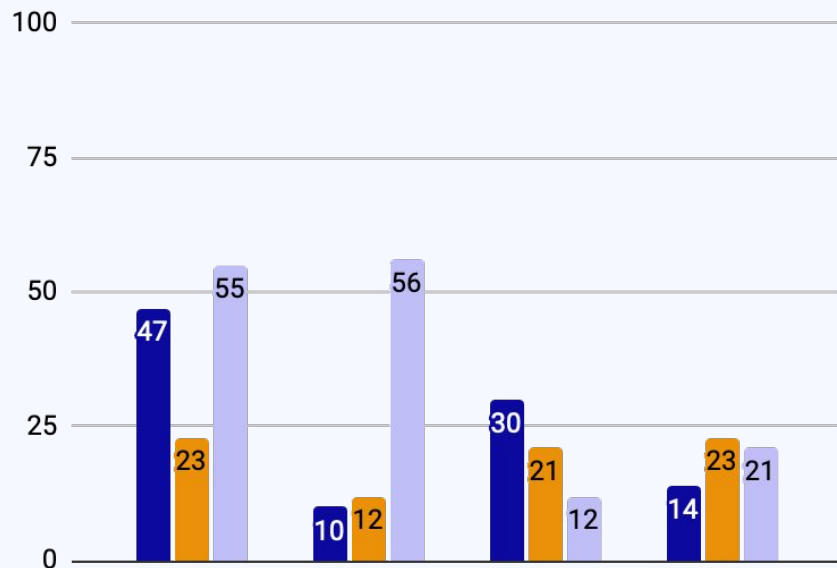
What happens if the parts are missing?

Earth is the third planet from the Sun and the **only one that harbors life in the Solar System**

What's the function of the parts?

Jupiter is a gas giant and the biggest planet in the Solar System

You can use this graph



Follow the link in the graph to modify its data and then paste the new one here. [For more info, click here](#)



Mercury

Mercury is the closest planet to the Sun



Jupiter

Jupiter is the biggest planet of them all



Saturn

Saturn was named after a Roman god

This is a map

USA

Despite being red, Mars is **very cold**

India

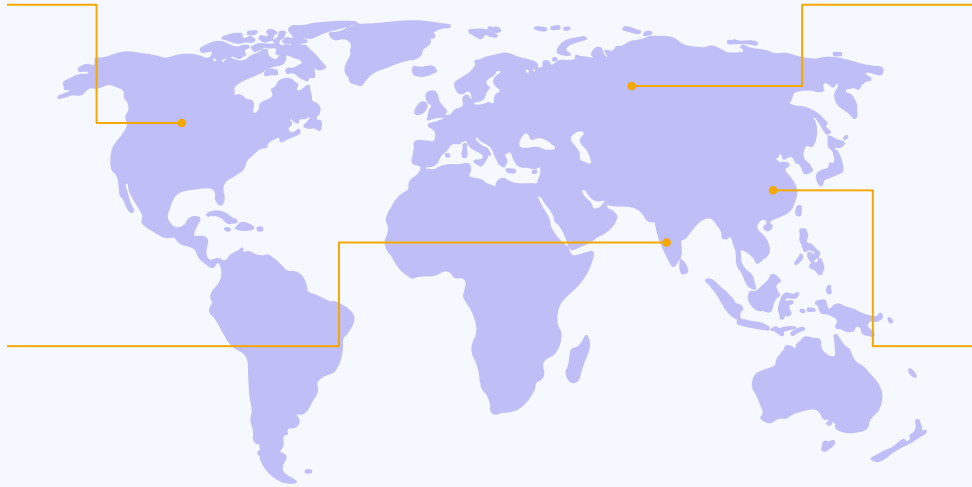
Jupiter is the biggest planet of them all

