

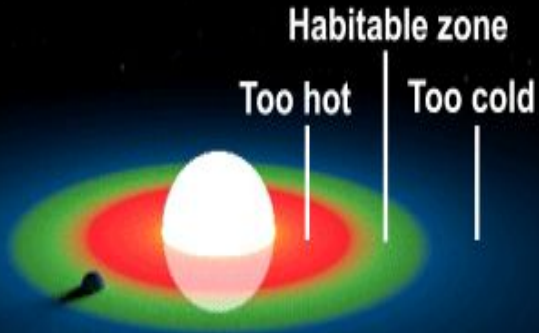
HABITABLE ZONE DETECTION

Determining if exoplanets live
within their habitable zone

TABLE OF CONTENTS



INTRODUCTION



25 years of discovery



Several different types
of methods



Sole focus: Habitable Zone



ORBITS OF PLANETS

Kepler's Third Law:

$$a^3 = p^2$$

PREPROCESSING



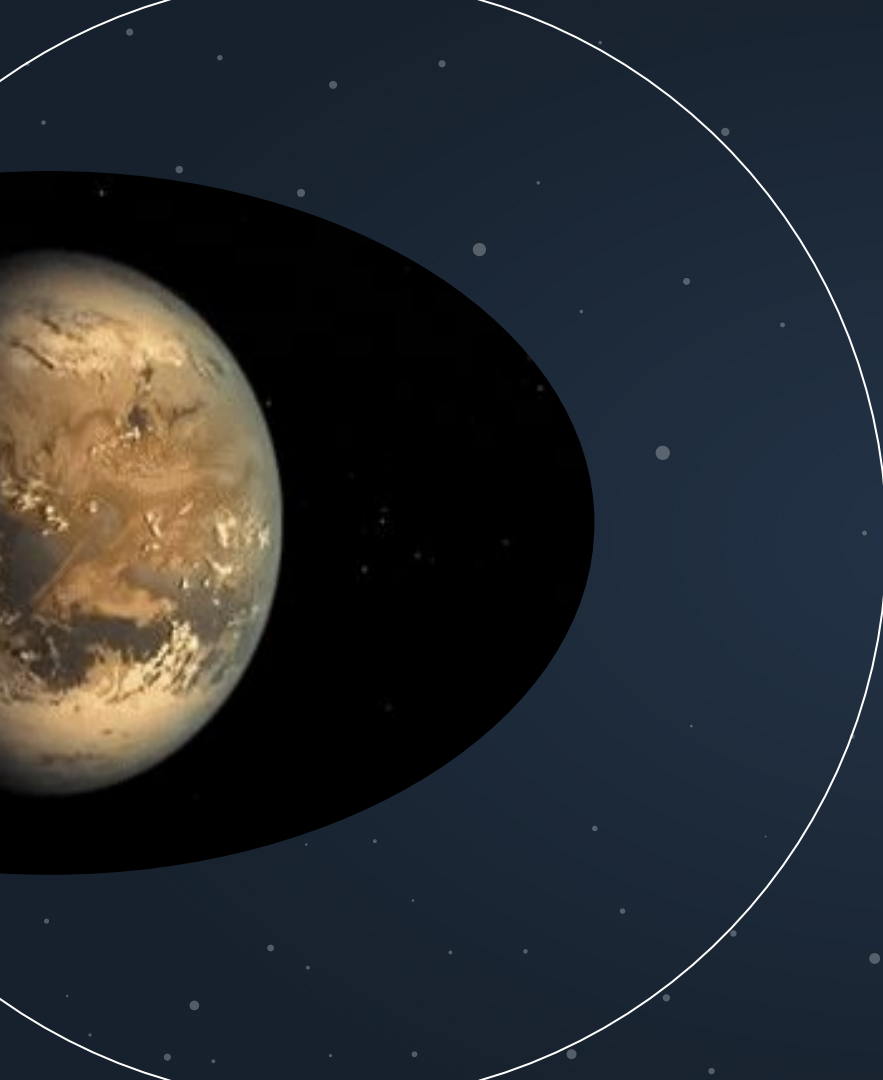
LUMINOSITY

$$L = \sigma 4\pi R^2 T^4$$



HB ZONE

- 273 K
