Data Preprocessing

DATA SCIENCE INDONESIA

Raymond Christopher Sitorus

Chief Data Officer of delman.io

I love data and I love to share about what I know about data

2007 — Nanyang Technological University Singapore

2012 — University of California, Berkeley

2015 — Santa Clara University

2017 — Google

2018 — delman.io

What & When

Apa itu *data preprocessing* dan kapan proses tersebut dilakukan?

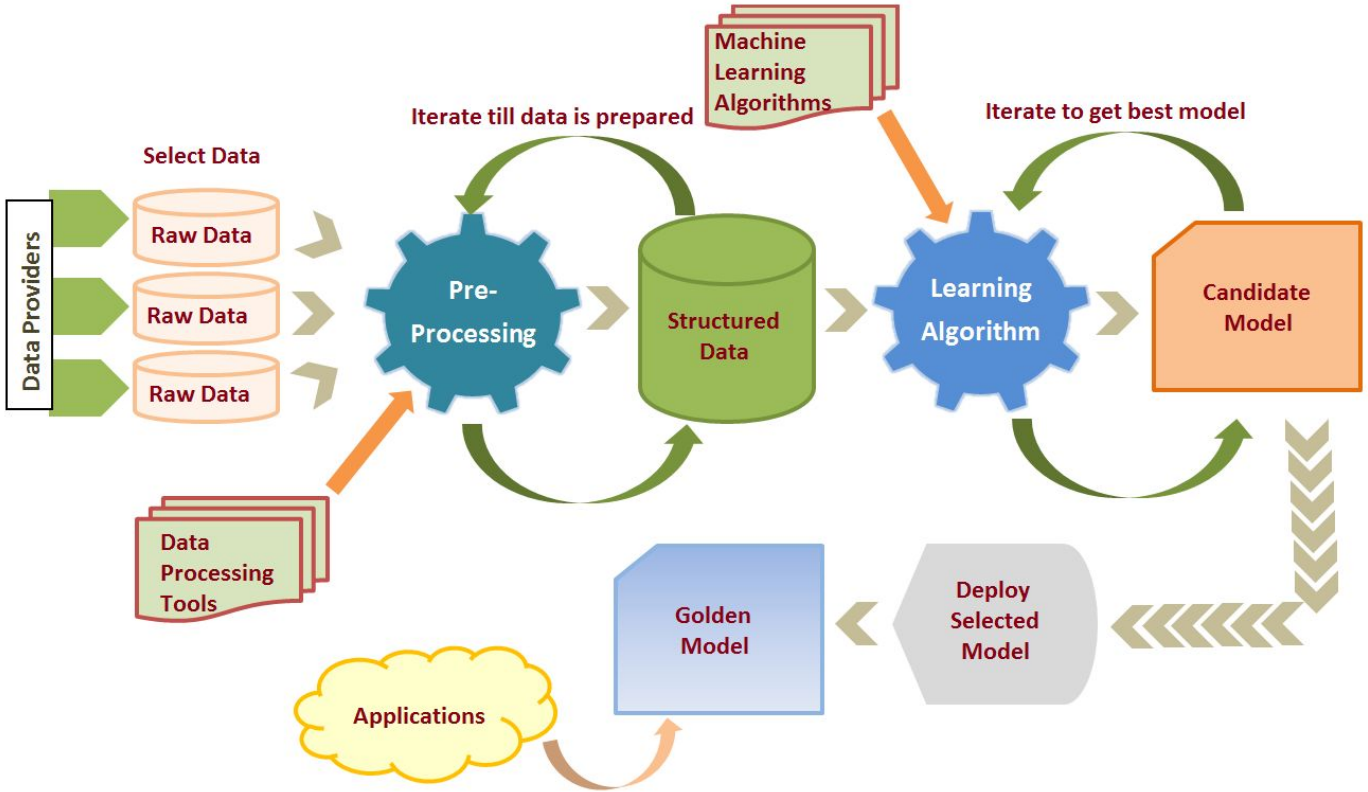
“

Quotations are commonly printed as a means of inspiration and to invoke philosophical thoughts from the reader.

