PROJEKTY

Cel zajęć projektowych

- wykorzystanie i utrwalenie zdobytej wiedzy z wykładu oraz laboratoriów
- praktyczna praca z danymi
- ćwiczenie sposobu prezentacji wyników

Zasady

- 2 projekty w ciągu semestru
- zespoły 3 osobowe, różne podczas 1 i 2 projektu
- projekt trwa 7-8 tygodni
- 24p (P1) i 20p (P2) za projekt (w tym do 5p za pracę na zajęciach projektowych)

PROJEKT 1

Zadanie: Przygotowanie plakatu na zadany temat

Rezultat: Plakat w formacie A2 wydrukowany + sesja plakatowa podczas wykładu

Zajęcia:

- wspólne dyskusje
- prezentacje kolejnych etapów

Ocena

Za projekt można otrzymać od 0 do 24 punktów, z czego:

- 5p (1 x 1p, 2 x 2p) uzyskuje się za przedstawienie postępu prac w danym tygodniu
- 5p uzyskuje się za przygotowanie estetycznych wykresów (dwa lub więcej)
- 5p uzyskuje się, jeżeli przygotowane wykresy mają wszystkie niezbędne elementy do poprawnego odczytania danych (tytuł, podtytuł, adnotacje na osiach, legenda, jednostki, opis jak czytać wykres)
- 5p uzyskuje się za estetykę i pomysłowość aranżacji wykresów i opisów w jedną całość
- 4p uzyskuje się za prezentację projektu

Za tydzień

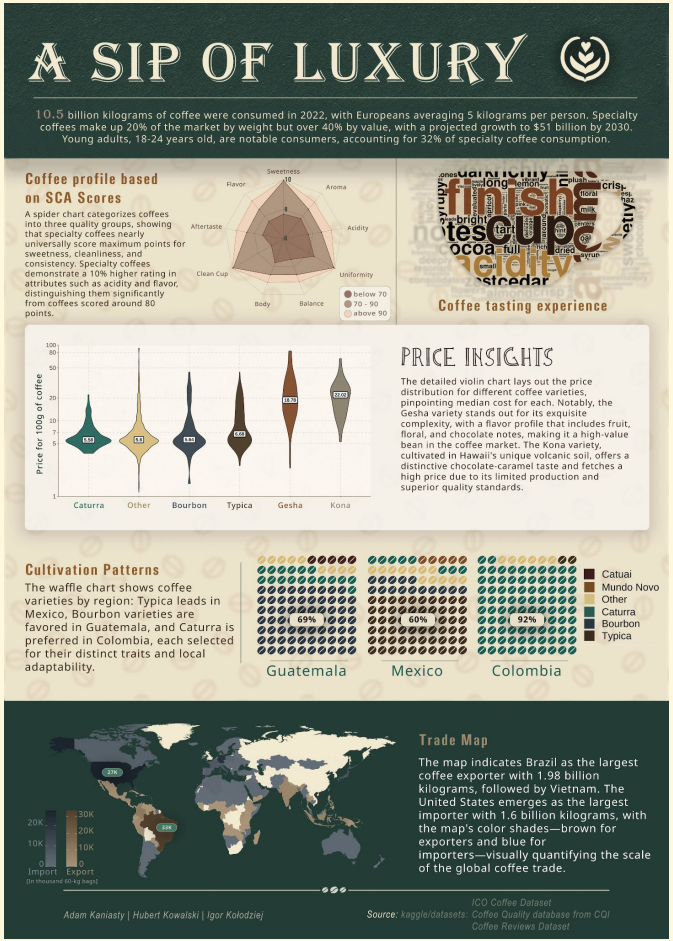
- podział na zespoły 3 osobowe
- “burza mózgów”