- 373 K



MODELING



RandomForest

F1 score: 0.37



Xgboost

F1 score: 0.26



LightGBM

F1 score: 0.27

GRIDSEARCH

RANDOMFOREST

0.26



LIGHTGBM

0.415

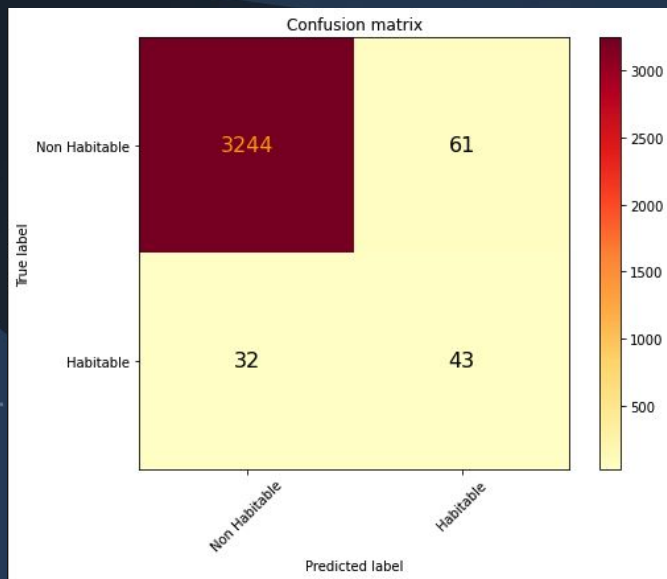


XGBOOST

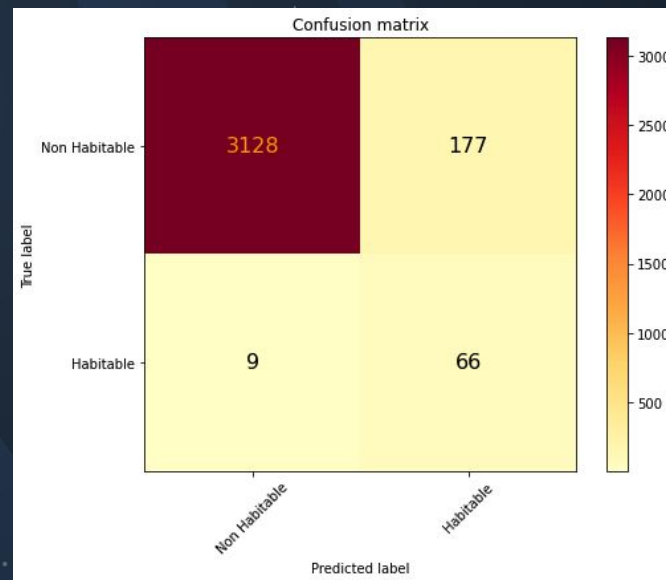
0.48



Best Model: F1 Score 0.48!



Best Model for Recall: 0.89!



CONCLUSION - FUTURE WORK



Imbalance classes



More Data



Neural Networks

THANKS!

Do you have any questions?



