



SAPIENZA  
UNIVERSITÀ DI ROMA



# A VISUAL ANALYSIS OF THE OLYMPIC GAMES

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by Marco Ferraro & Stefano Foti

# ABSTRACT

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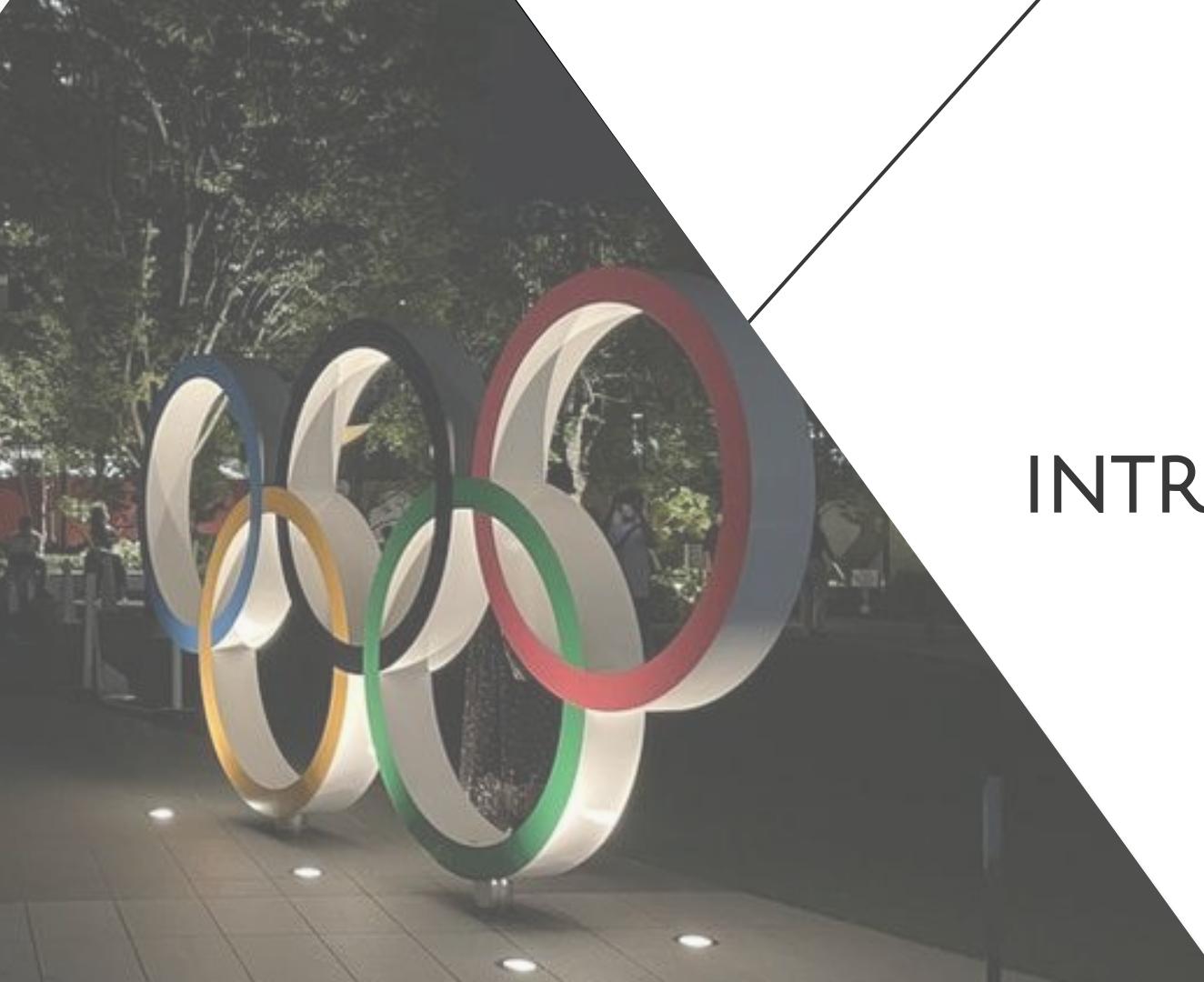
The first Olympic Game took place in 1986. At that time, and for many years, few countries take part to games and USA used to be the undisputed leader of the competition.

In this work we focus on the amount of medal won by every country, looking for relationship with population and economy by starting from the conclusion of most relevant previous works in the field. We also focus on gender differences in olympic games.

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Data graphs and relations

A large-scale Olympic rings sculpture is visible in the background, partially obscured by a dark, angular shape that covers the left side of the slide. The rings are illuminated from within, casting a glow on the surrounding area.

# 01

## INTRODUCTION

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Related works



# MEDALS

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What are the main reasons for success at the Olympics?

What are the main factors for predicting future outcome?

How did these relations evolve in time?

We analyzed the results of several related works and used a larger dataset to visualize them.



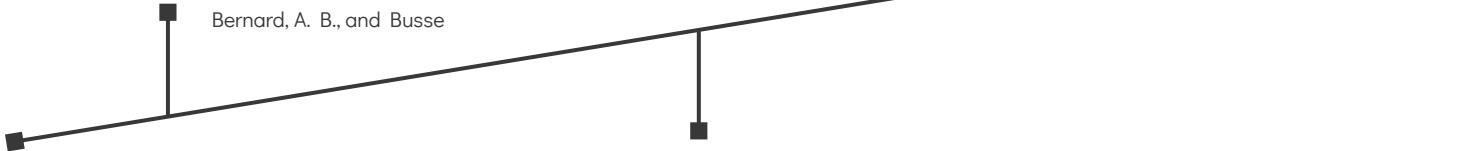
# RELATED WORKS

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2000

GDP and to a lesser degree population are the main factor in determining Olympics Success

Bernard, A. B., and Busse



2007

Population is only a relevant factor for rich countries; they confirmed the correlation with GDP

Rathke, A., and Woitek, U.