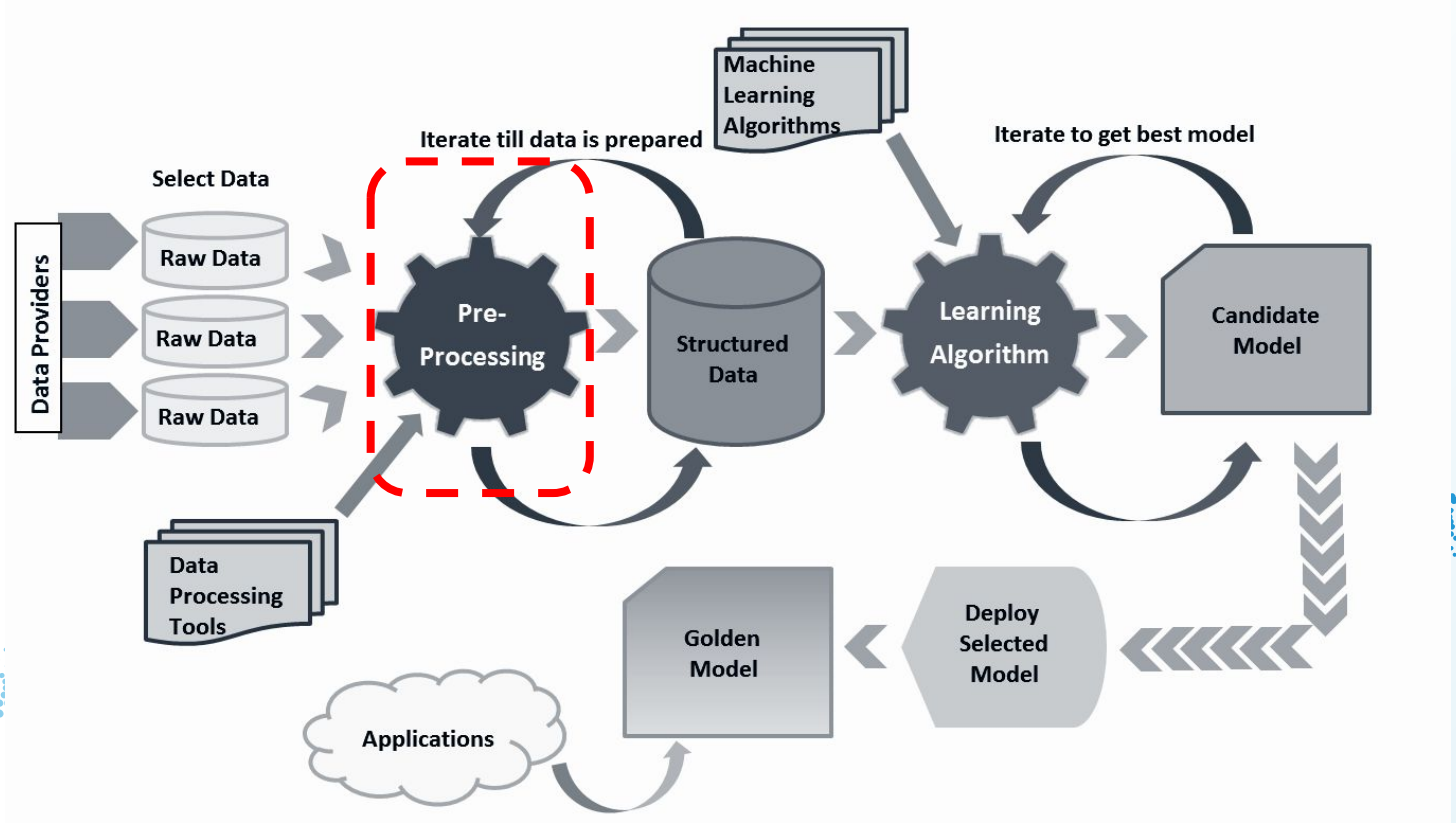
Apa itu **data preprocessing?**

- Sering disebut juga **data preparation** atau **data cleaning**
- *pre* = sebelum → kegiatan yang dilakukan sebelum suatu data diproses lebih lanjut

Kapan preprocessing dilakukan?



Kapan preprocessing dilakukan?



Why

Mengapa kita perlu melakukan *data preprocessing?*


$ X00
vs
$ X000
DIMITRI OTIS IMAGES

Alasan #1 dari data preprocessing

Your data can worth much more after being **cleaned**!

The truth about real life data

What you think about your data

What your data actually looks like

Apa masalah dengan raw data ini?

color	director_name	duration	gross	movie_title	anguage	country	budget	title_year	imdb_score
Color	Martin Scorsese	240	116866727	The Wolf of Wall StreetÂ	English	USA	100000000	2013	8.2
Color	Shane Black	195	408992272	Iron Man 3Â	English	USA	200000000	2013	7.2
color	Quentin Tarantino	187	54116191	The Hateful EightÂ	English	USA	44000000	2015	7.9
Color	Kenneth Lonergan	186	46495	MargaretÂ	English	usa	14000000	2011	6.5
Color	Peter Jackson	186	258355354	The Hobbit: The Desolation of SmaugÂ	English	USA	225000000	2013	7.9
	N/A	183	330249062	Batman v Superman: Dawn of JusticeÂ	English	USA	250000000	202	6.9
Color	Peter Jackson	-50	303001229	The Hobbit: An Unexpected JourneyÂ	English	USA	180000000	2012	7.9
Color	Edward Hall	180		RestlessÂ	English	UK		2012	7.2
Color	Joss Whedon	173	623279547	The AvengersÄ	English	USA	220000000	2012	8.1
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	Tom Tykwer	172	27098580	Cloud AtlasÄ	English	Germany	102000000	2012	-7.5
Color	Null	158	102515793	The Girl with the Dragon TattooÂ	English	USA	90000000	2011	7.8
Color	Christopher Spencer	170	59696176	Son of GodÂ	English	USA	22000000	2014	5.6
Color	Peter Jackson	164	255108370	The Hobbit: The Battle of the Five ArmiesÂ	English	New Zealand	250000000	2014	7.5
Color	Tom Hooper	158	148775460	Les MisÃ©rablesÂ	English	USA	61000000	2012	7.6
Color	Tom Hooper	158	148775460	Les MisÃ©rablesÂ	English	USA	61000000	2012	7.6