Email

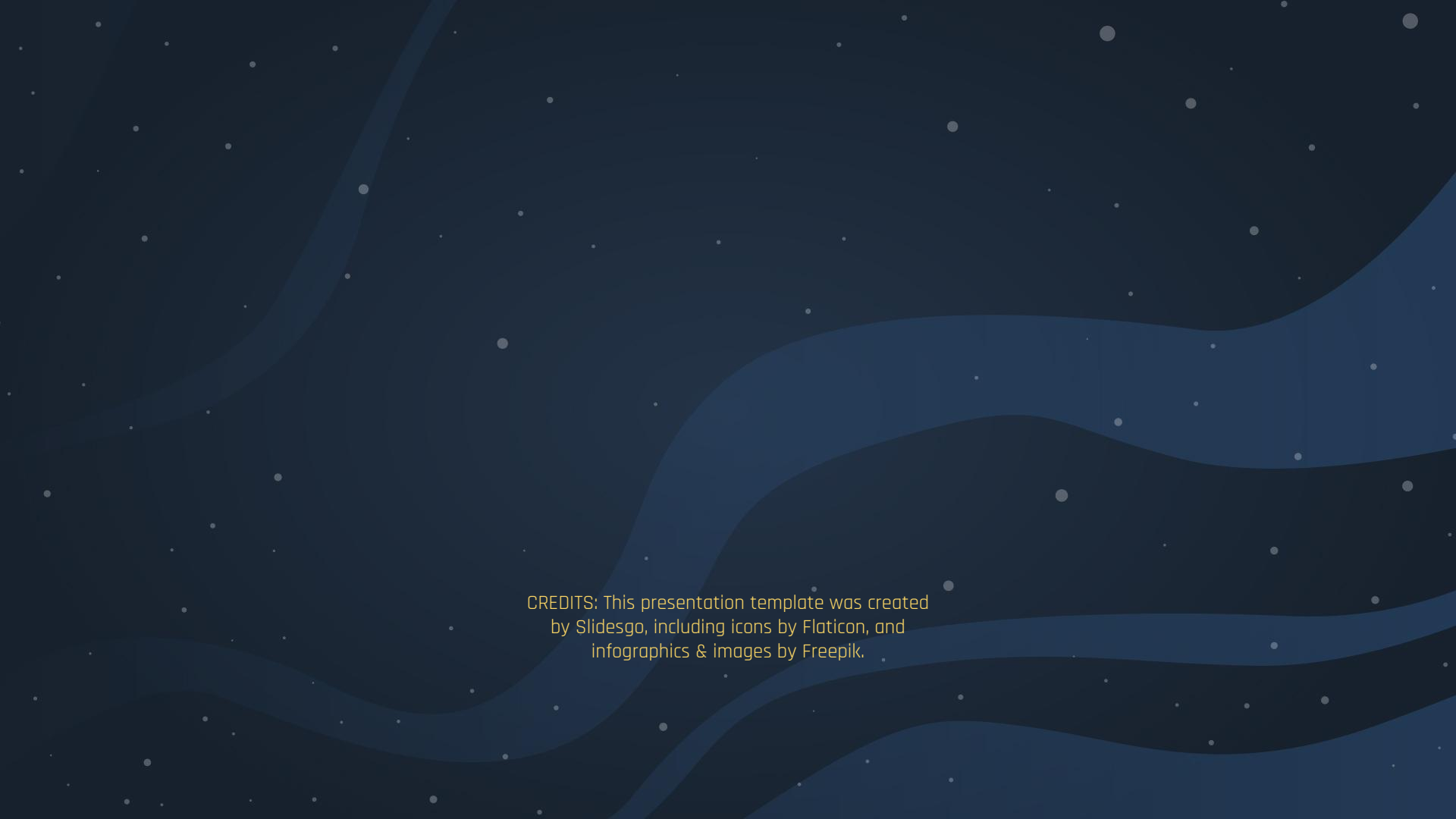


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ALTERNATIVE ICONS



ALTERNATIVE RESOURCES



RESOURCES

PHOTOS

- Blackboard-with-rocket-and-pens
- Abstract-background
- Outstanding-beauty-clarity
- Abstract-background-with-planets
- Abstract-background-Shooting-stars
- Plane-made-chalk
- Backpack-with-books-near-cup
- Girl-with-shuttle-toy-nature
- Abstract-arrangement
- Black-trees-autumn-starry-night
- Evergreen-trees-seen-night
- Abstract-background-with-blue-pink
- Ground-view-beautiful-trees-sky
- Abstract-background



RESOURCES

VECTORS

- Modern-astronaut-character-with-flat-design
- Solar-system-infographic
- Lovely-galaxy-background-with-flat-design
- Solar-system-infographic-pack
- Outer-space-concept-illustration
- Flat-design-universe-infographic-concept
- Solar-system-infographic-concept
- Space-Icon-Pack
- Universe-32
- Solar-system-template-infographic
- Universe-infographic-with-solar-system
- Space-infographic-elements
- Flat-design-universe-infographic
- Universe-infographic-flat-design
- Solar-system-infographic
- Flat-design-universe-infographic
- Flat-design-theme-universe-infographic
- Hand-drawn-timeline-infographic