Russia

Neptune is the farthest planet from the Sun

China

Saturn is **a gas giant** and has several rings



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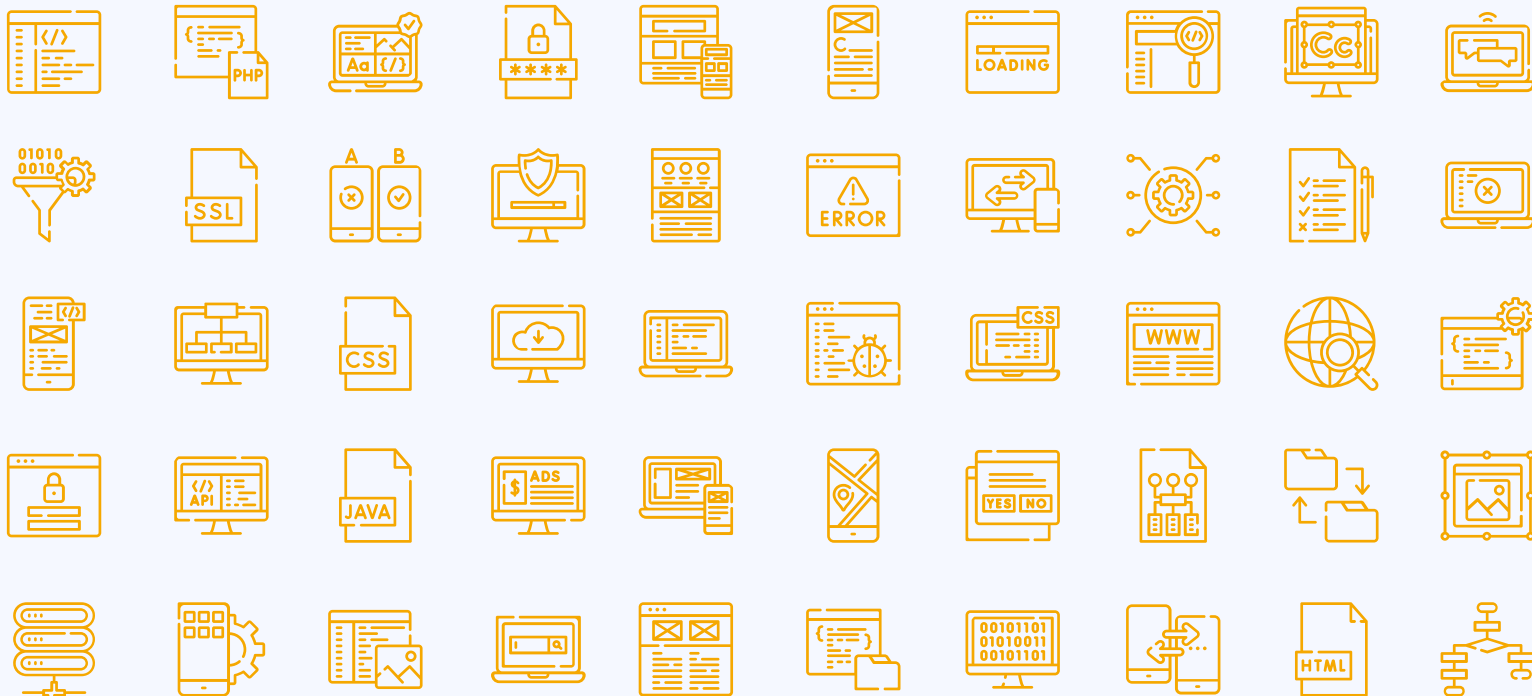
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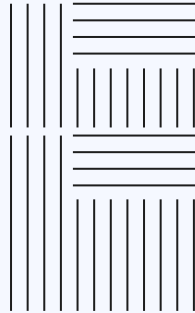
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Pana



