

NHLPA BARGAINING POWER

By: Kyle Dufrane



NHLPA



Lockouts:

1992

1994-95

2004-2005

2012-2013



Bargaining Power



01

NHL API

13 DATASETS

02

WEB SCRAPING

SPOTRAC.COM

03

963 TOTAL PLAYERS

203 FEATURES

```

def build_roster(roster):
    """This function takes in a dictionary, 'nhl_team_roster', from the NHL API created
    by the requests library and returns a pandas dataframe of all players with associated
    team number based from the api"""

    # Initialize empty dictionary
    person_dict = {}

    # Allow for iteration over the index values (API team number)
    for num in roster.keys():

        # Initialize a sub dictionary so data is not overwritten
        person_dict[num] = {}

        # Create a for loop that will loop over every teams roster due to varying amounts of total players
        for player_index in range(0, len(roster[num].json()['roster'])):

            # Initialize a sub dictionary so data is not overwritten on a team level
            person_dict[num][player_index] = {}

            # Create a for loop that will loop over all of the keys within the 'roster' nested dictionaries
            for key in roster[num].json()['roster'][player_index].keys():

                # Allow the function to iterate over the 'person' nested dictionary
                if key == 'person':

                    # Looping over the 'person' nested dictionary
                    for person in roster[num].json()['roster'][player_index][key]:

                        # Adding values to the dictionary
                        person_dict[num][player_index][key] = roster[num].json()['roster'][player_index][key][person]

                # Allow the function to iterate over the 'position' nested dictionary
                if key == 'position':

                    # Looping over the 'position' nested dictionary
                    for position in roster[num].json()['roster'][player_index][key]:

                        # Adding values to the dictionary
                        person_dict[num][player_index][position] = roster[num].json()['roster'][player_index][key][position]

                # Allow the function to add the jersey number to the dictionary
                if key == 'jerseyNumber':

                    # Adding value to the dictionary
                    person_dict[num][player_index][key] = roster[num].json()['roster'][player_index][key]

            # Adding the API's team number as a value within the nested dictionaries in case we need to join on this value at a later time
            for value in person_dict:

                for length in range(0, len(person_dict[value])):

                    person_dict[value][length]['Team_Number'] = value

    # Initializing an empty list to convert into a pandas dataframe
    df_list = []

    # Iterating over the above created dictionary
    for num in person_dict:

        # Create a for loop that will loop over every teams roster due to varying amounts of total players
        for length in range(0, len(person_dict[num])):

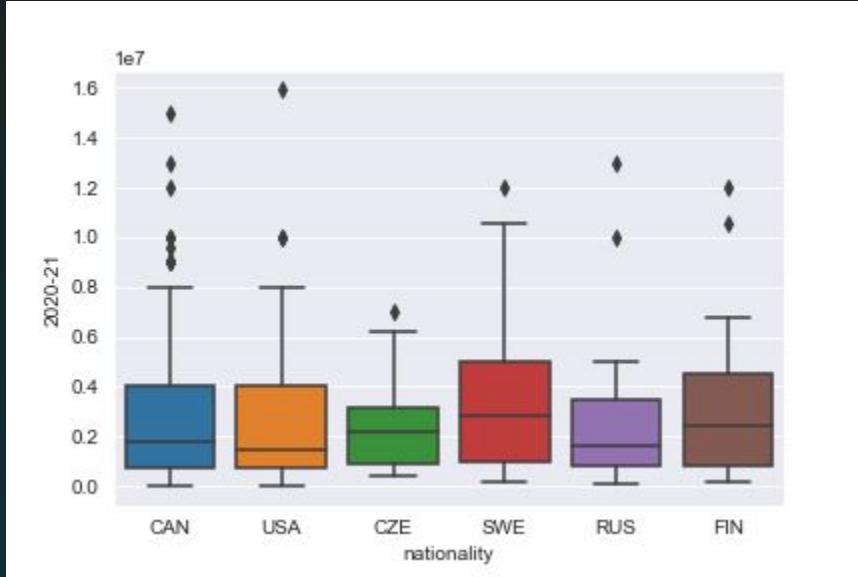
            # Appending values to dictionary
            df_list.append(person_dict[num][length])

    # Creating Pandas DataFrame
    roster_df = pd.DataFrame(df_list)

    return roster_df

