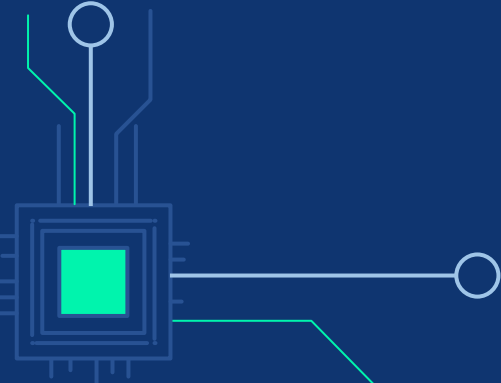
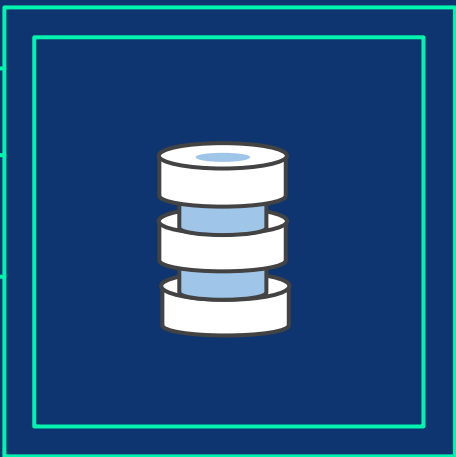




LOAN DEFAULT CLASSIFICATION

Manveer Sadhal
Oct 29, 2021





NEED

Identify loans in Interested Lending, Inc.'s current loan portfolio that are likely to default.

Use cases:

- Contact borrower
- Incorporate expected defaults into operating plan
- Identify loans to sell to another institution



DATA AND SCOPE

DATA

- Snapshot of 887,000+ individual loans.
- Filtered to approximately 250,000 loans.
- 73 columns reduced to 19 features for final model (e.g. annual income, interest rate)

SCOPE

- Current and closed loans
- Model developed with closed loans (fully paid, charged off, or defaulted).

METHODOLOGY

PANDAS
NUMPY

SCIKIT-LEARN

DATA
EXPLORATION &
FEATURE
SELECTION

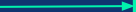
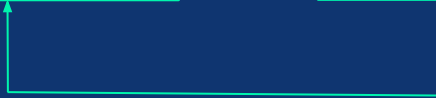
BASILINE
MODEL

EVALUATE
ALTERNATE
MODELS

FINAL
MODEL
SELECTION

TUNE,
CROSS-VAL
& TEST

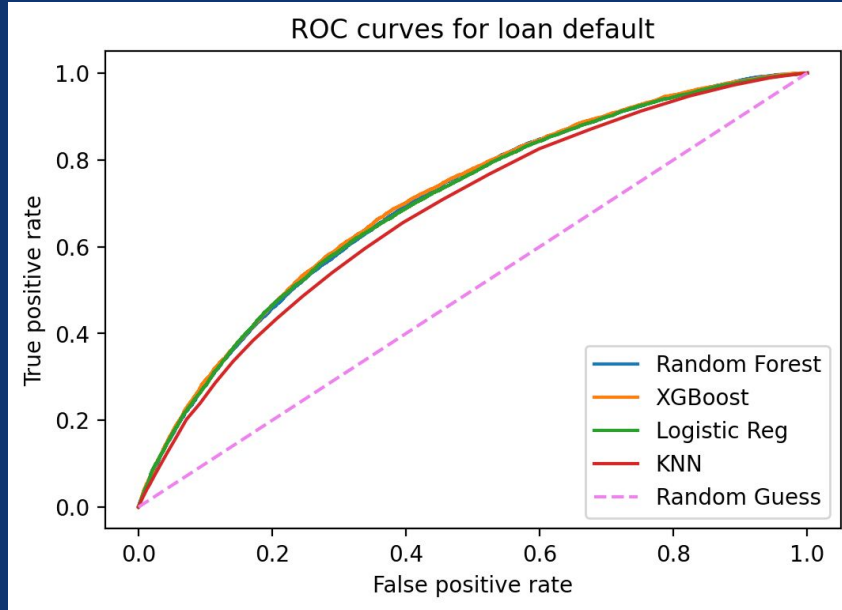
XGBOOST



RESULTS

Better

Better



- Logistic regression model, random forest, and XGB had nearly identical performance.
- Logistic regression selected - simpler, more interpretable.