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Pana



Amico



Bro



Rafiki



Cuate

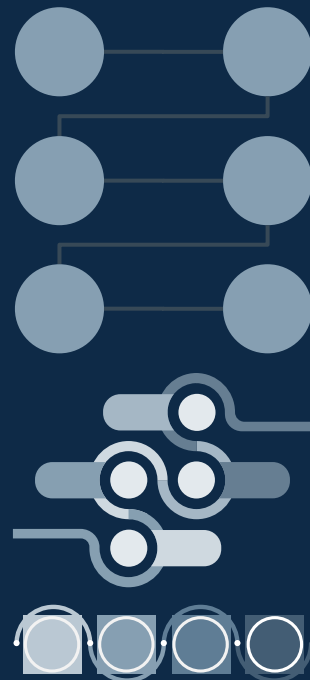
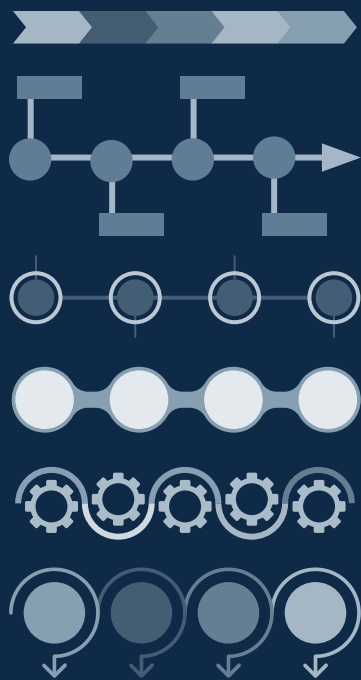
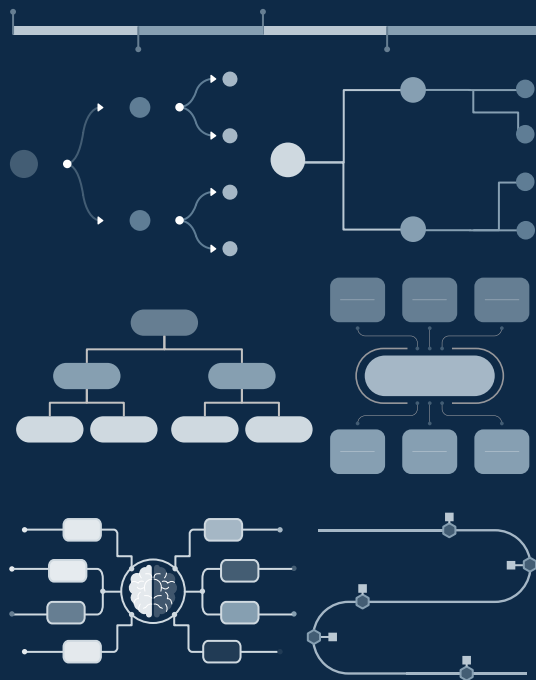
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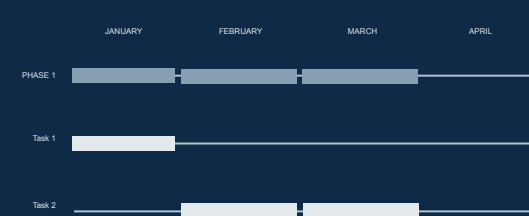
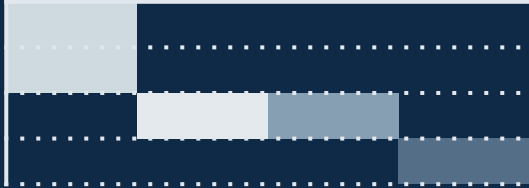
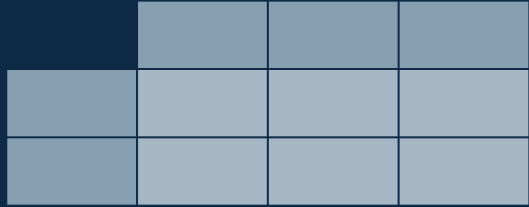