```

NHL Salaries by Nationality



Features = 206 → 36

Left Vs Right Handed Shots

XGB REGRESSOR
0.729

RANDOM FOREST
REGRESSOR
0.754

LINEAR REGRESSION
0.622

OLS
0.365

EXTRA TREES
REGRESSOR
0.747

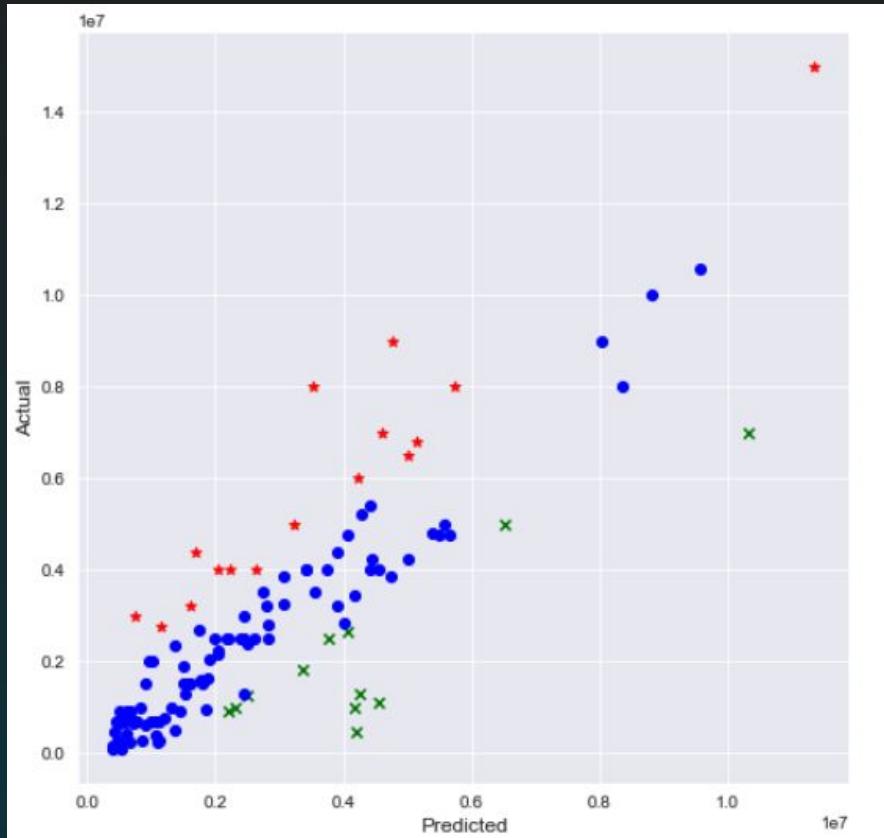


KEY FEATURES



Final Model Actual vs Predicted

FINAL MODEL



Threshold = \$1.2M

* = Under predicted
X = Over predicted



01

TUNING

02

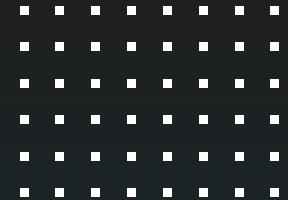
PAST PLAYERS

04

DASHBOARD

03

INJURIES



THANKS!



Do you have any questions?



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<https://www.linkedin.com/in/kyle-dufrane-8131086b/>