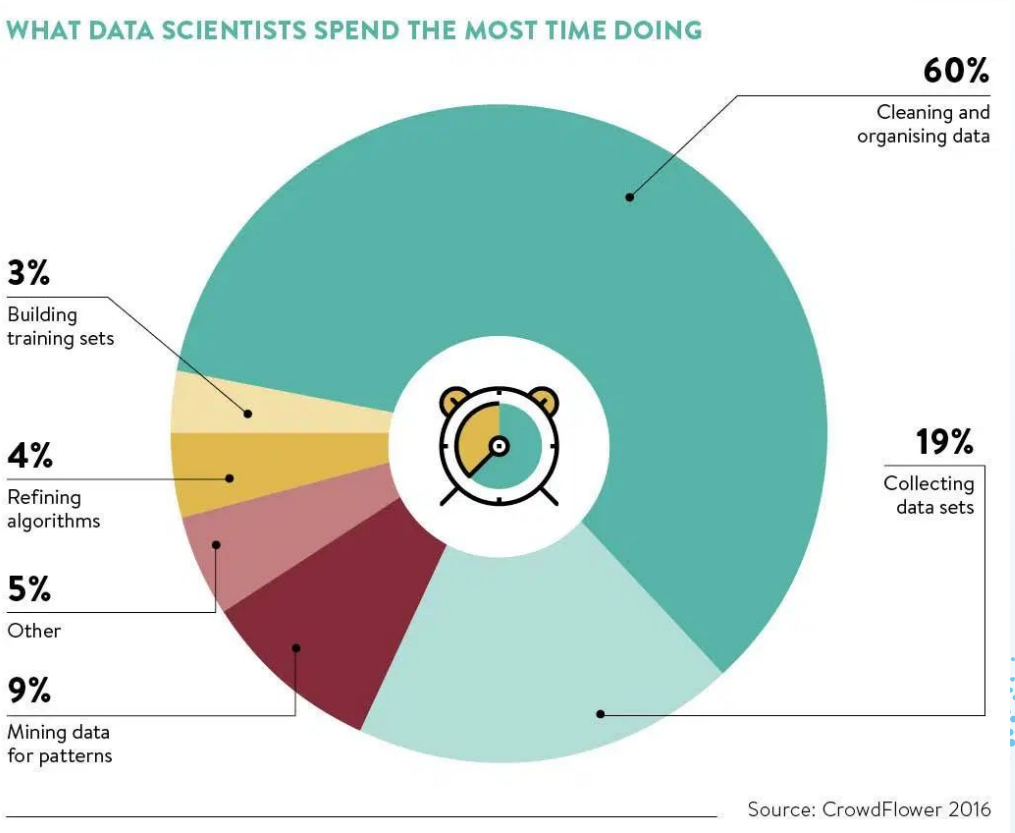
Sample data dari IMDB

“Garbage in, garbage out”

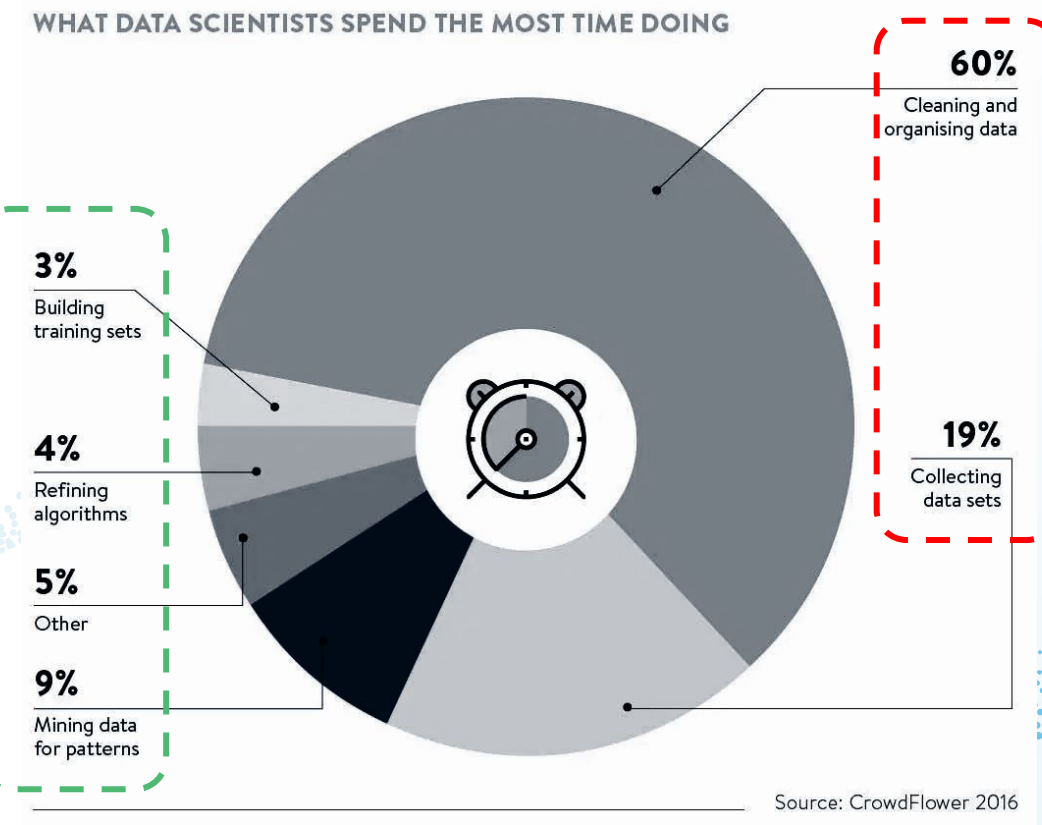
Problems

Apakah masalah yang kita mungkin temukan ketika melakukan *data preprocessing* ?

Data cleaning memakan waktu



Data cleaning memakan waktu



What we enjoy doing (~20%)

~ 80% of your time here!

Jenis masalah yang bisa ditemukan

color	director_name	duration	gross	movie_title	anguage	country	budget	title_year	imdb_score
Color	Martin Scorsese	240	116866727	The Wolf of Wall StreetÂ	English	USA	100000000	2013	8.2
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Sample data dari IMDB

Jenis masalah yang bisa ditemukan

- Input yang salah atau *typos*
- *Duplicate/redundant* data
- *Missing* data
- *Outliers* atau anomali
- Data format yang beragam
- Skala data yang beragam

Sangat peka dengan konteks data

How

Apa saja *steps* yang biasa dilakukan dalam konteks *data preprocessing*?

Tools & libraries for demo

Demo Time

You can access the Google Collab on the following link

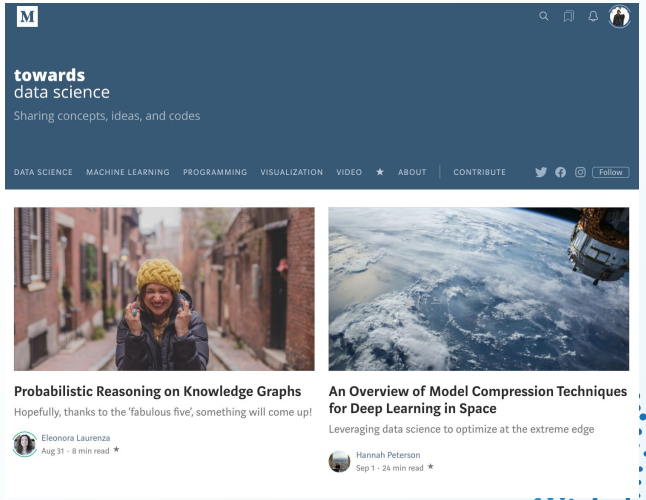
bit.ly/34X6JEc

Resources

Hal-hal apa yang dapat membantu saya melakukan *data preprocessing* dengan lebih baik?