RESULTS (LOGISTIC REGRESSION)

	Precision	Recall	F1
Paid	0.89	0.63	0.74
Default or Charge Off	0.29	0.66	0.40
Accuracy	0.63		
Macro Average	0.59	0.64	0.57
Weighted Average	0.78	0.63	0.68

RESULTS

Greater impact ↑

Feature	Coefficient
Interest Rate	0.469
Annual Income	-0.284
Total Number of Accounts	-0.187
Term of 60 months (vs. 36)	0.176
Debt to Income Ratio	0.174

INTERACTIVE STREAMLIT APP

Loan Default Classification

Enter information below. Default prediction will be displayed at the bottom of the screen.

Annual income (USD)

0

Number of accounts in collections within past 12 months (excluding medical)

5

Number of delinquencies over 30 days in the last two years

29

Debt to income ratio

29

Credit inquiries in the last 6 months

5

Interest rate (%)

29.00

Number of open credit lines in borrower's file

46

Number of derogatory public records

5

Revolving debt utilization (%)

62

Total number of credit lines in borrower's file (open or closed)

16

Total number of accounts currently delinquent

5

Loan Term (months)

60

Loan Grade

G

Installment (USD)

1215


Loan is expected to default!

CONCLUSIONS

- Model offers predictive capability for approved loans that may go into default
- Most impactful features can inform loan screening process
- Possible actions for loans likely to default:
 - Borrower outreach
 - Identify loans to sell to other institutions
 - Account for expected loan defaults in operating plan



FUTURE WORK

- Additional feature engineering
 - Model stacking
 - Develop separate model to evaluate whether high risk loans should be sold
- 

CONTENTS OF THIS TEMPLATE

Here's what you'll find in this **Slidesgo** template:

- A slide structure based on a project proposal, which you can easily adapt to your needs. For more info on how to edit the template, please visit **Slidesgo School** or read our **FAQs**.
- An assortment of illustrations that are suitable for use in the presentation can be found in the **alternative resources** slide.
- A **thanks** slide, which you must keep so that proper credits for our design are given.
- A **resources** slide, where you'll find links to all the elements used in the template.
- **Instructions for use**.
- Final slides with:
 - The **fonts and colors** used in the template.
 - A selection of **illustrations**. You can also customize and animate them as you wish with the online editor. Visit **Stories by Freepik** to find more.
 - More **infographic resources**, whose size and color can be edited.
 - Sets of **customizable icons** of the following themes: general, business, avatar, creative process, education, help & support, medical, nature, performing arts, SEO & marketing, and teamwork.

You can delete this slide when you're done editing the presentation.