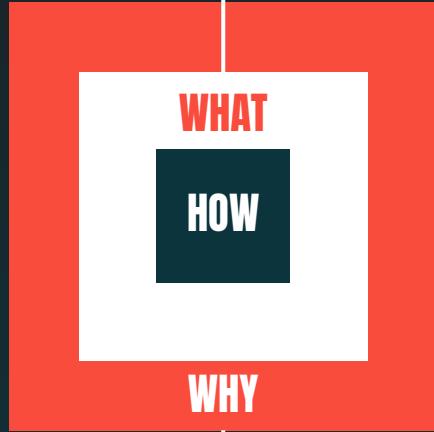
www.github.com/kyledufrane

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VALUE PROPOSITION

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



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

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

01

NHL API

13 DATASETS

02

WEB SCRAPING

SPOTRAC.COM

03

487 TOTAL PLAYERS

203 → 17 FEATURES

```

def build_roster(roster):
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```

MERCURY

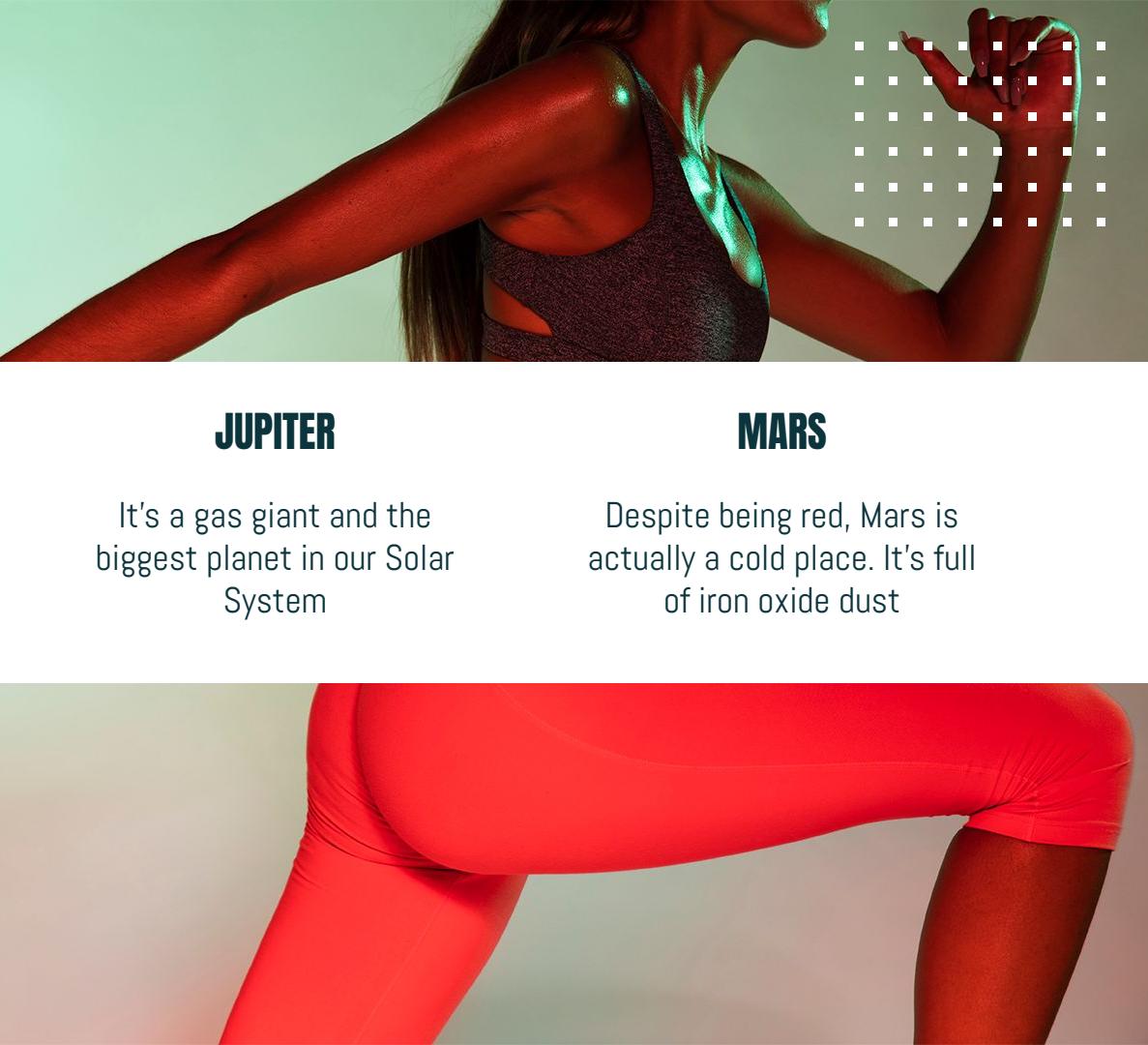
Mercury is the closest planet to the Sun and the smallest one in our Solar System

JUPITER

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

MARS

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



THEM VS. US



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