Amico



Bro



Rafiki



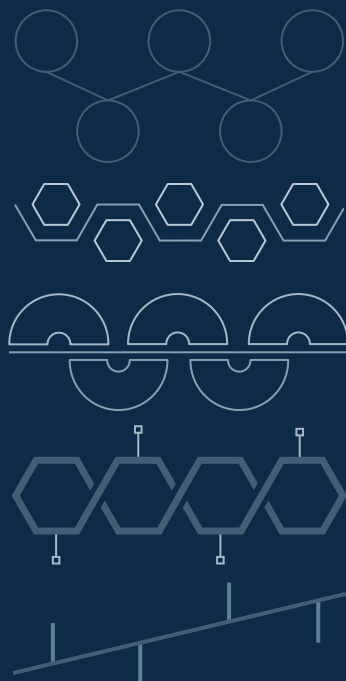
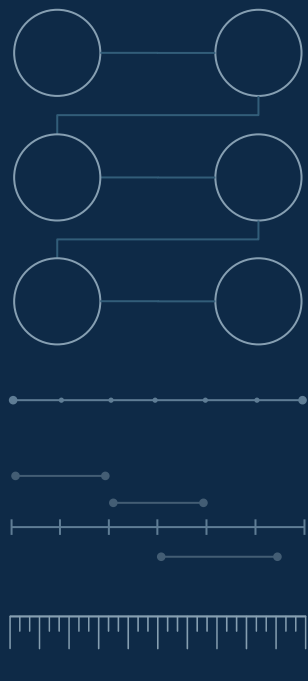
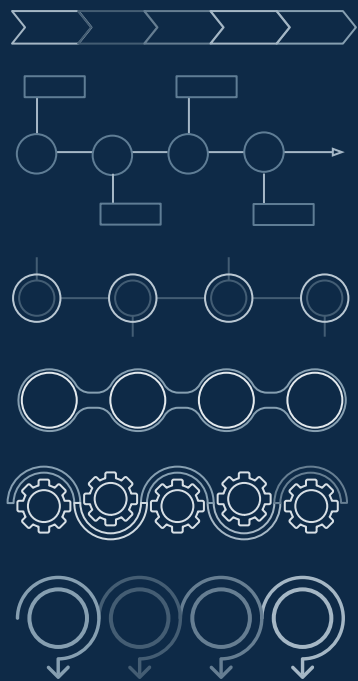
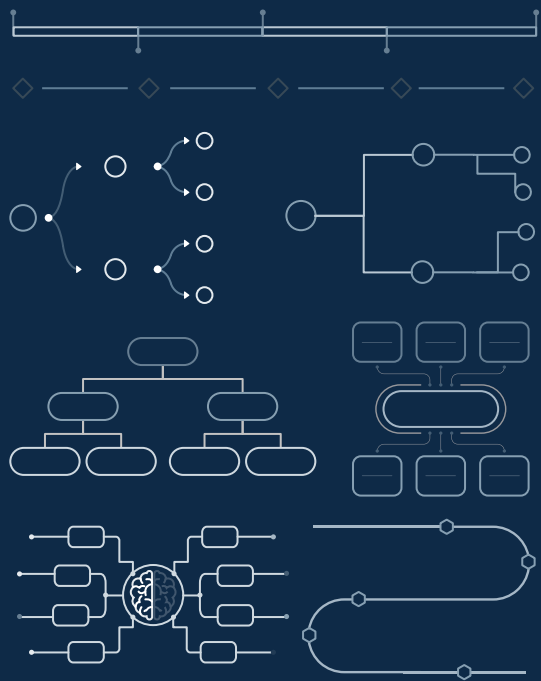
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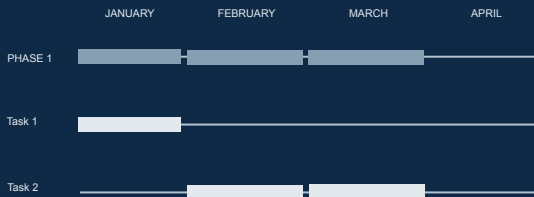
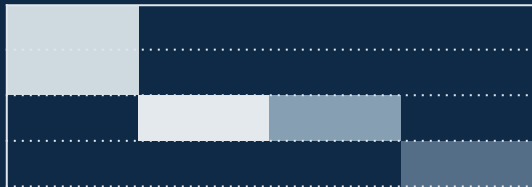