TABLE OF CONTENTS

01

ABOUT THE PROJECT

Here you could describe the topic of the section

02

MAJOR REQUIREMENTS

Here you could describe the topic of the section

03

PROJECT GOALS

Here you could describe the topic of the section

TABLE OF CONTENTS

04

SNEAK PEEK

Here you could
describe the topic
of the section

05

PROJECT STAGES

Here you could
describe the topic
of the section

06

OUR TEAM

Here you could
describe the topic
of the section

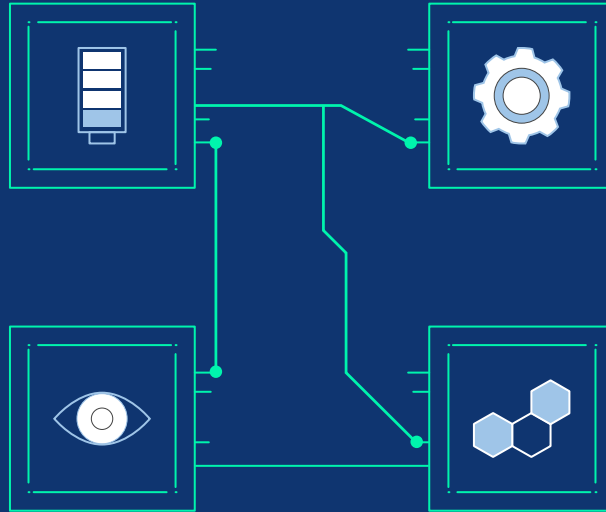
WHAT WE ARE WORKING ON

MARS

Despite being red, it's a cold place full of iron oxide dust

SATURN

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



JUPITER

It's a gas giant and the biggest planet in the Solar System


MERCURY

It's the closest planet to the Sun and the smallest

ABOUT THE PROJECT

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



A series of white and light blue lines and dots forming a circuit-like pattern in the top left corner of the slide.

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

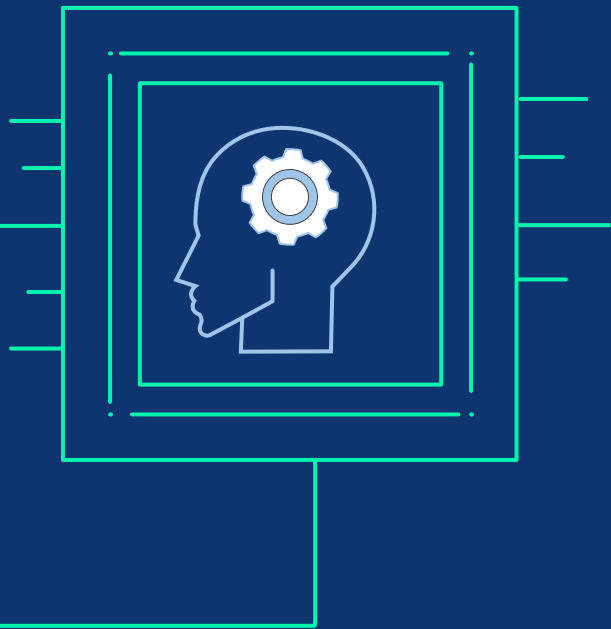
—SOMEONE FAMOUS

A series of white and light blue lines and dots forming a circuit-like pattern in the bottom right corner of the slide.

NOW

It's terribly hot—even hotter than Mercury—and its atmosphere is extremely poisonous. It's the second-brightest natural object in the night sky after the Moon





FUTURE

Jupiter is a gas giant, the biggest planet in the Solar System and the fourth-brightest object in the night sky. It's named after the Roman god of the sky and lightning