# OVERALL RESULTS

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## GDP

Is the leading factor to predict medals amount.

## POPULATION

Way lower impact in predicting medals amount, except for rich countries.

## GENDER

Gender Inequality Index among other factors such as suffrage age, affects women performance and overall performance.



# 02

## THE DASHBOARD

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Architecture, datasets,  
features

# ARCHITECTURE

## ANGULAR

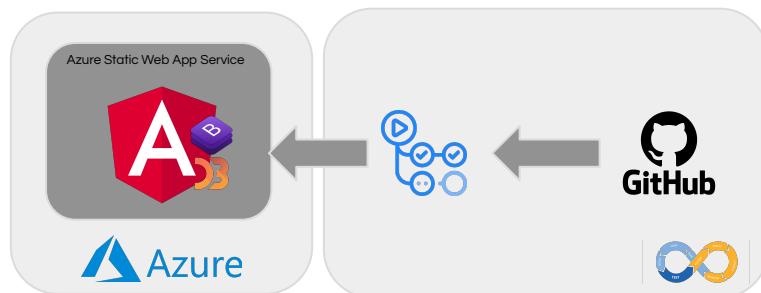
Stand-alone responsive web application

## WEB WORKERS

Running for computing PCA results depending on the query

Now live on  
<https://gray-beach-009ad9803.azurestaticapps.net>  
(free assigned domain)

UP&RUNNING



# DATASETS

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## OLYMPICS

Summer & Winter Olympics  
1896-2016  
> 270K tuples loaded from scratch at startup

## GDP

Year by year  
From 1960

## POPULATION

Steps of 10 years  
From 1900

Our AS index: > 1'000'000

# CHARTS

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## WORLD MAP

Colored by medal count

## BAR CHART

Showing the top 25 countries by medal count

## PARALLEL COORDINATES

Medals in each sport for every country

## SCATTERPLOT

Both 2D/3D, shows the result of PCA runtime applied to data

## PROGRESSION CHART

Shows the evolution of medal count over years

# FILTERS & FEATURES

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- Countries, sports and years range selection
- Medals selection & customizable medal weight
- Summer/Winter, Male/Female filters
- Medals by GDP/Population
- Normalization
- Tradition, the weight of past is customizable
- Countries affinity, the amount of countries is customizable



# 03

## DEMO

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Live demo of the system

# DEMO

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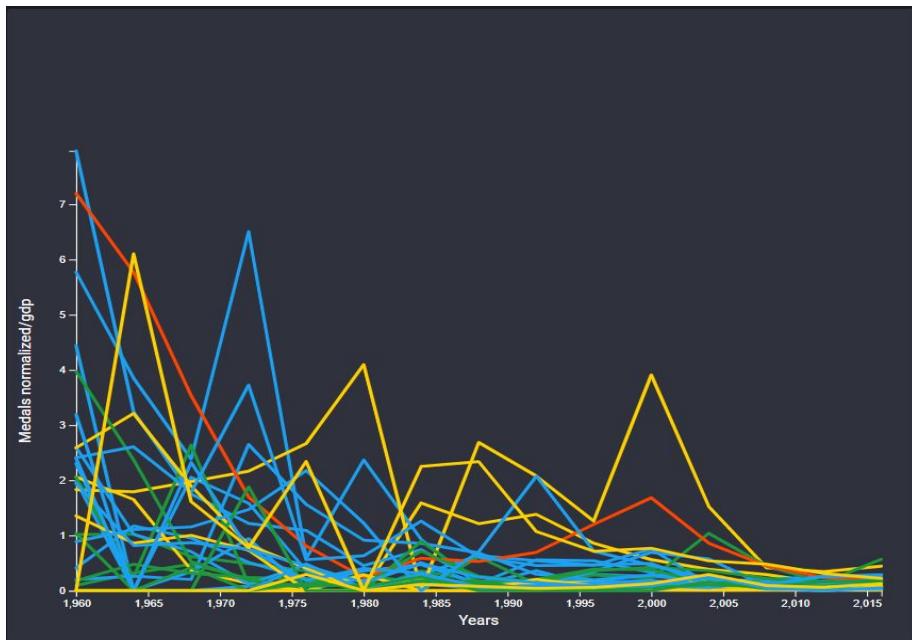
# 04

## INSIGHTS

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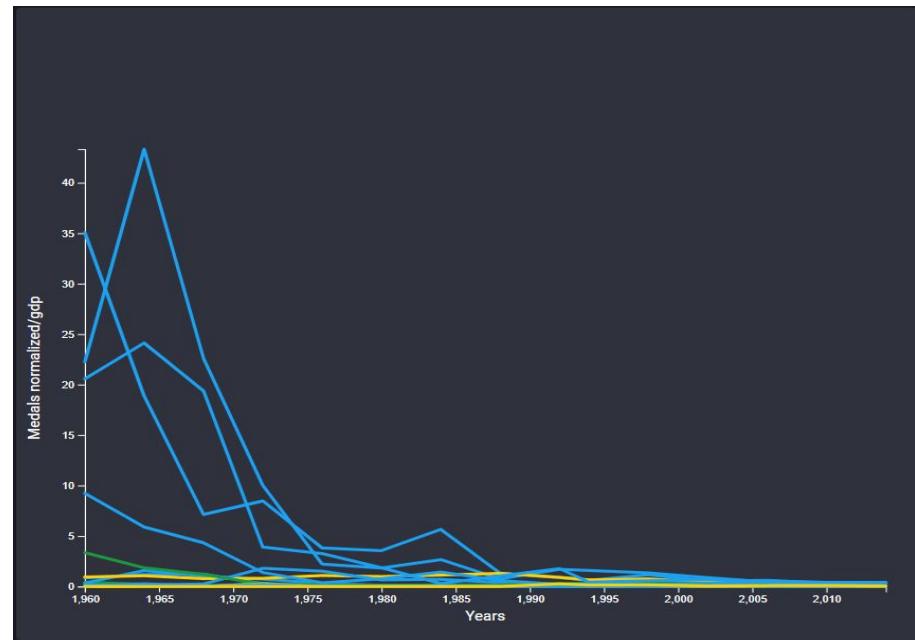
Related works