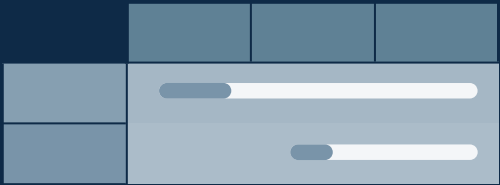
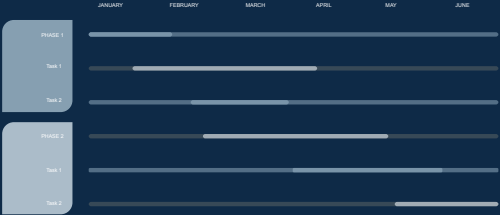
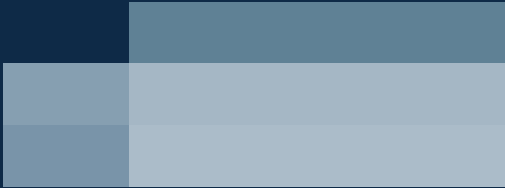
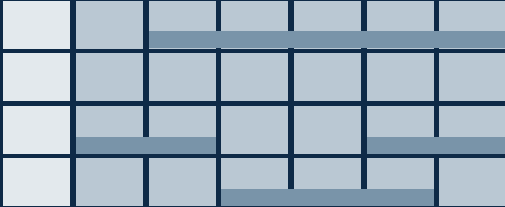
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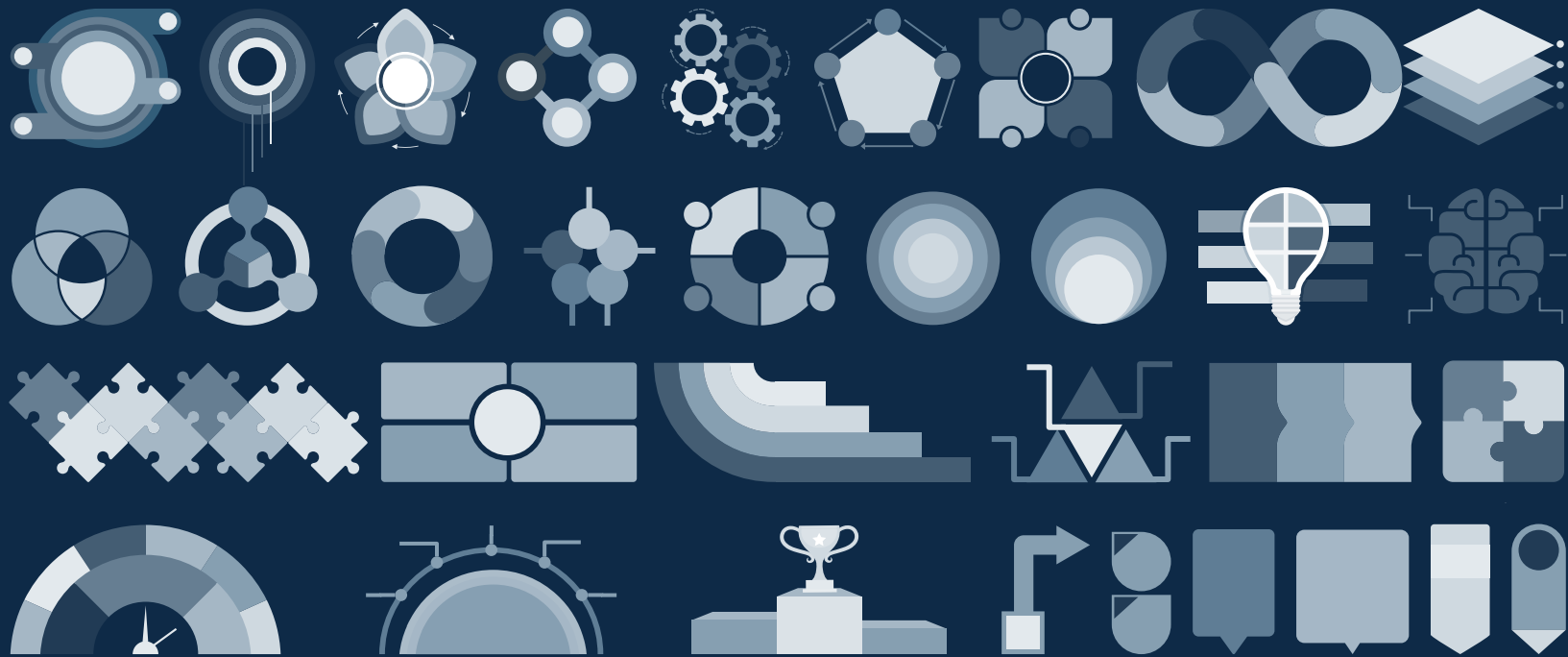
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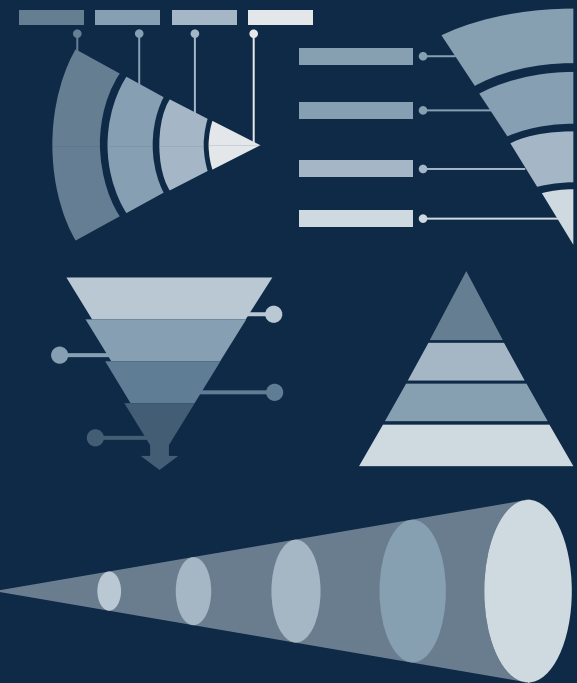
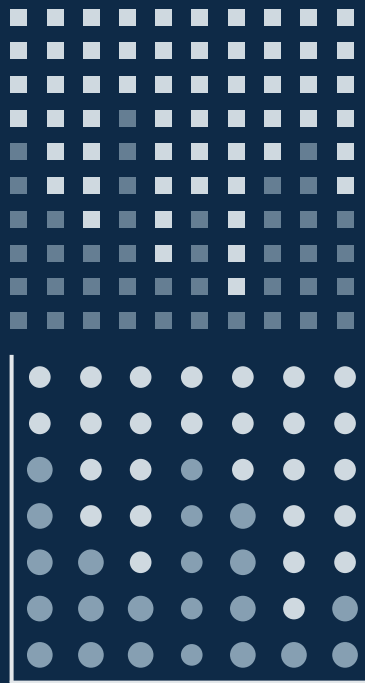