MAJOR REQUIREMENTS

MERCURY

Mercury is the closest planet to the Sun

JUPITER

It's a gas giant and the biggest planet

MARS

Despite being red, Mars is a cold place

VENUS

Venus is the second planet to the Sun

SATURN

Saturn is the ringed one and a gas giant

NEPTUNE

It's the farthest planet from the Sun



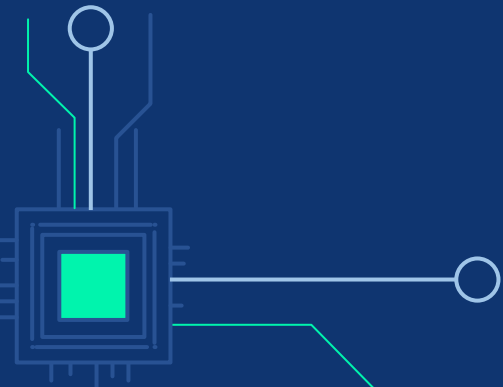


01

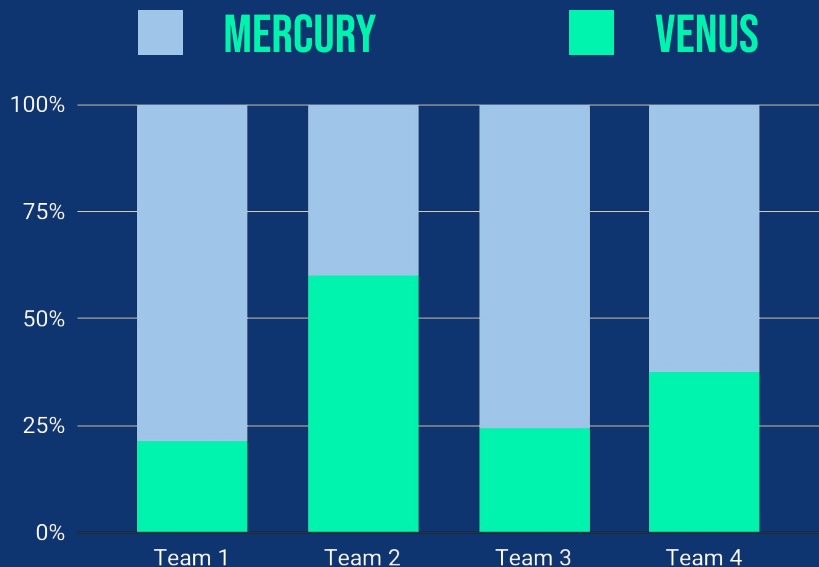


NAME OF THE SECTION

You could enter a subtitle here if
you need it



BUDGET



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

\$50,000,000



Social
Media



Social
Media



Shop



Shop



TV



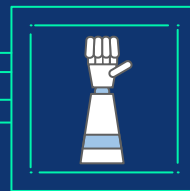
TV

PROJECT GOALS



MERCURY

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



VENUS

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

PREDICTED RESULTS

\$ 20,000,000

Expected income for 2020

100

New employees next year



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

SNEAK PEEK

The planet's name has nothing to do with the liquid metal since it was named after the Roman messenger god, Mercury



PROJECT STAGES

MARS

Despite being red,
Mars is a cold
place

JUPITER

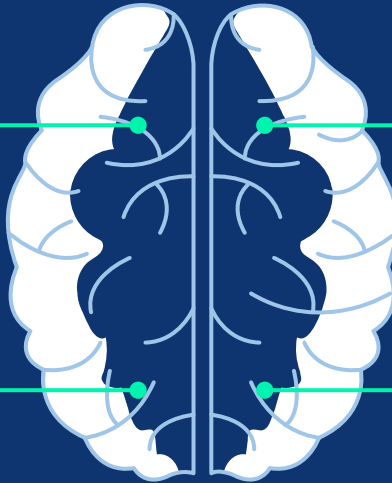
It's a gas giant and
the biggest planet
in the Solar System