# GDP



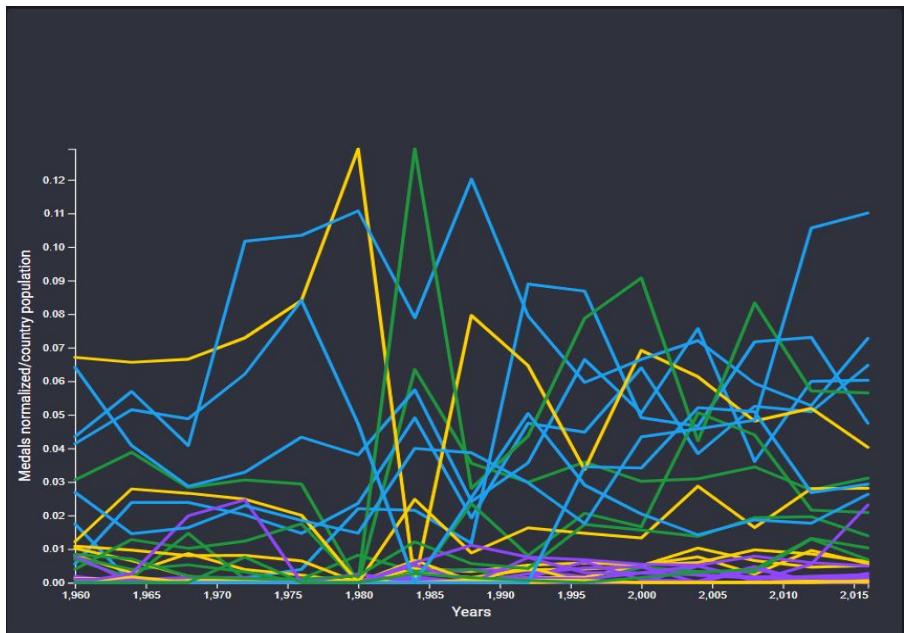
Summer games

GDP has great correlation with Olympic performance, especially in recent years



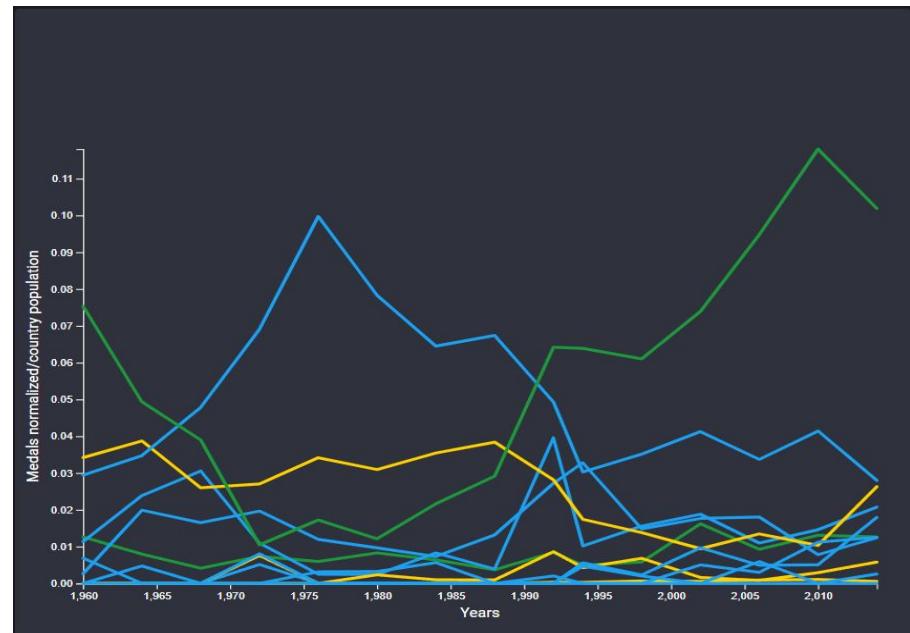
Winter games

# POPULATION



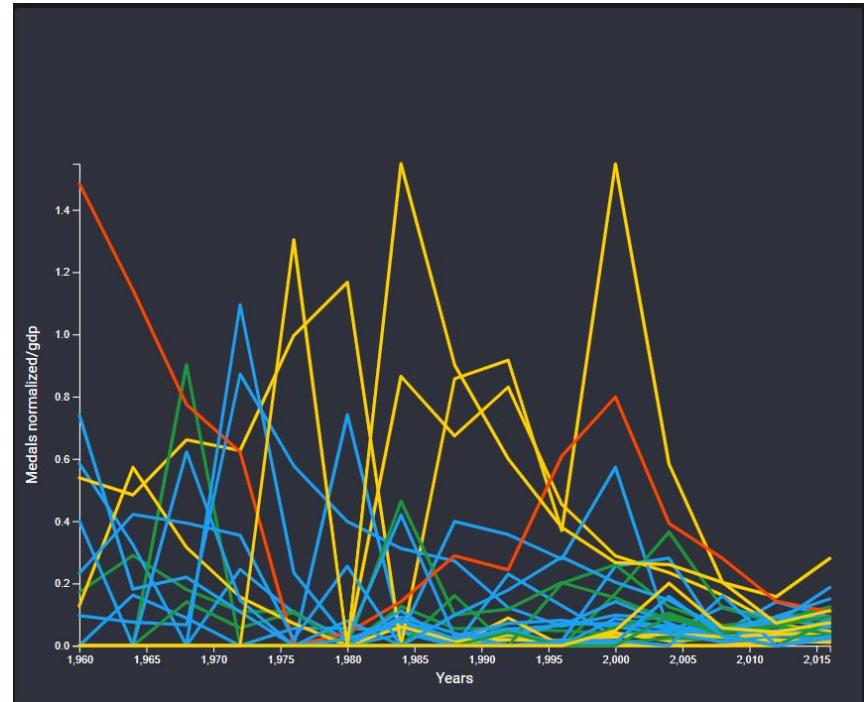
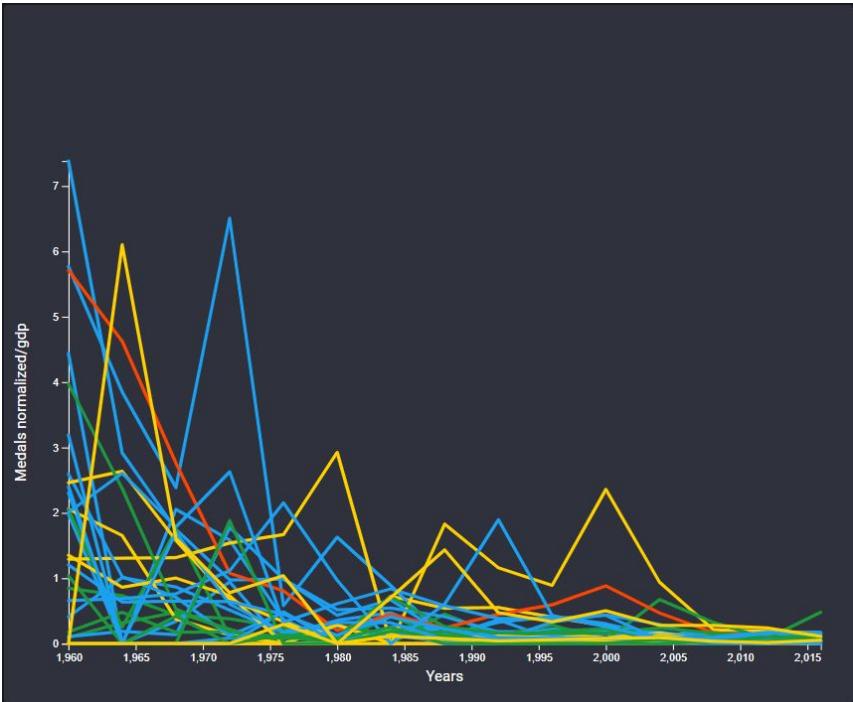
Summer games

Country Population is a weak  
predictor of Olympic performance



Winter games

# GDP FOR GENDER AT SUMMER GAMES



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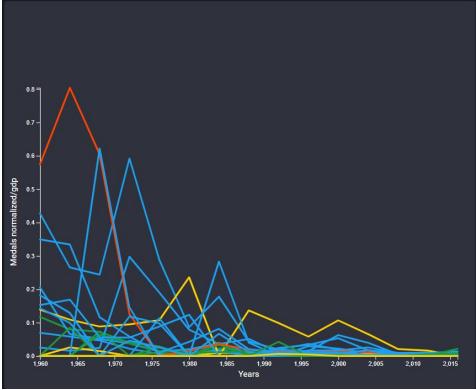