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

A photograph showing a person's legs and feet from the side. They are wearing dark green athletic pants and black and white running shoes. A red square is overlaid on the left side of the image. On the right side, there is a white rectangular area containing the text.

**AWESOME
WORDS**

TARGET

\$50.00

Average spend per customer

GENDER

Female

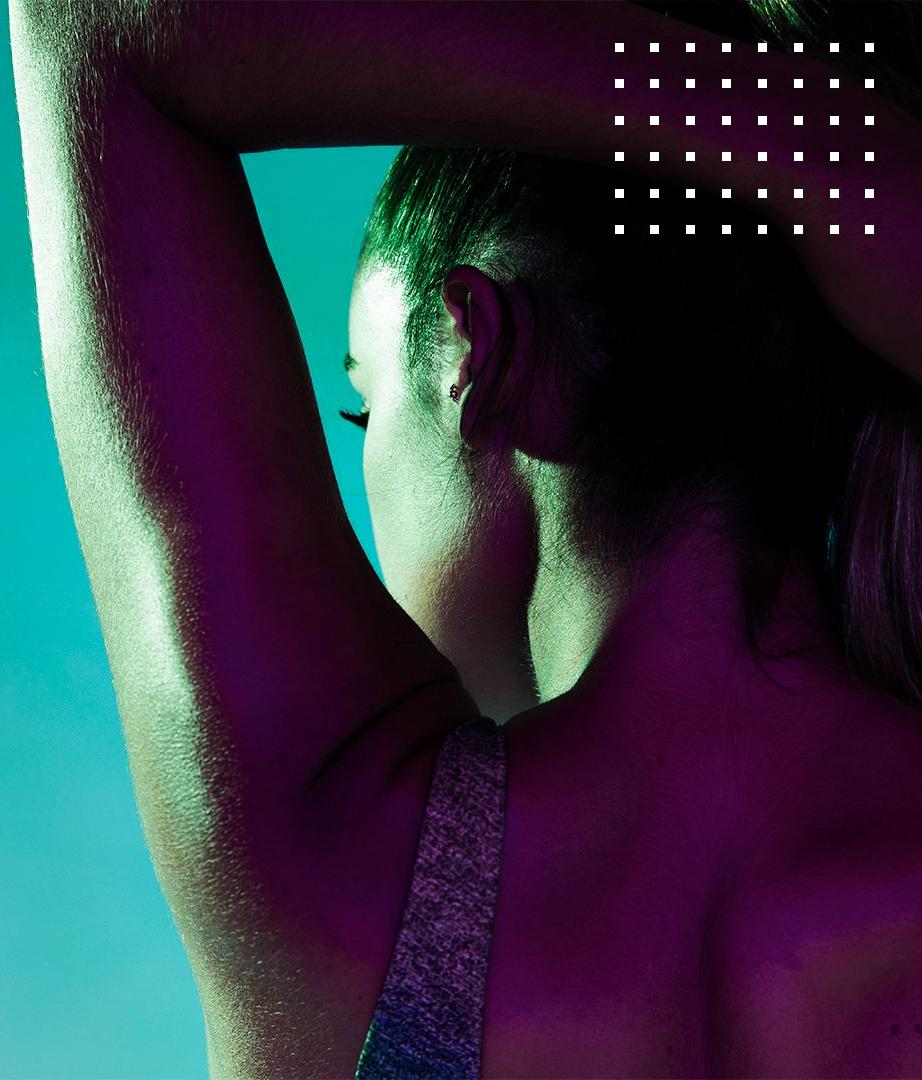
Male

AGE

25-45 

46-65 

HOBBIES



MARKET SHARE



20%

30%

50%

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

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

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

OTHER BUSINESSES



VENUS	Yes	-	Yes	Yes
MERCURY	Yes	Yes	Yes	-
JUPITER	-	Yes	-	Yes

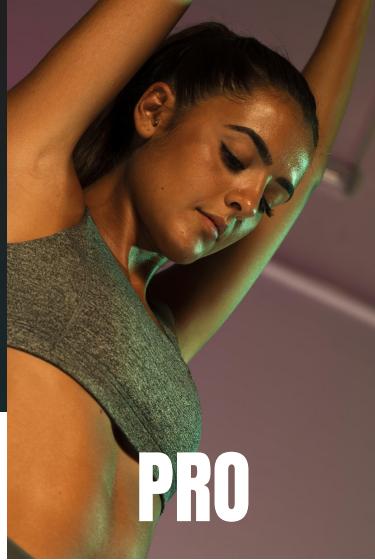
OUR PLANS