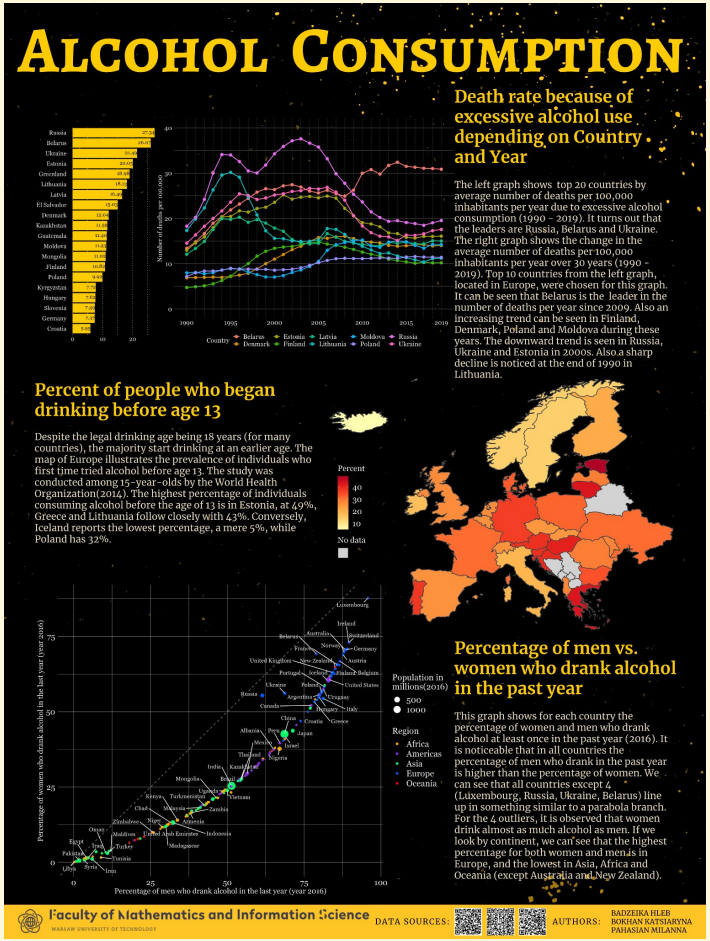
Temat projektu to...

FILM, SERIAL, KSIĄŻKA, AUDIOBOOK

Jakie prace zostały wykonane w poprzednich latach?

2023/2024 Żywność
2022/2023 Sport, Muzyka
2021/2022 Plakaty, które zmieniają spojrzenie na klimat i środowisko
2020/2021, 2018/2019 Filmy, seriale, książki, audiobooki, gry





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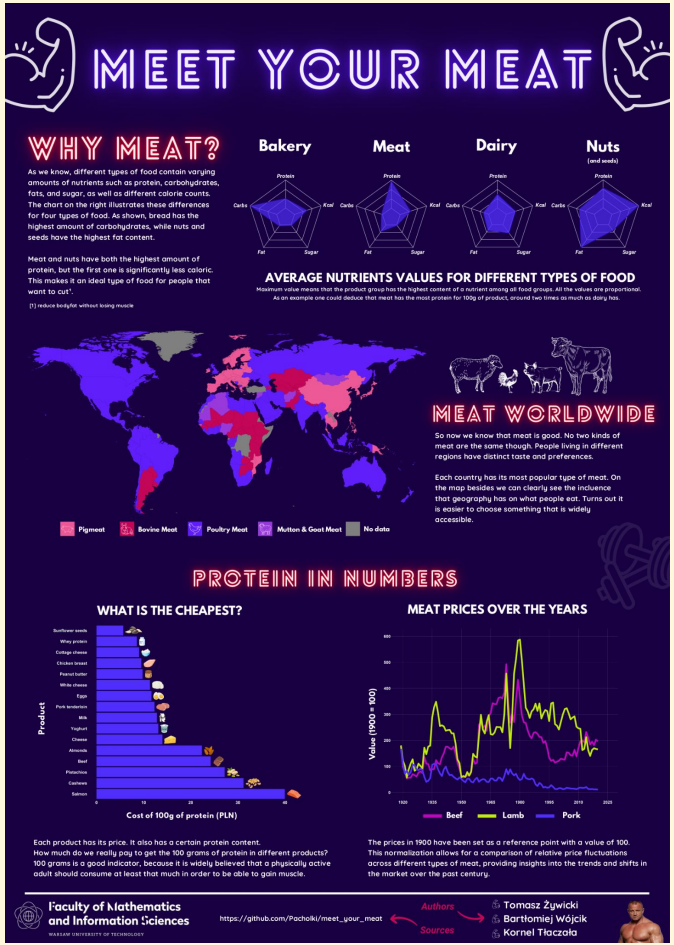