Men

GDP is a far worse predictor for Women events

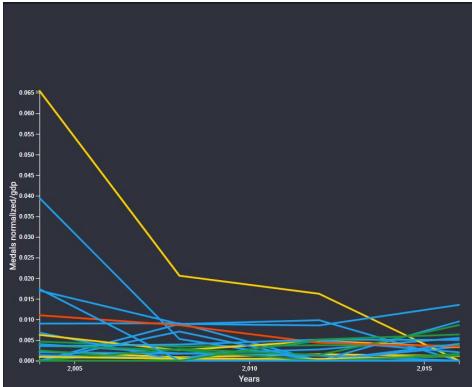
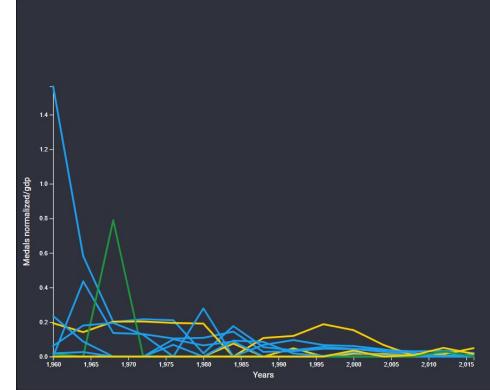
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Women

# GDP FOR SINGLE SPORTS

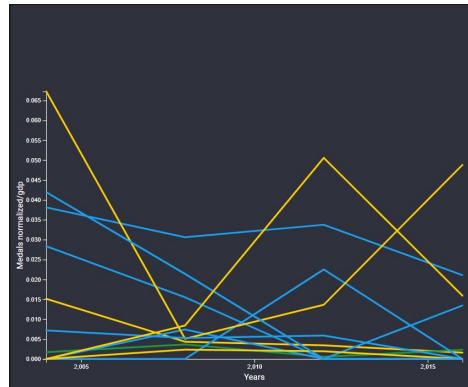


Success in Athletics is mostly determined by GDP (excluding outliers) in recent years compared to other sports such as Fencing, where country tradition and specialization is far more important.