SATURN

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

MERCURY

It's the closest
planet to the Sun
and the smallest





4,498,300,000

Big numbers catch your audience's attention



TIMELINE

2017

It's the closest planet
to the Sun

2019

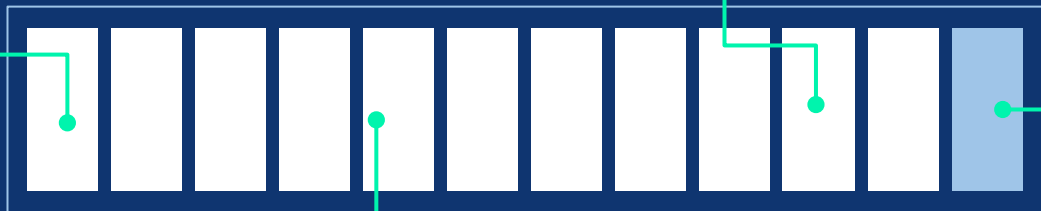
It's the second planet
to the Sun

2018

Despite being red,
Mars is a cold place

2020

It's a gas giant and the
biggest planet



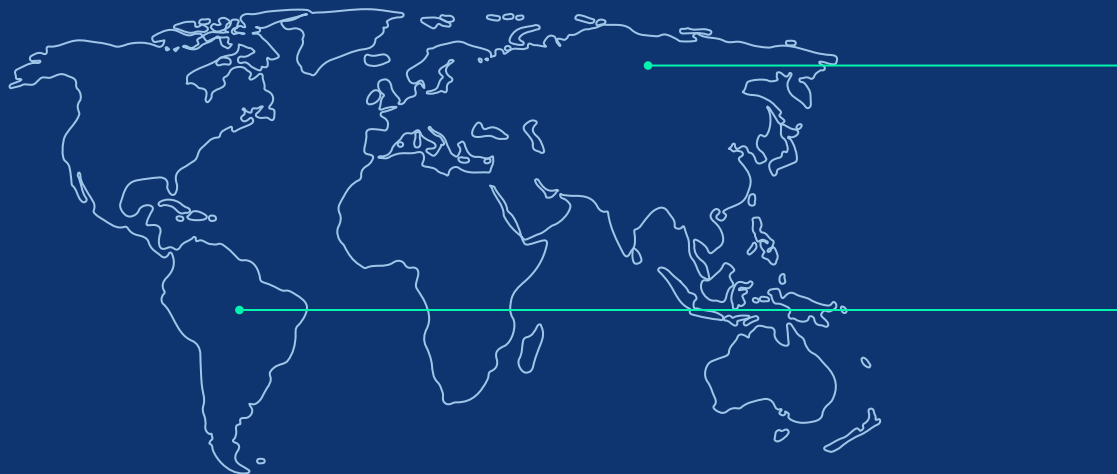
The background of the image features a person's face and hands interacting with a futuristic digital interface. The person's face is partially visible at the top, and their hands are shown at the bottom, touching a glowing circular element. The interface is composed of various blue and white geometric shapes, lines, and patterns, including a large circular gauge or dial in the center. The overall aesthetic is high-tech and modern.

AWESOME WORDS

THIS IS A TABLE

	MERCURY	MARS	JUPITER
2018	647	984	268
2019	752	546	875
2020	455	856	340

THIS IS A MAP



60%

It's the closest
planet to the Sun

78%

It's the second
planet to the Sun

OUR PARTNERS



VENUS

Venus is the second planet to the Sun



SATURN

Saturn is the ringed one and a gas giant



NEPTUNE

It's the farthest planet from the Sun

OUR TEAM



RICHARD ROE

You can talk about this
person here



JENNA DOE

You can talk about this
person here

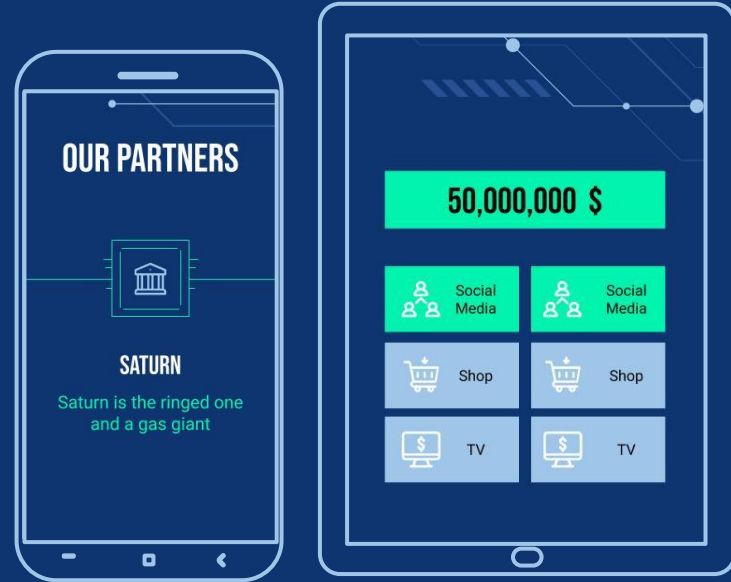


JOHN SMITH

You can talk about this
person here

MOCKUP

You can replace the image on the screen with your own work. Just delete this one, add yours and center it properly



ORANGE

- [illegible]

THANKS!



Do you have any
questions?