...and our sets of editable icons

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In Google Slides, you can also use Flaticon's extension, allowing you to customize and add even more icons.



Educational Icons



Medical Icons



A 6x6 grid of 36 business-related icons. The icons are arranged in six rows and six columns. The first row includes a clipboard, a gear with a person, a clock, two diamonds, a coffee cup, a globe with a person, a person with a sunburst, and an airplane. The second row features a medal, a balance scale, puzzle pieces, a globe with arrows, a handshake, two people with a speech bubble, a group of people, and a stopwatch. The third row shows three binders, a document with a ribbon, a shopping cart, three people, a target with people, a location pin with a dollar sign, a bar chart, and a line graph on a stand. The fourth row contains a person with a bar chart, a laptop with a person, a person with a speech bubble, a target with an arrow, a chess knight, three chess pawns, a document with a checkmark, and an eye. The fifth row has a gear with a percentage, a notebook, a megaphone, a folder with a person, a factory, a clipboard with a checkmark, a magnifying glass over a person, and a hand holding two coins. The sixth row includes a person in a location pin, a paperclip, puzzle pieces, a calendar with checkmarks, a laptop with a gear, two interlocking gears, a pie chart, and a trophy. The final row consists of a briefcase, a classical building, a rocket, a ship's wheel, a potted plant with a dollar sign, an ID card, a shield with a dollar sign, and a dollar sign with a gear.

Help & Support Icons



Avatar Icons



Creative Process Icons



Performing Arts Icons



Nature Icons



SEO & Marketing Icons