BASIC

-
- List your features
 - List your features
 - List your features

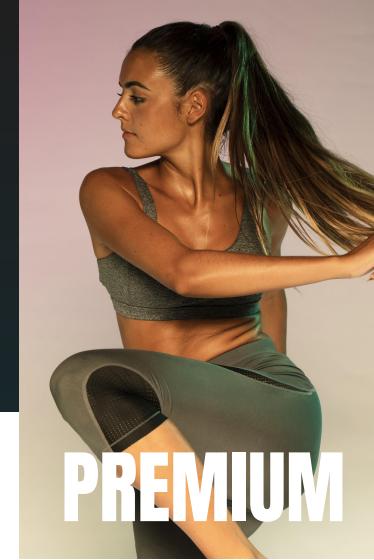
\$30



PRO

-
- List your features
 - List your features
 - List your features

\$50



PREMIUM

-
- List your features
 - List your features
 - List your features

\$70

Mercury is the closest planet to the Sun

MERCURY



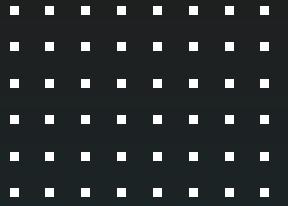
Neptune is the farthest planet from the Sun

NEPTUNE



MARS

Despite being red, Mars is actually a cold place

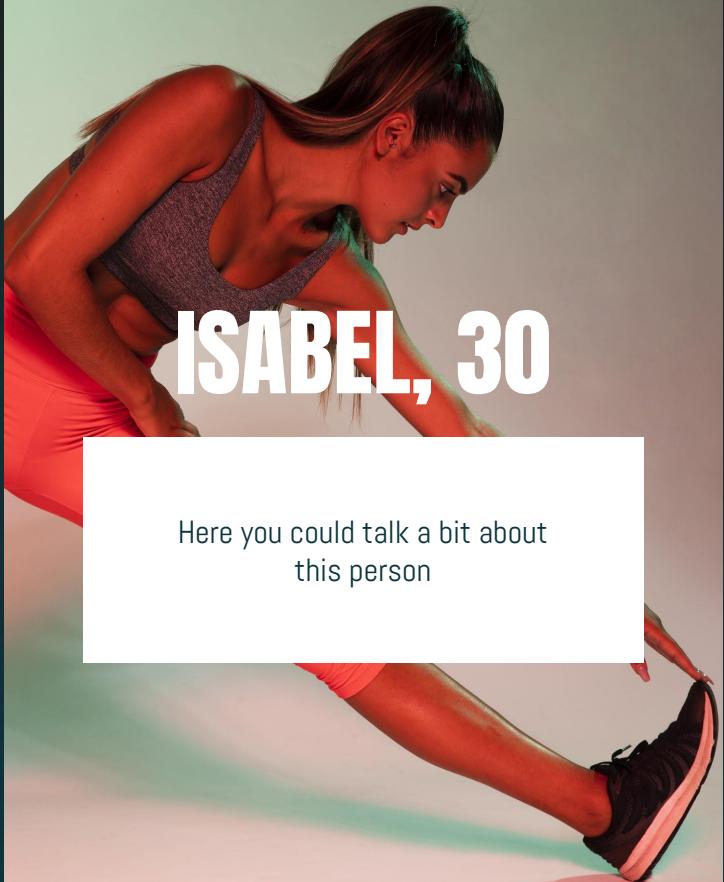


VENUS

Venus has a beautiful name, but it's terribly hot

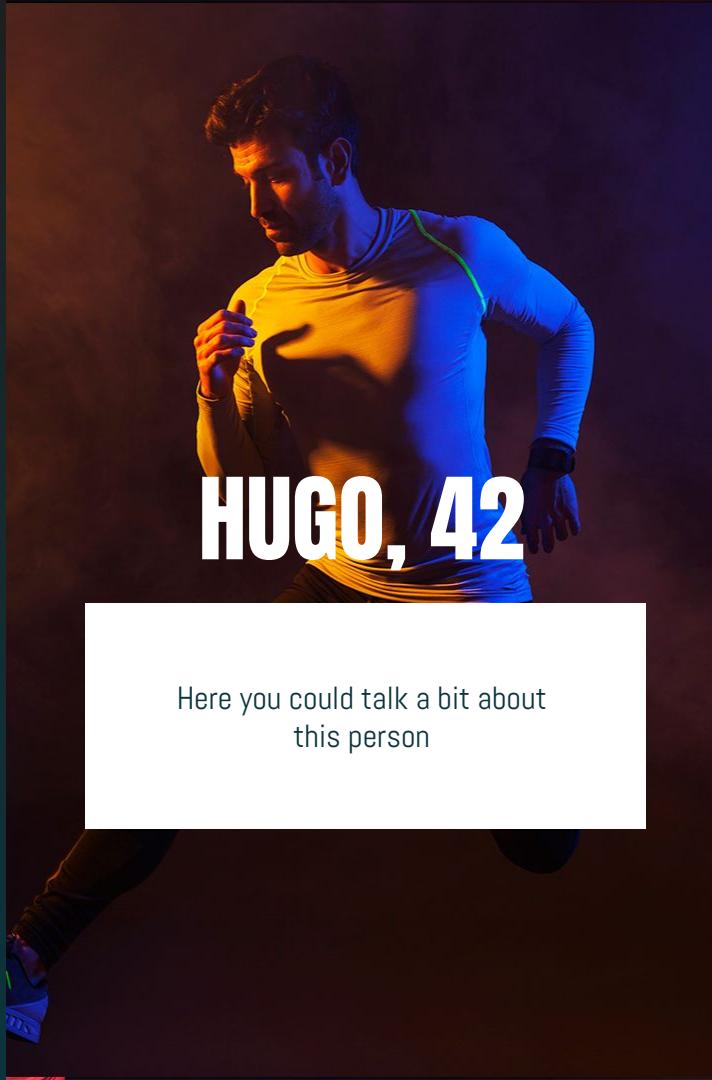


OUR TEAM



ISABEL, 30

Here you could talk a bit about
this person

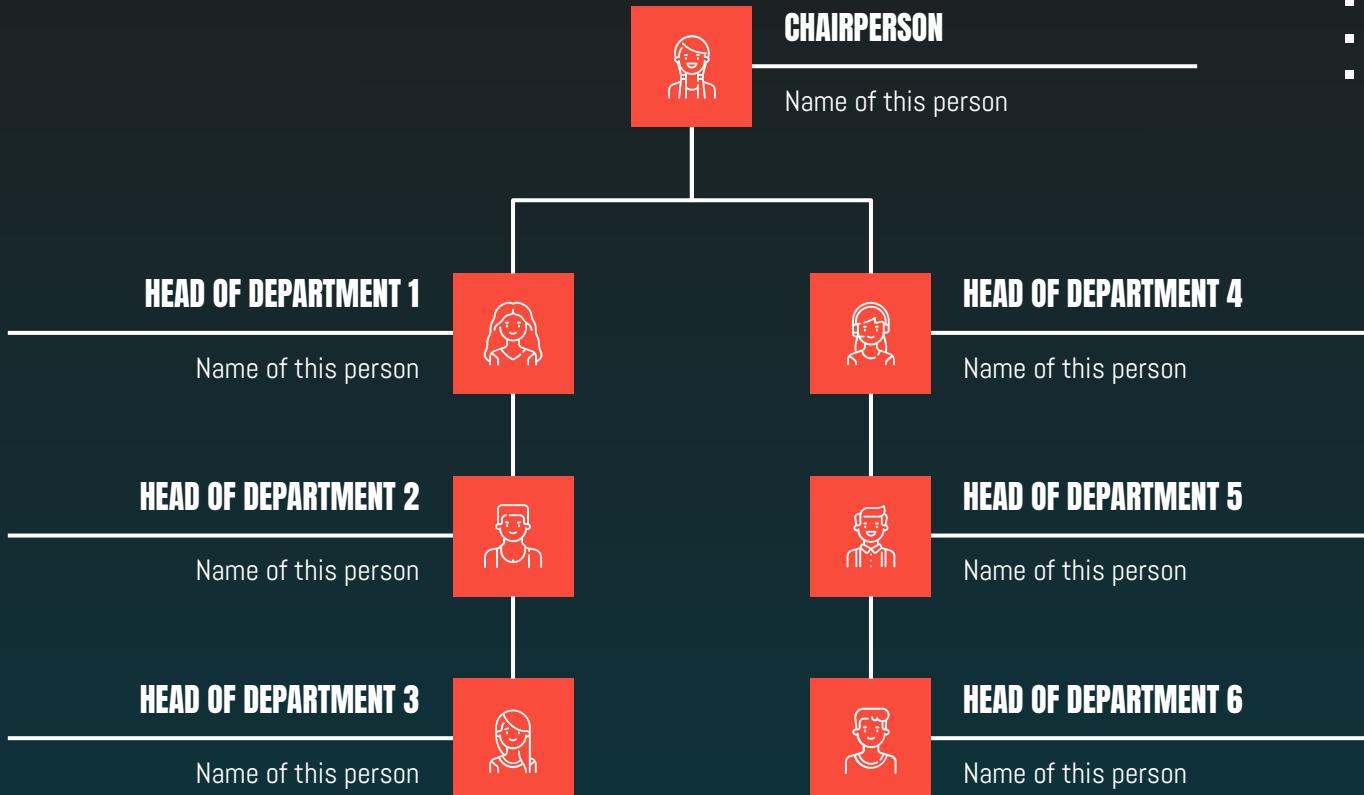


HUGO, 42

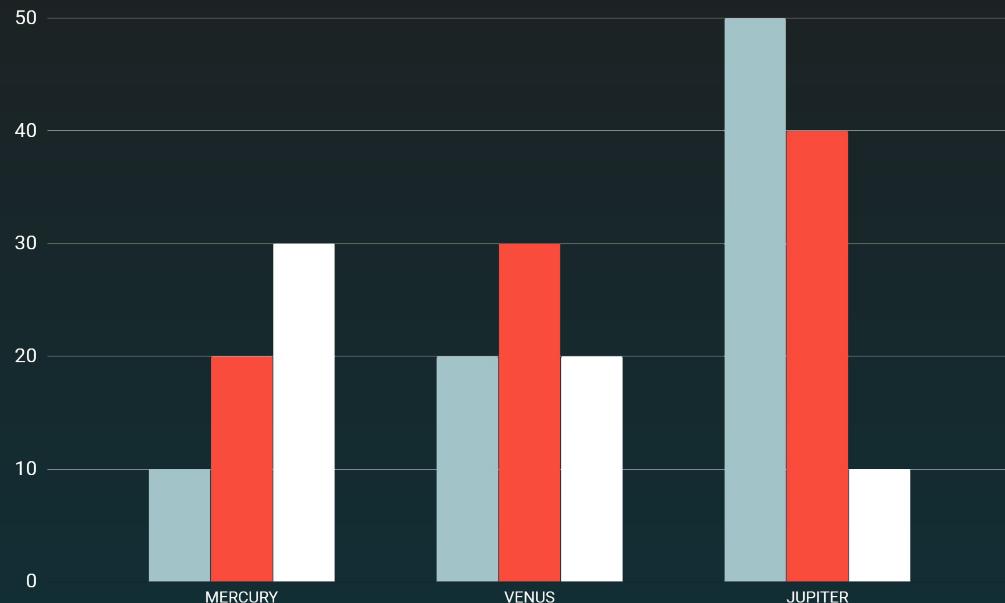
Here you could talk a bit about