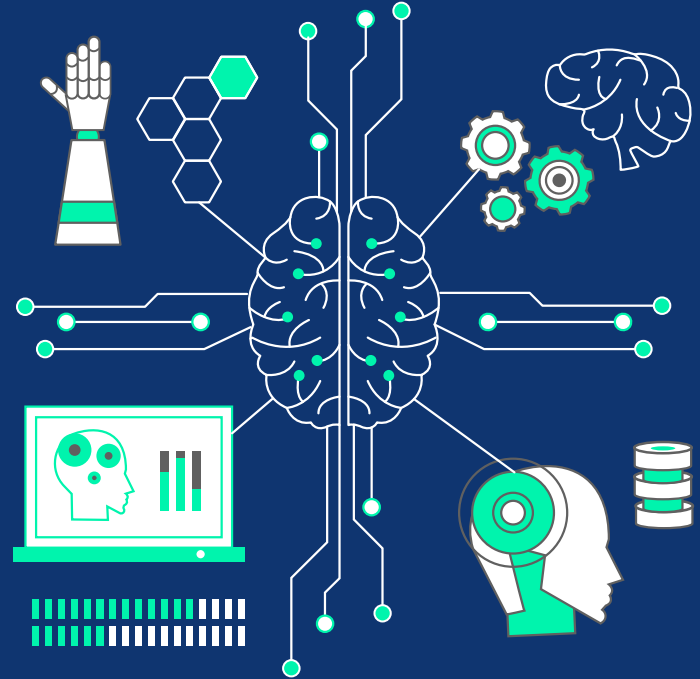
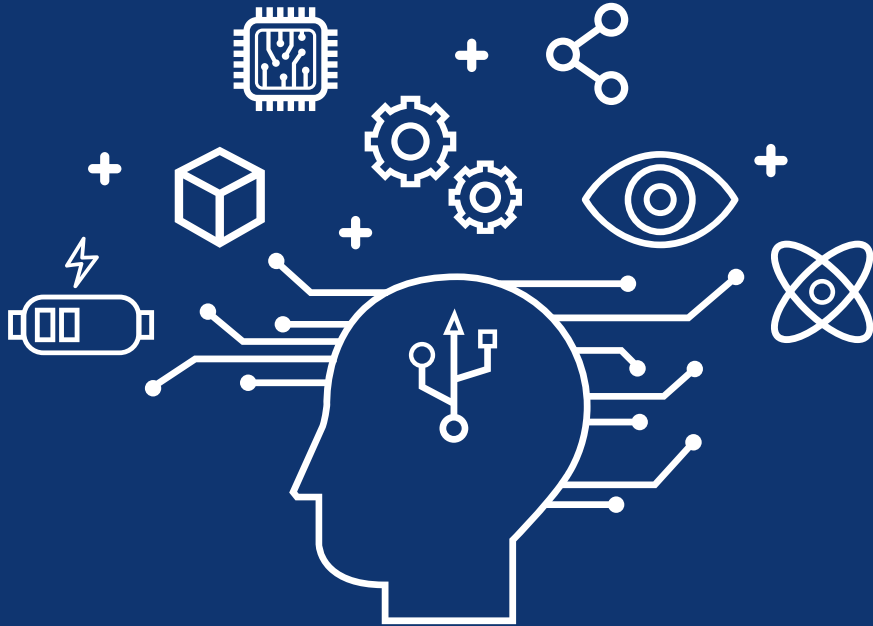
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ALTERNATIVE RESOURCES



RESOURCES

VECTORS

- Flat artificial intelligence background
- Flat artificial intelligence background
- Flat artificial intelligence background

PHOTOS

- Close-up of humans handshake with tech background
- Futuristic technology screen interface
- Group of people with laptops



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(<https://fonts.google.com/specimen/Bebas+Neue>)

Roboto

(<https://fonts.google.com/specimen/Roboto>)

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#285293

#0f3570

#00f4ad

#434343

#ffffff

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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](#).