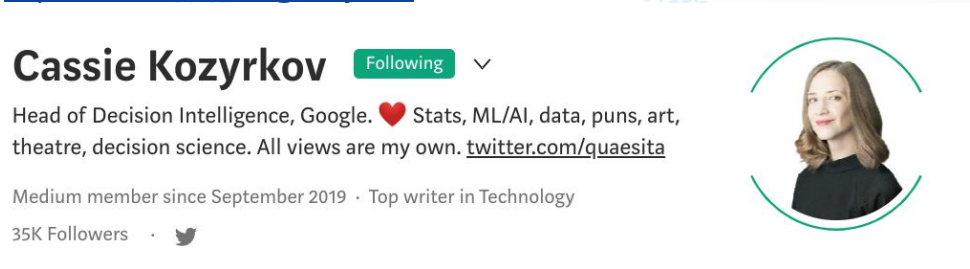
Learning resources

towardsdatascience.com



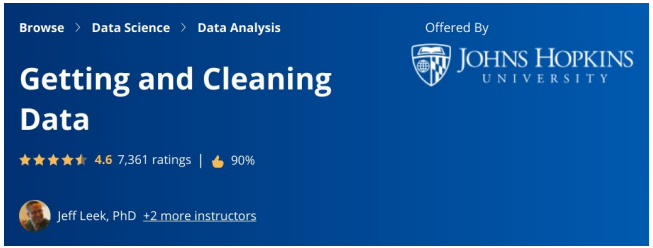
Medium

https://medium.com/@kozyrkov



Learning resources

coursera

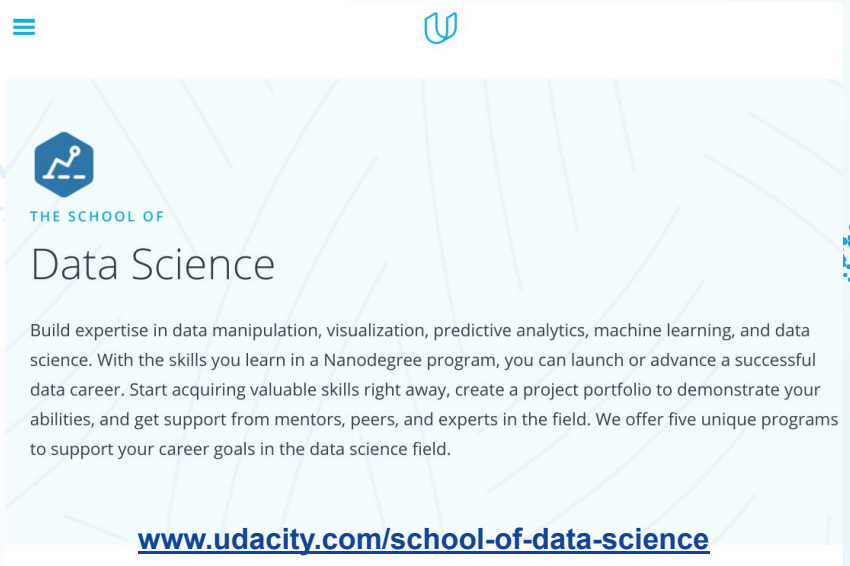


www.coursera.org/specializations/jhu-data-science

kaggle

www.kaggle.com

UDACITY



www.udacity.com/school-of-data-science

Data preprocessing tools

TRIFACTA

cloud.trifacta.com

colab.research.google.com

www.alteryx.com/designer-trial/free-trial

Thank you!

Any questions?

You can find me at **raymond@delman.io**

Big concept

Bring the attention of your audience over a key concept using icons or illustrations

You can also split your content

White

Is the color of milk and fresh snow, the color produced by the combination of all the colors of the visible spectrum.

Black

Is the color of ebony and of outer space. It has been the symbolic color of elegance, solemnity and authority.

In two or three columns

Yellow

Is the color of gold, butter and ripe lemons. In the spectrum of visible light, yellow is found between green and orange.