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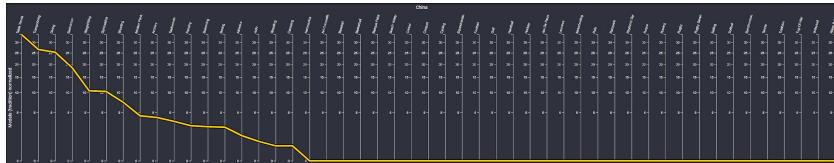
Athletics



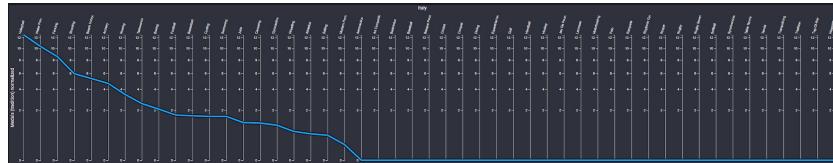
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Fencing

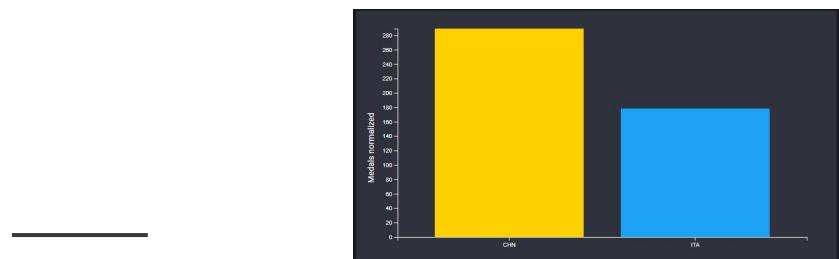
# WOMEN TRADITION



Chinese Women win in  
more sports than men

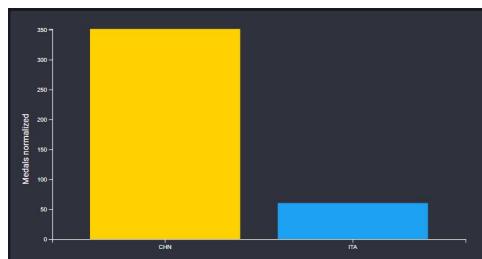
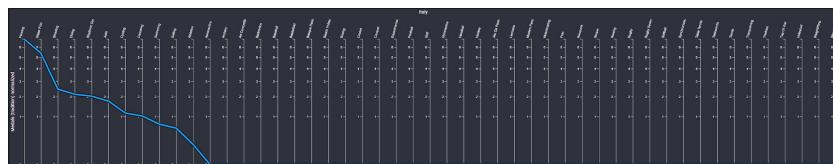


Italian Women win in  
less sports than men



China

Cumulative Men



Italy

# THANKS

# PROBLEM

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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. The planet's name has nothing to do with the liquid metal

# THEM

---

Mercury is the closest planet to the Sun and the smallest one in the Solar System. Mercury's name has nothing to do with the liquid metal

# US

---

Venus has a beautiful name and is the second planet from the Sun. It's terribly hot—even hotter than Mercury—is extremely poisonous

# SOLUTION

---

Mercury is the closest planet to the Sun and the smallest one in the Solar System. The planet's name has nothing to do with the liquid metal

# AN IMAGE IS WORTH A THOUSAND WORDS

---

Images reveal large amounts of data, so  
remember: use an image instead of a long text