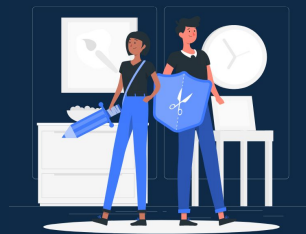
Pana



Amico



Bro



Rafiki



Cuate

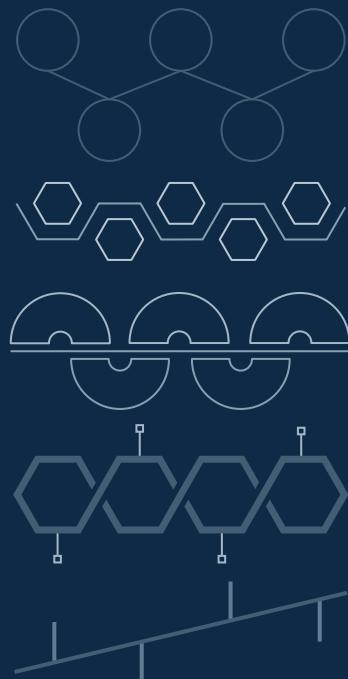
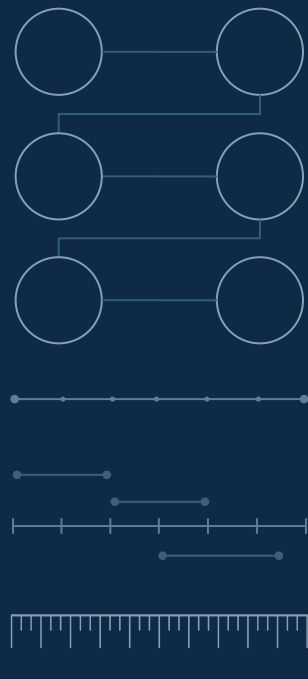
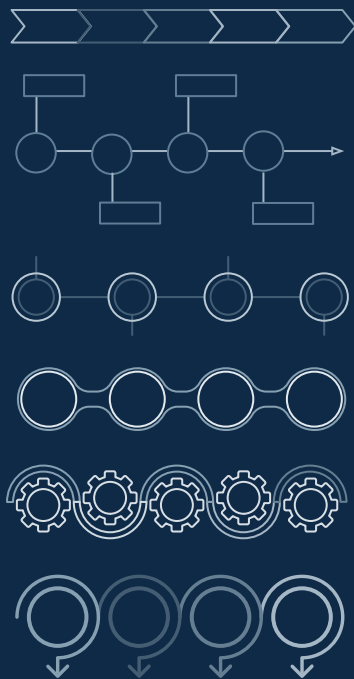
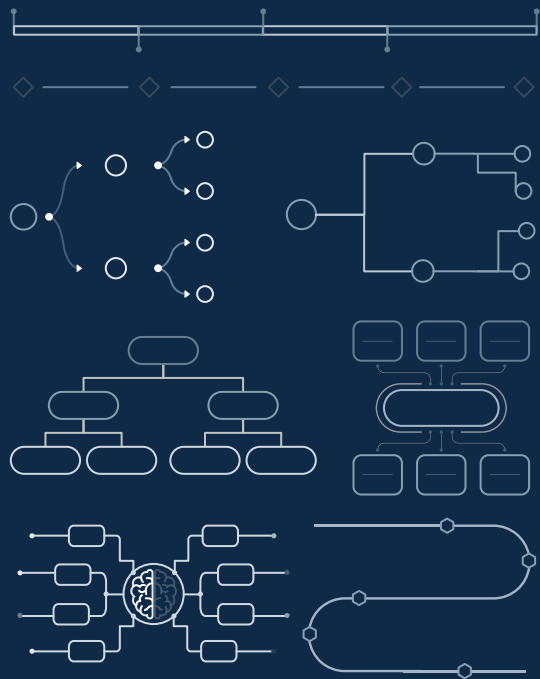
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Group the resource again when you're done. You can also look for more [infographics](#) on Slidesgo.