Blue

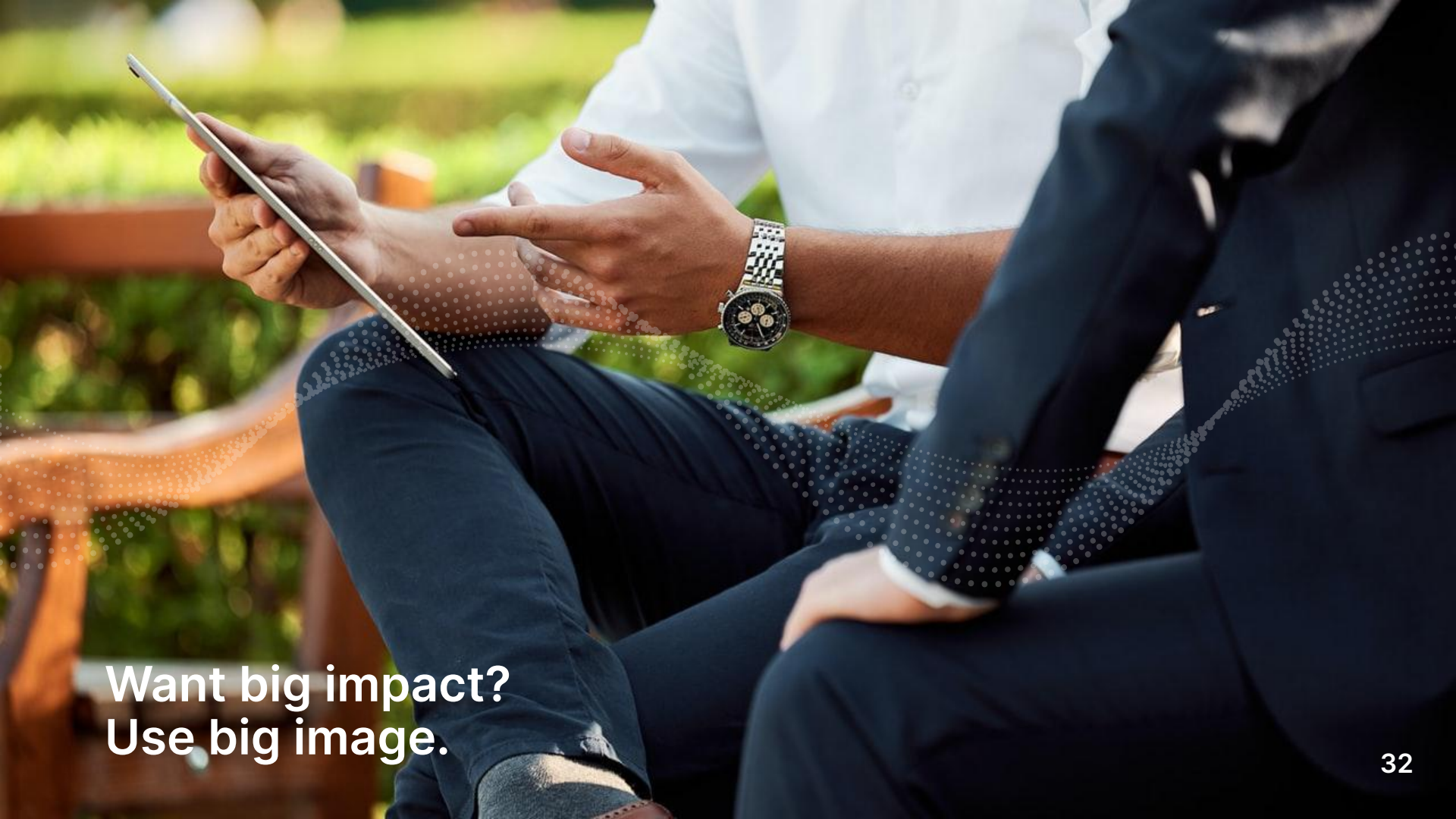
Is the colour of the clear sky and the deep sea. It is located between violet and green on the optical spectrum.

Red

Is the color of blood, and because of this it has historically been associated with sacrifice, danger and courage.

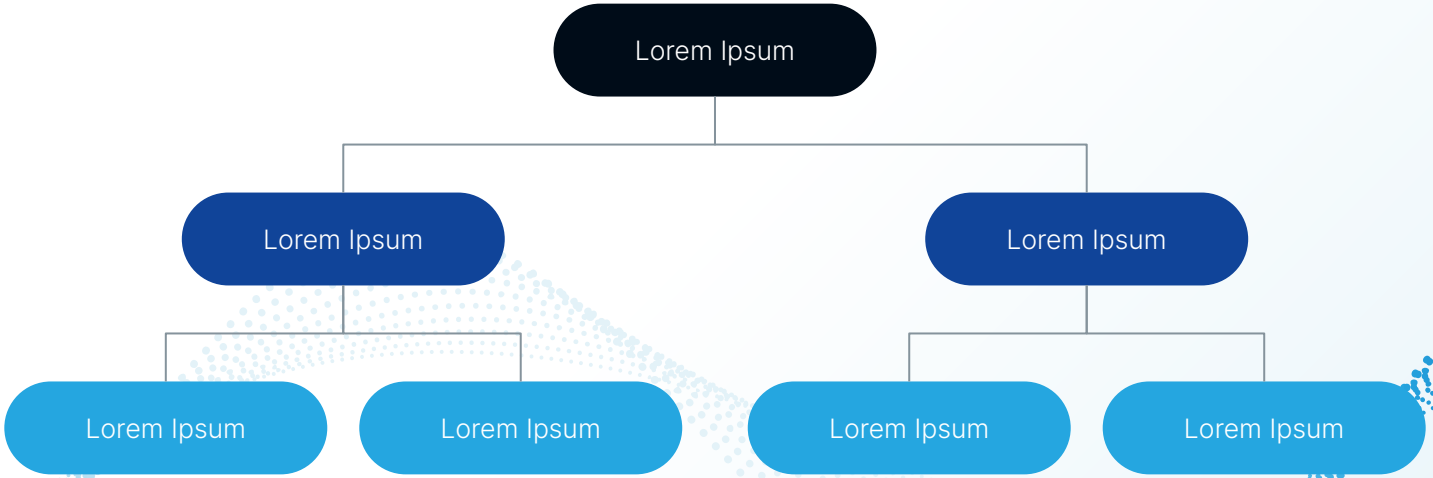
A picture is worth a thousand words

A complex idea can be conveyed with just a single still image, namely making it possible to absorb large amounts of data quickly.



Want big impact?
Use big image.