# AWESOME WORDS

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## STRENGTHS

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



## OPPORTUNITIES

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

---

# SWOT

---



## WEAKNESSES

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



## THREATS

Saturn is a gas giant, composed mostly of hydrogen and helium

# OUR SERVICES

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## PLANNING

Venus is the second planet  
from the Sun



## PHOTOGRAPHY

Saturn is a gas giant and  
has several rings

# OUR PLANS

---

## BASIC

Despite being red, Mars is actually cold place

## PRO

Saturn is composed mostly of hydrogen and helium

## PREMIUM

It's a gas giant and the biggest planet

# TRACTION

## ▲ PEOPLE

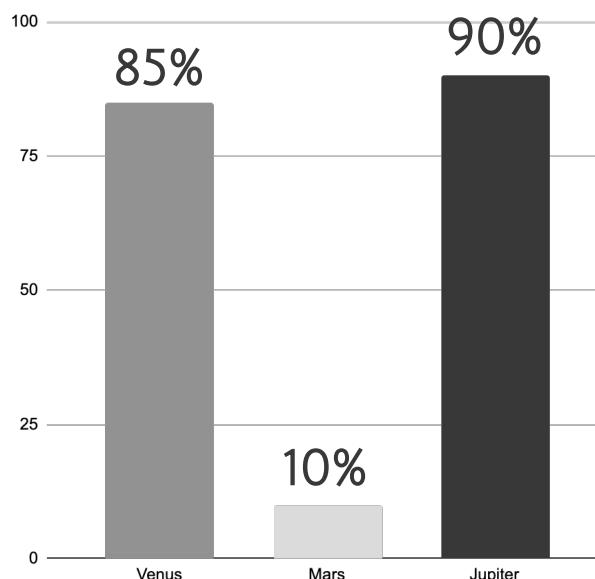
Mercury is a small planet

## ▲ SALES

Mars is a very cold place

## ▲ MARKET

Jupiter is a gas giant



458K

Neptune is the farthest

\$7,520,000

It has a beautiful name

86%

Mars is a very cold place

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



# OBJECTIVE

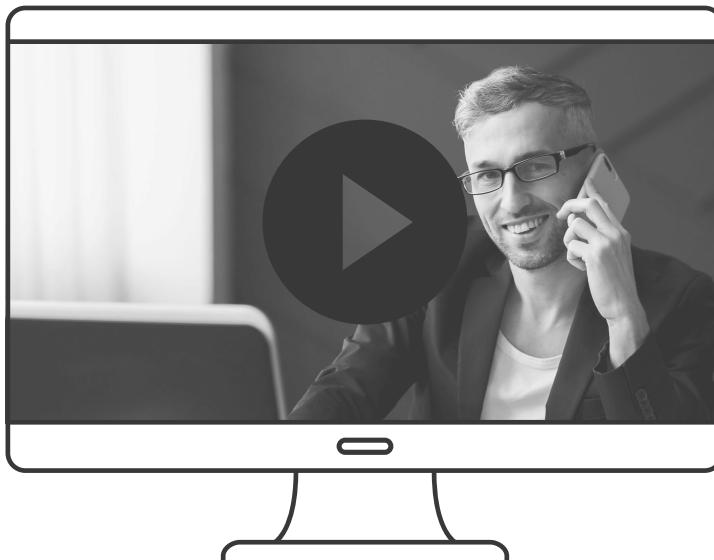
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Do you know what helps you make your point clear?  
Lists like this one:

- They're simple
- You can organize your ideas clearly
- You'll never forget to buy milk!

# PRODUCT DEMO

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Insert your multimedia content here

# CASE STUDY

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## CHALLENGE

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

## RESULTS

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

## SOLUTION

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

# REVIEWS

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HELENA JAMES

Mercury is the  
smallest planet

JENNA DOE

Venus has a very  
beautiful name

JOHN SMITH

Despite being red,  
Mars is cold

JESSICA JONES

Jupiter is the biggest  
planet of them all

PETER HARRIS

Saturn is the ringed  
one. It's a gas giant

MARIA WILSON

Neptune is the  
farthest planet

# 2020 AWARDS

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## MERCURY

Mercury is the closest planet to the Sun and the smallest one



## VENUS

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

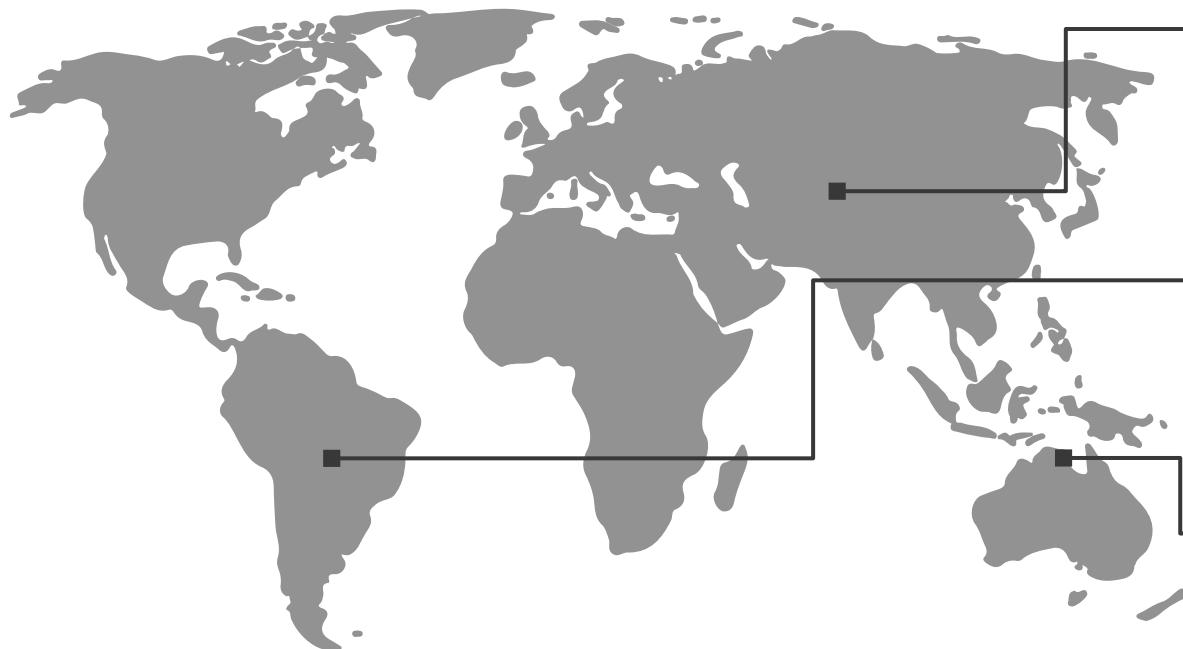


## MARS

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

# MARKET SIZE

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**MERCURY**

It's the closest  
planet to the Sun

**MARS**

Despite being  
red, it's cold

**VENUS**

Venus has a  
beautiful name



# OUR TARGET

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## JOB

Interior  
Designer

## AGE

50-60

## GENDER

Female

## SALARY

\$15,000.00

## INTERESTS

Shopping  
Reading  
Trends

## AVERAGE SPENT

\$80.00

# COMPETITORS

---



## MARS

Despite being red,  
Mars is actually a cold  
place



## JUPITER

Jupiter is a gas giant  
and the biggest  
planet of them all



## SATURN

Saturn is composed  
mostly of hydrogen  
and helium

# OUR BUSINESS MODEL

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## TECHNOLOGY

Saturn is the  
ringed one



## ASSESSMENT

Venus is the  
second planet



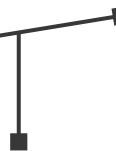
## MARKETING

Neptune is the  
farthest planet



## TRAINING

Mercury is a  
small planet



# TIMING

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HOURS	MON	TUE	WED	THU	FRI
09:00 - 10:00	Meeting	Home office	Home office		
10:00 - 11:00		Meeting		Brunch	Meeting
11:00 - 11:30			Project	Meeting	
11:30 - 12:30		Accounting			
12:30 - 13:30	Project			Meeting	Project
13:30 - 14:30	Lunch	Lunch	Lunch	Lunch	Lunch
14:30 - 15:30	Accounting		Meeting		