this person



ORGANIZATIONAL CHART



PREDICTED GROWTH



If you want to modify this graph, click on it, follow the link, change the data and replace it

Earth is the planet we live on

Despite being red, Mars is a cold place

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

GYM EQUIPMENT ICONS



PHOTOS

- Side view of athlete training with blue background
- Back view of athlete running with blue background
- Front view of woman with blue background
- Medium shot of woman training
- Front view of athlete with blue background
- Back view of athlete stretching arms
- Back view of athlete with copy space
- Side view of woman stretching
- Full shot of athlete training
- Side view of athlete exercising
- Front view of woman tying her shoelaces
- Side view of athlete with copy space
- Medium shot of athlete stretching
- Full shot woman looking down
- Full shot woman with sports equipment
- Side view of woman running

PHOTOS

- Close-up fit woman in gym suit
- Front view of athlete with copy space
- Front view of woman stretching
- Side view woman with lifting bar
- Full shot fit woman exercising
- Side view fit woman looking away
- Front view of woman in crouch starting position
- Back view of athlete running
- Close-up of athlete tying her shoes
- Close-up of athlete with blue background
- Woman with green background and copy space
- Close-up woman stretching indoors
- Side view of athlete sprinting
- Low angle fit girl exercising
- Medium shot of athlete stretching
- Sportsman leaping in smoke

ICON

- Gym equipment

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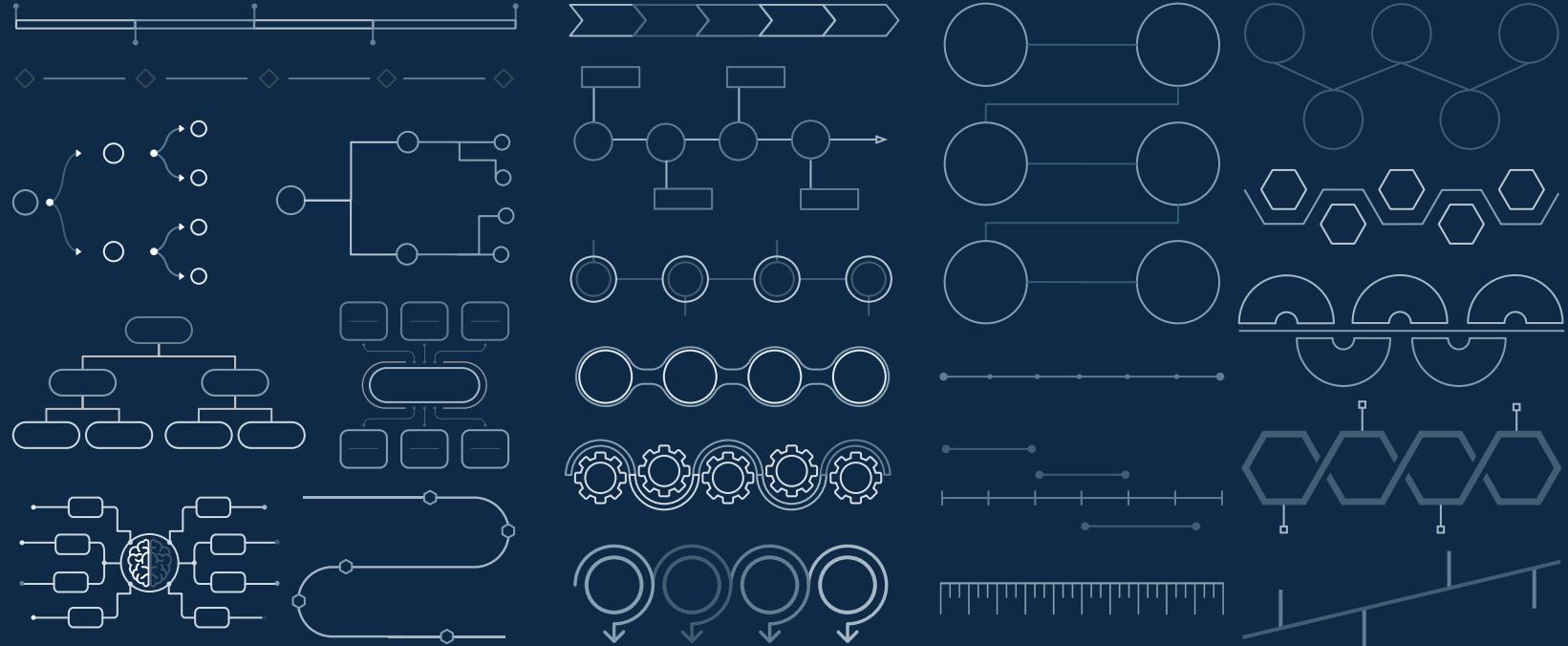