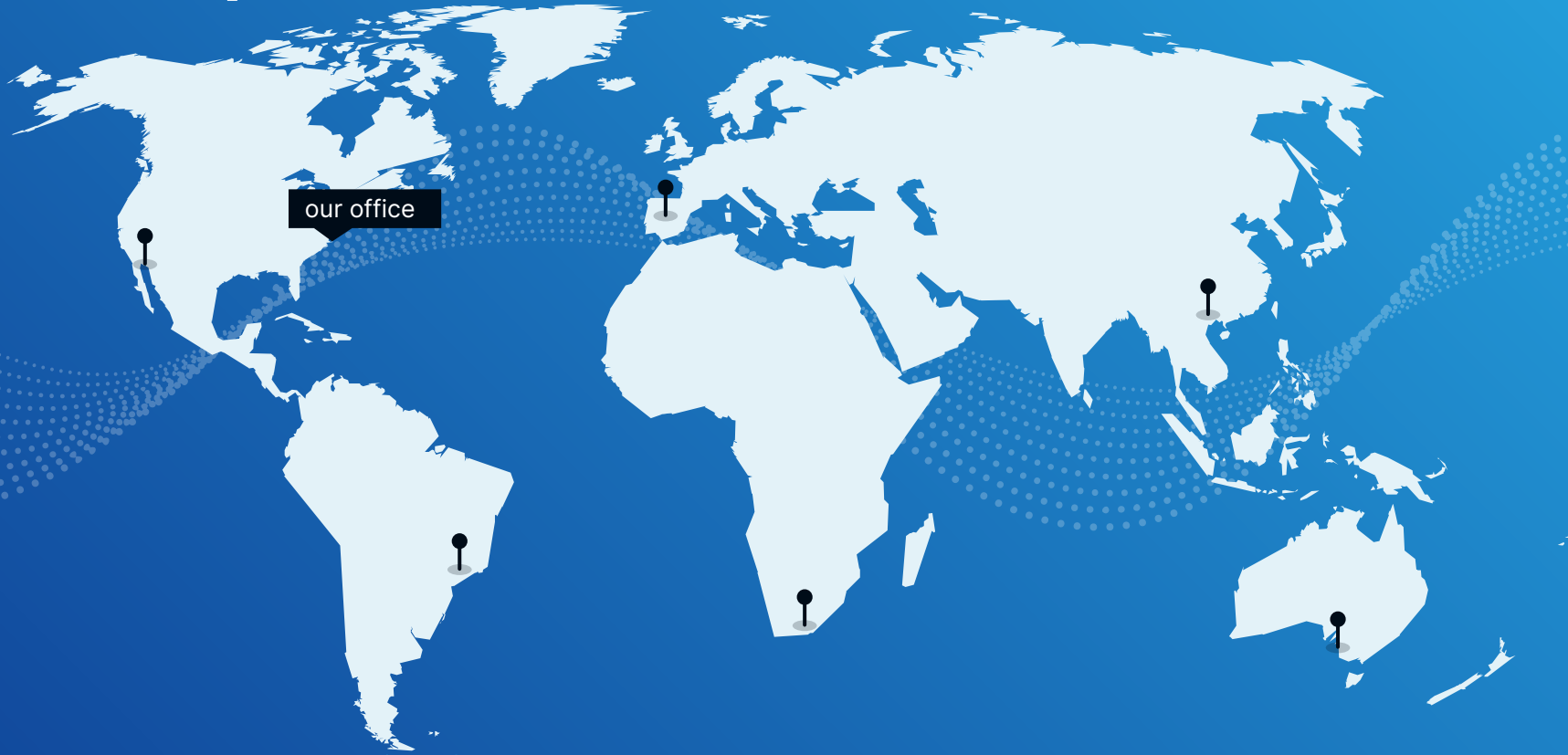
Use diagrams to explain your ideas



And tables to compare data

	A	B	C
Yellow	10	20	7
Blue	30	15	10
Orange	5	24	16

Maps



Find more maps at slidescarnival.com/extra-free-resources-icons-and-maps

89,526,124

Whoa! That’s a big number, aren’t you proud?

89,526,124$

That’s a lot of money

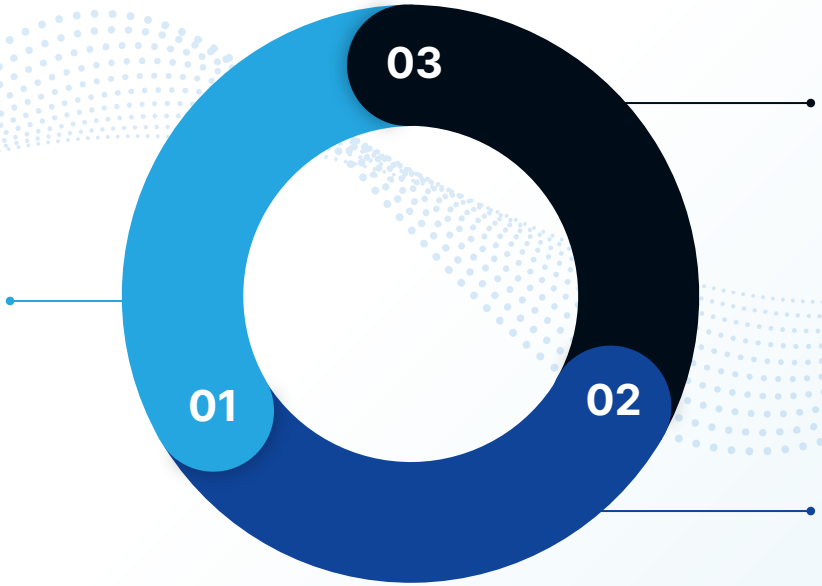
185,244 users

And a lot of users

100%

Total success!

Our process is easy



Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.

Vestibulum congue tempus

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor. Donec facilisis lacus eget mauris.