# PREDICTED GROWTH

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20,000

Expected customers

100

New Employees

500

Upcoming Projects

# \$90,000

---

Expected Income

# INVESTMENT

---

45%

## MERCURY

Mercury is the closest planet to the Sun

10%

## MARS

Despite being red, Mars is a cold place

45%

## MARKET

Jupiter is the biggest planet of them all



To modify this graph, click on it, follow the link, change the data and paste the new graph here

# ALTERNATIVE RESOURCES

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- Woman at desk working from home
- Mid shot woman at laptop
- Worried woman looking at phone
- Woman jumping and holding a camera
- African american man high view
- Girls dancing
- Front view guy with headphones holding a cup of coffee
- African american man reading his notes close-up
- Adorable model holding glasses

# RESOURCES

---

- Man with black jacket talking on a phone and drinking
- Woman jumping and using her camera photo
- Alluring woman posing in yellow top
- African american man copy space
- Man posing with arms crossed
- Woman holding a camera photo
- Side view of male photographer
- African american man writing
- Man with black jacket talking on the phone
- African american man front view
- Young girl speaking on the phone in the office
- Young man wearing eyeglasses using laptop on kitchen counter
- Mid shot woman talking on phone at table

# RESOURCES

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- Front view of older woman working with pen
- Stylish model pointing at phone
- Studio shot of woman posing
- Guy sitting on a chair and holding a digital tablet
- Portrait freelance woman working from home
- Front view of businesswoman working with laptop and notebook

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#383838

#eeeeee

#dbbdbdb

#929292

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Create your Story with our illustrated concepts. Choose the style you like the most, edit its colors, pick the background and layers you want to show and bring them to life with the animator panel! It will boost your presentation. Check out [How it Works](#).



Pana



Amico



Bro



Rafiki



Cuate

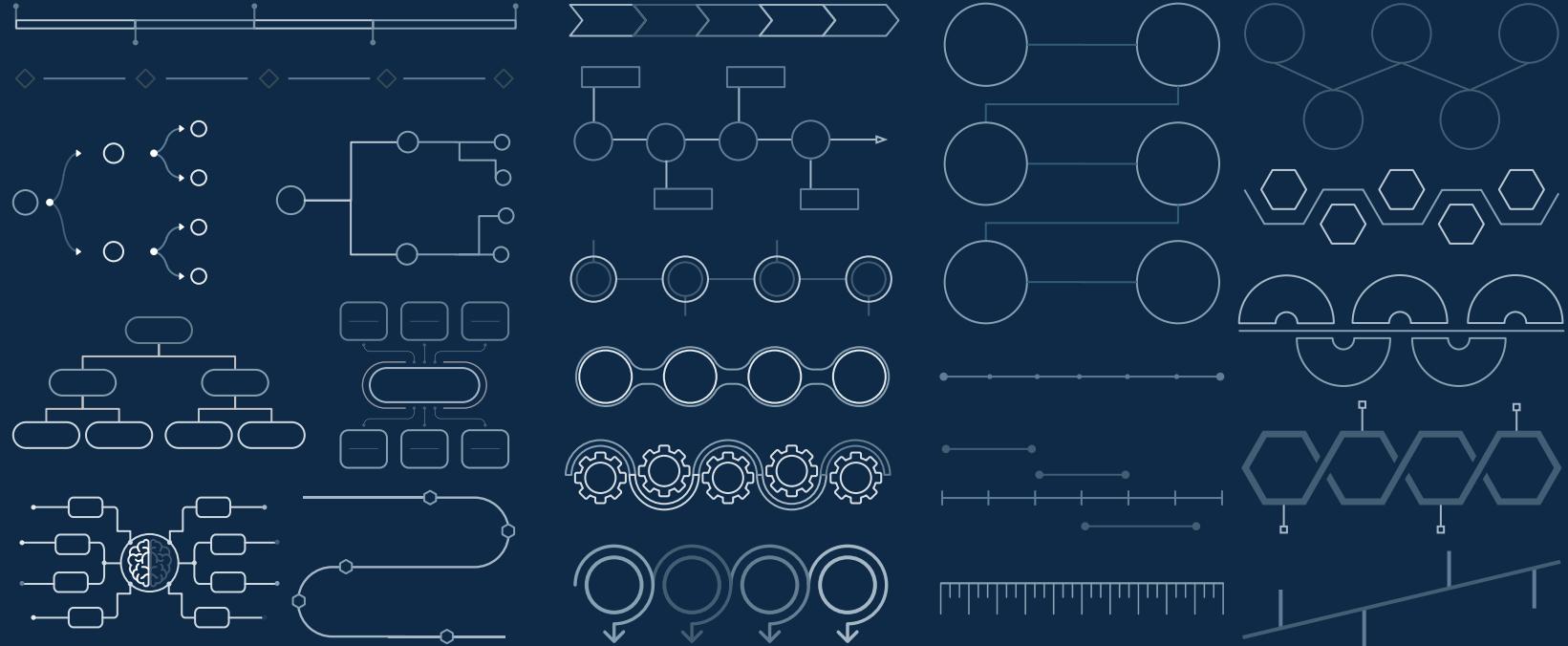
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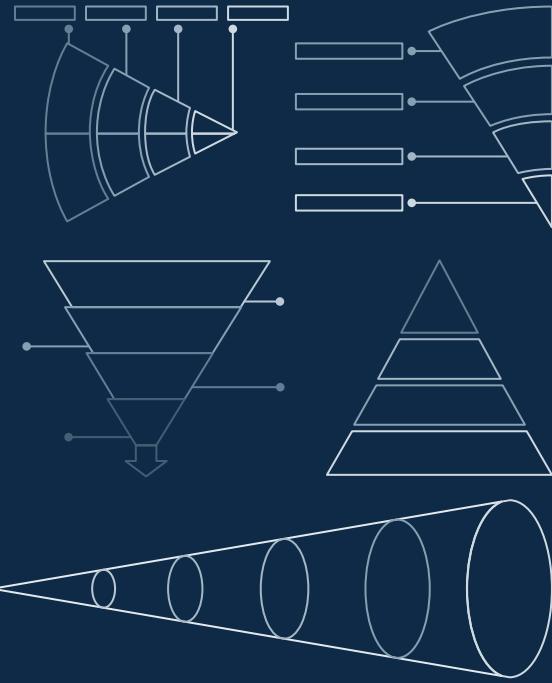
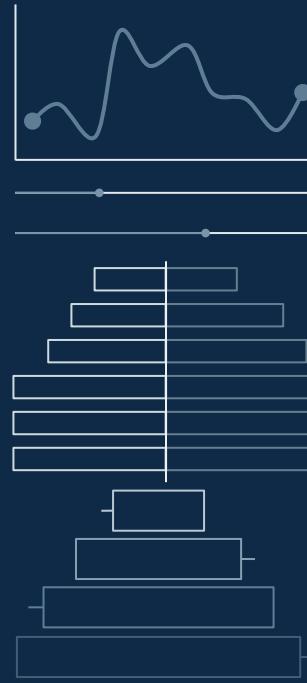
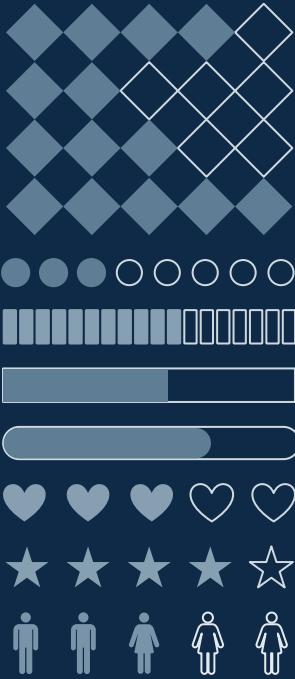
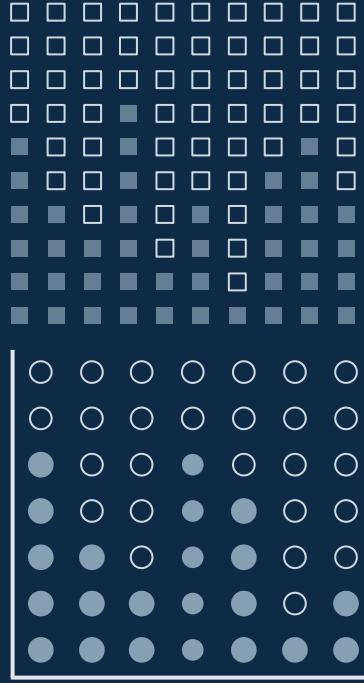
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## Performing Arts Icons