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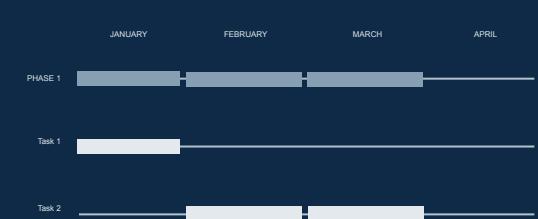
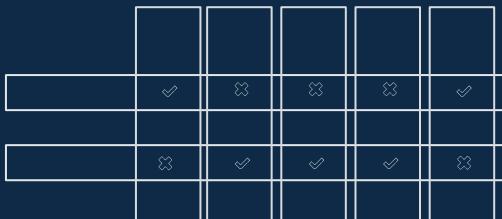
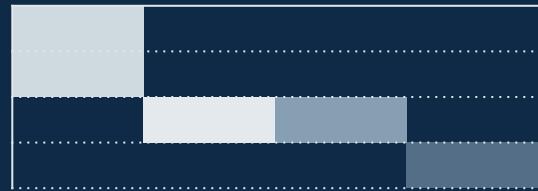
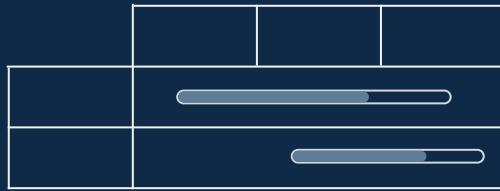
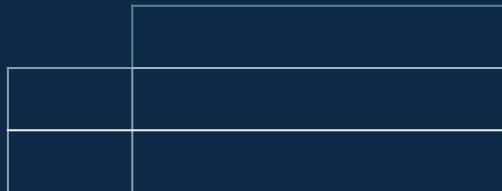
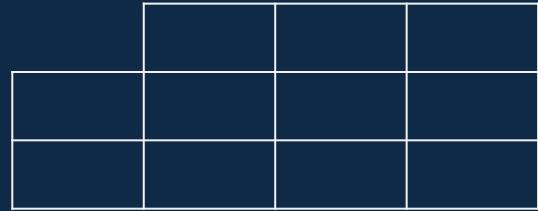
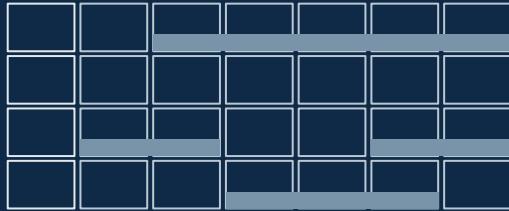
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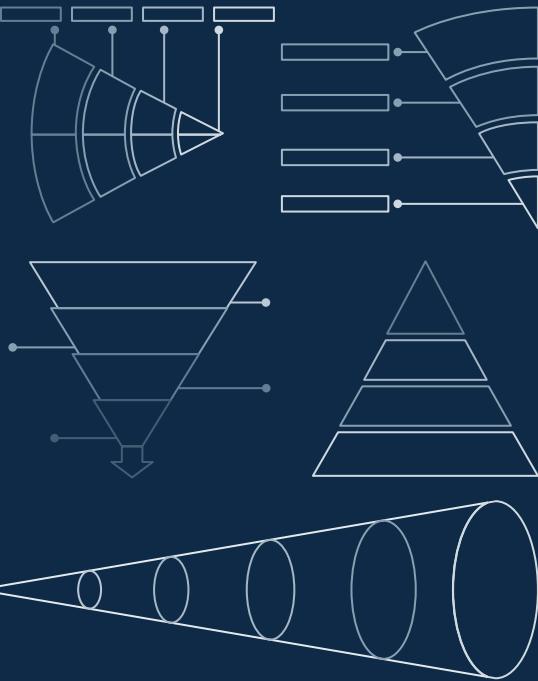
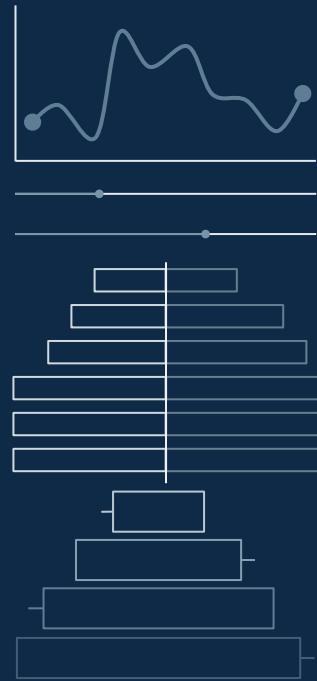
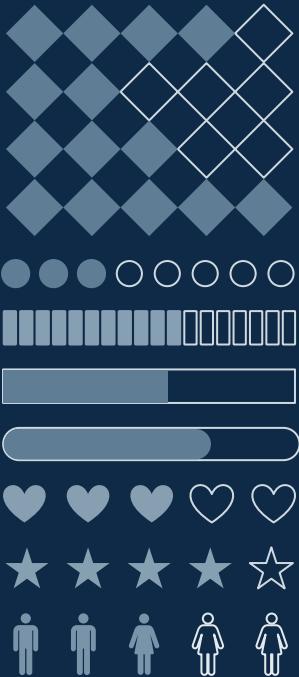
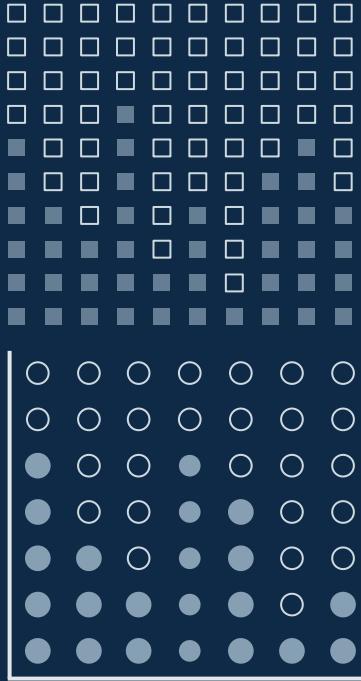












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Medical Icons



Business Icons



Teamwork Icons



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Creative Process Icons



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