Vestibulum congue tempus

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Let’s review some concepts

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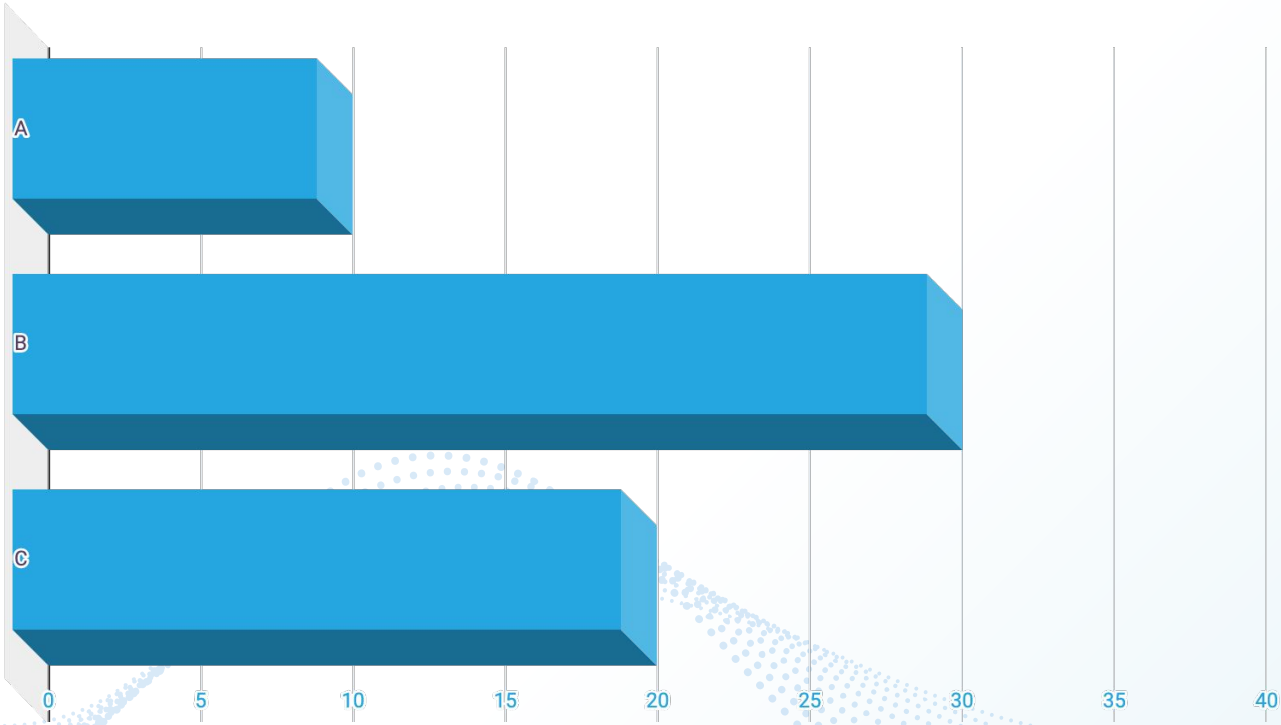
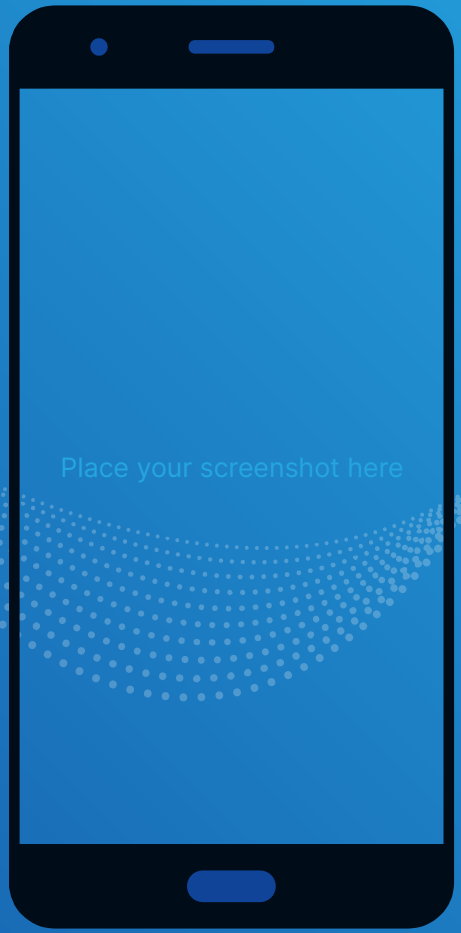


You can insert graphs from Excel or Google Sheets

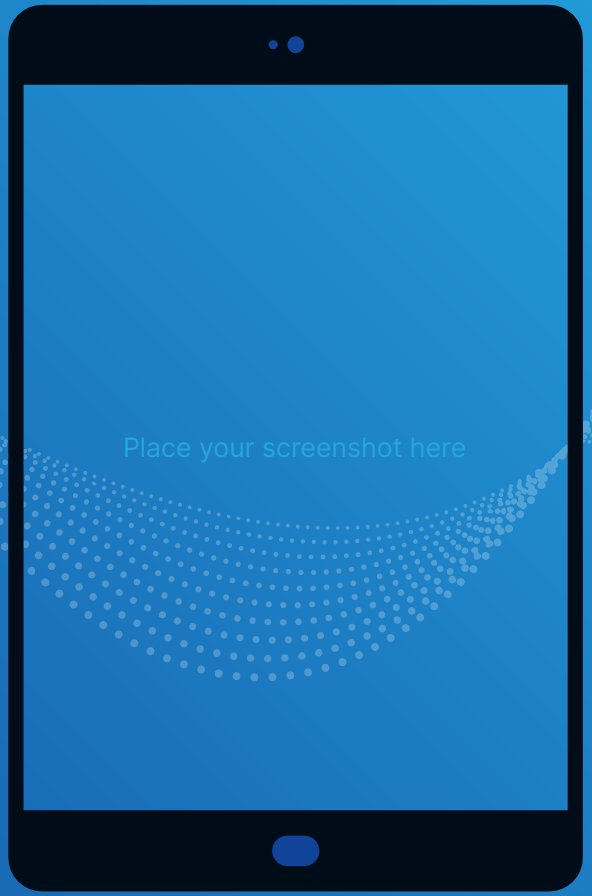
Mobile project

Show and explain your web, app or software projects using these gadget templates.