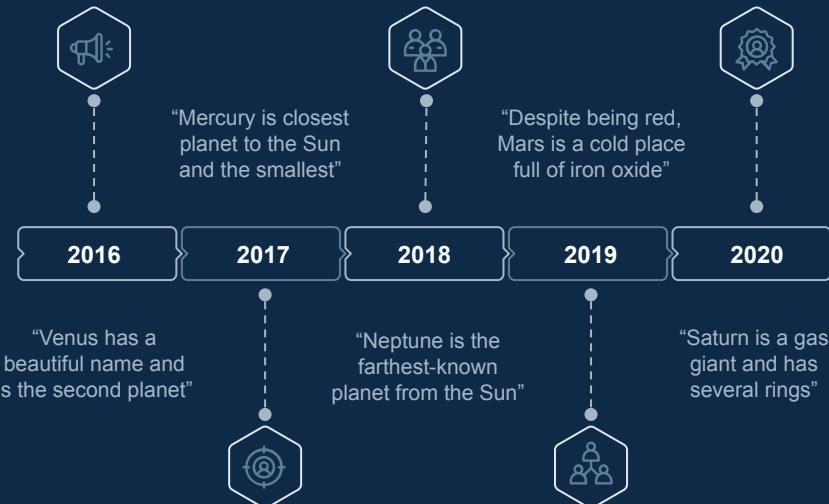
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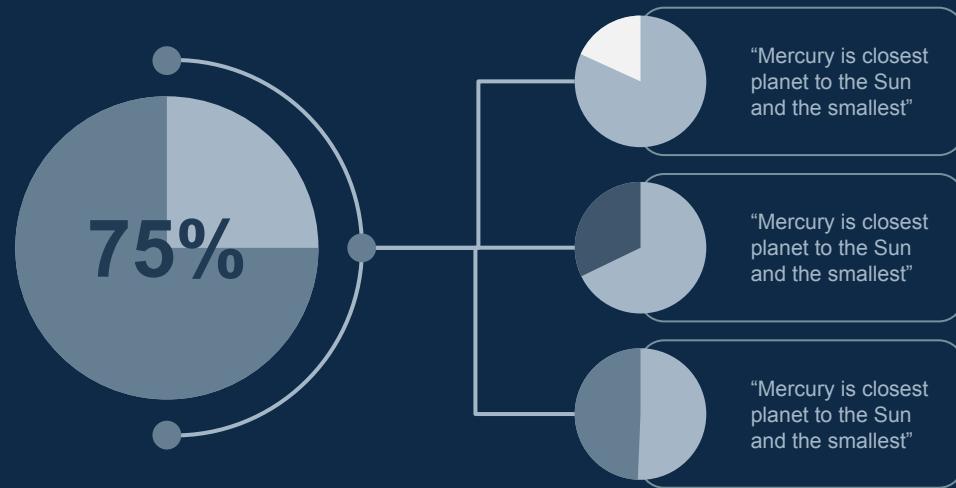
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