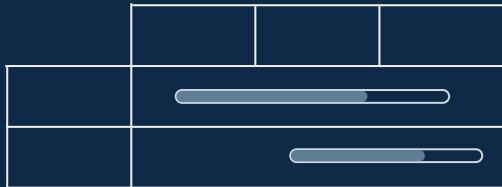
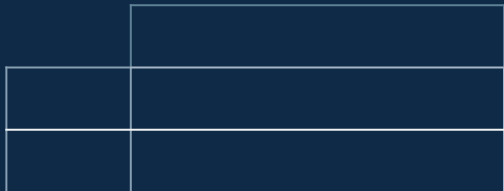
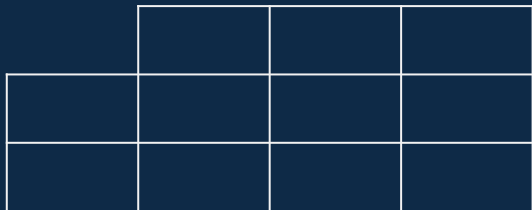
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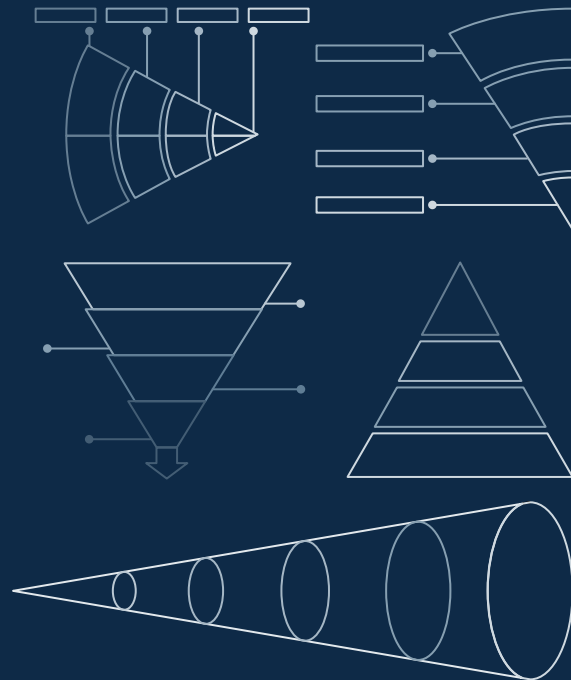
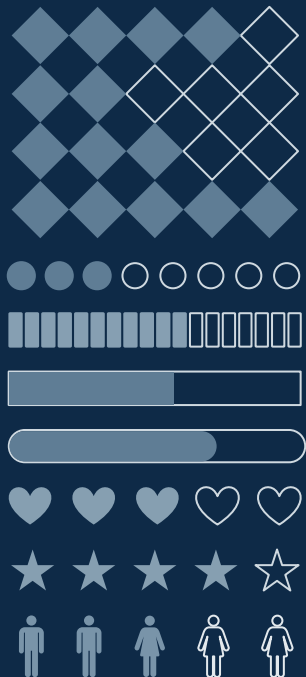
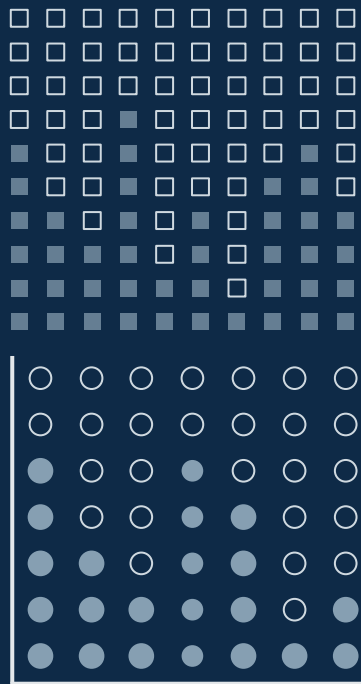












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