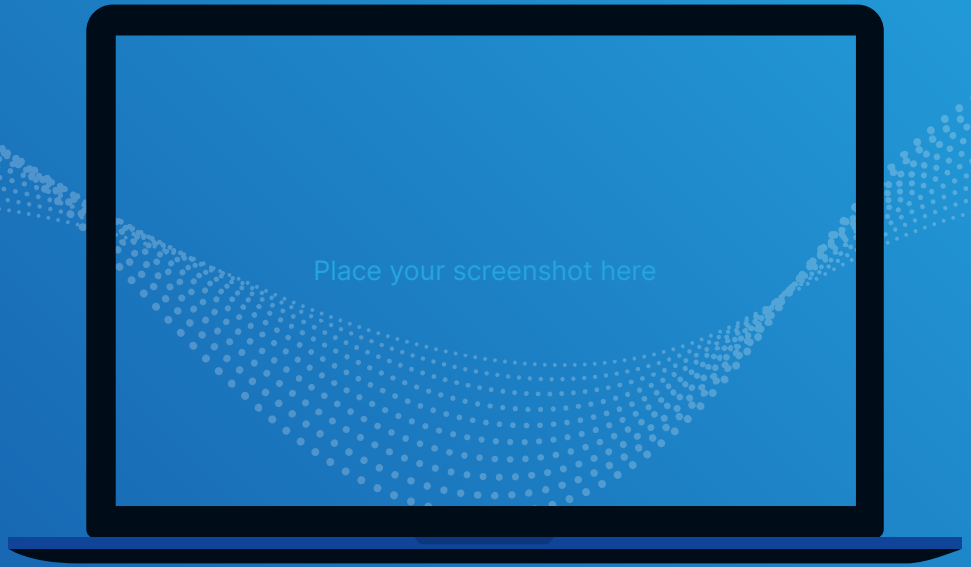
Tablet project

Show and explain your web, app or software projects using these gadget templates.



Desktop project

Show and explain your web, app or software projects using these gadget templates.



Thanks!

Any questions?

You can find me at

- @username
- user@mail.me

Presentation design

This presentation uses the following typographies:

- Titles: Inter Semibold
- Body copy: Inter Light

Download for free at:
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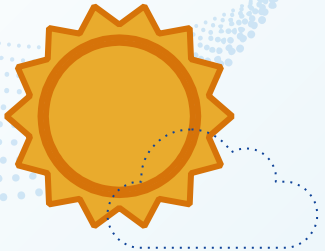
- Change line color, width and style.

Isn't that nice? :)

Examples:



Find more icons at
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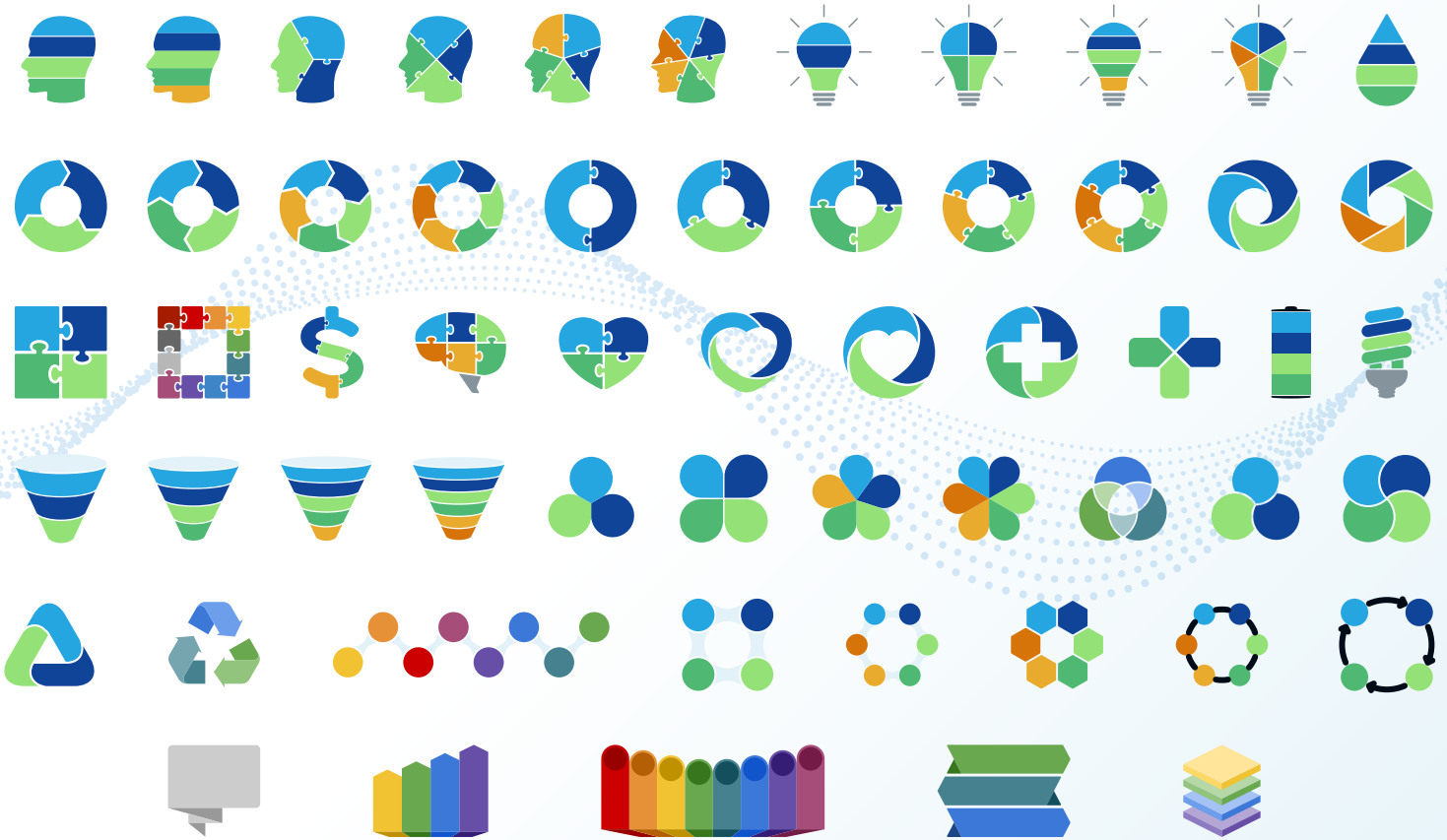
Diagrams and infographics



You can also use any emoji as an icon!
And of course it resizes without losing quality.

How? Follow Google instructions
https://twitter.com/googledocs/status/730087240156643328

many more...

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