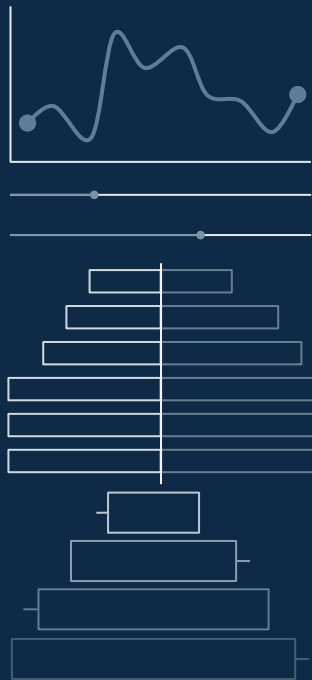
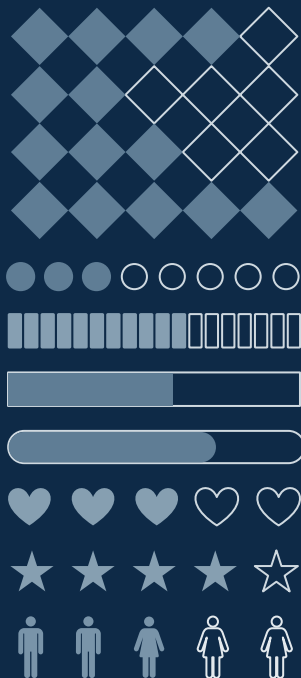
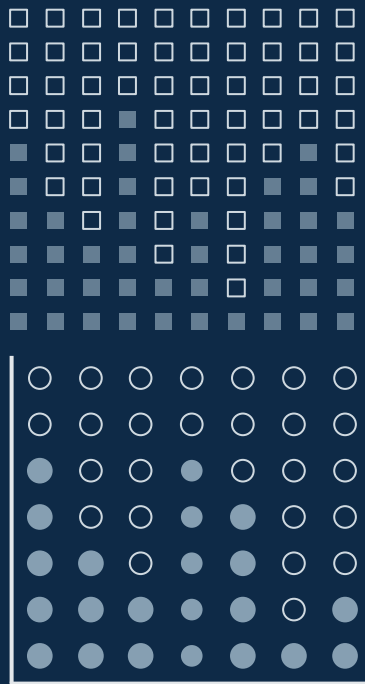




	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
PHASE 1						
Task 1						
Task 2						
PHASE 2						
Task 1						
Task 2						

	JANUARY	FEBRUARY	MARCH	APRIL
PHASE 1				
Task 1				
Task 2				





...and our sets of editable icons

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Educational Icons



Medical Icons



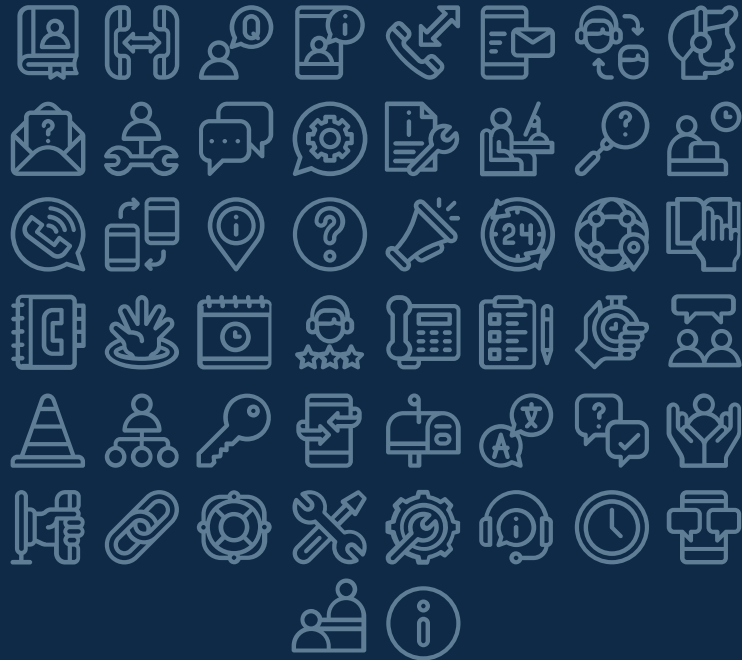
Business Icons



Teamwork Icons



Help & Support Icons



Avatar Icons



Creative Process Icons



Performing Arts Icons



Nature Icons



SEO & Marketing Icons





METHODOLOGY

01

EXPLORATORY DATA ANALYSIS

Here you could
describe the topic
of the section

02

FEATURE ENGINEERING

Here you could
describe the topic
of the section

03

MODEL SELECTION AND TUNING

Here you could
describe the topic
of the section

METHODOLOGY (CONT'D)

04

SNEAK PEEK

Here you could
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05

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