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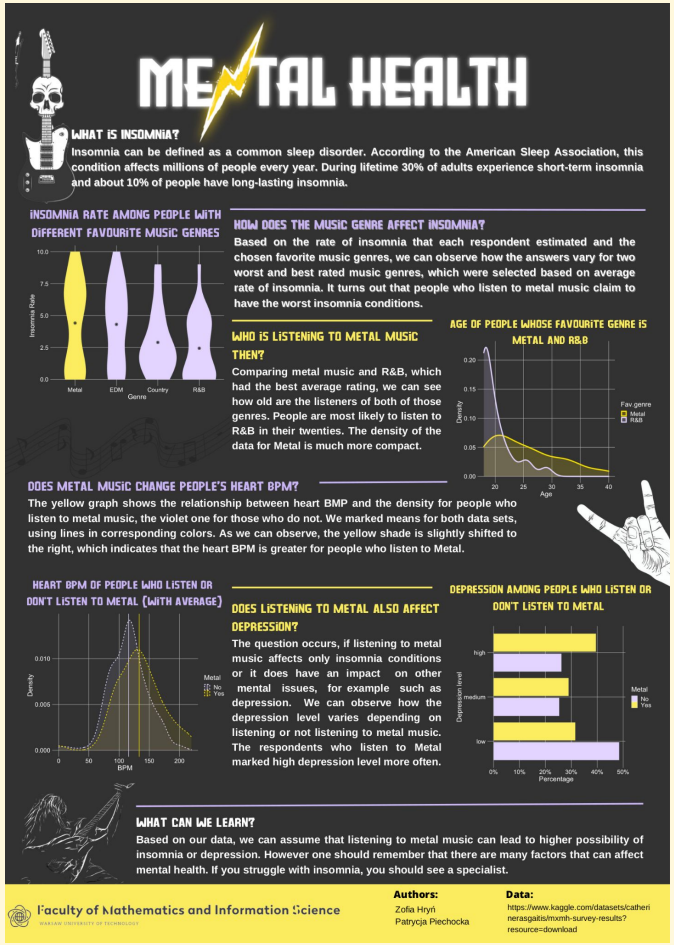

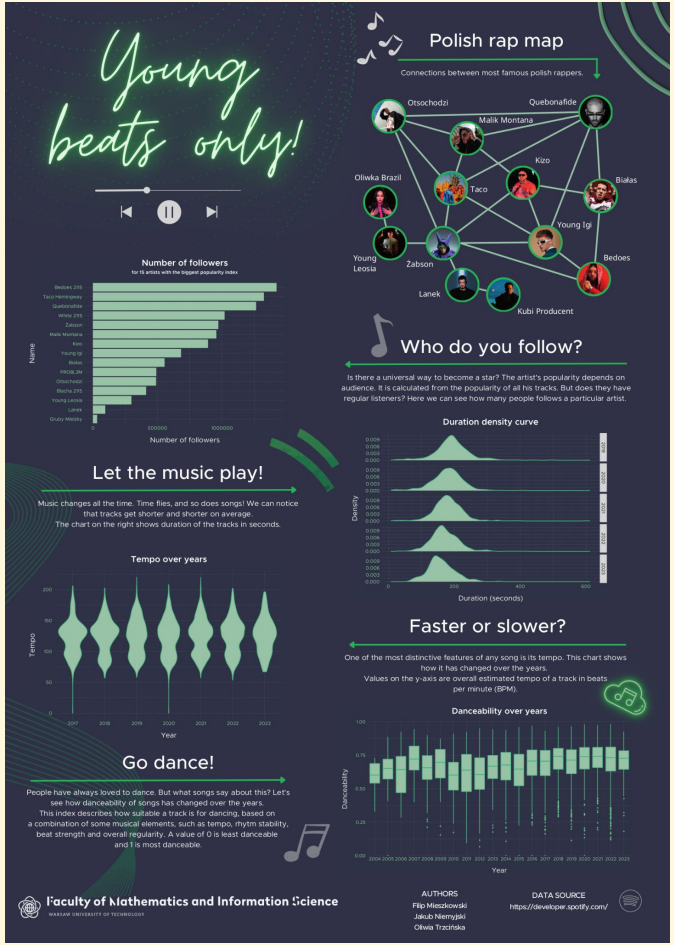

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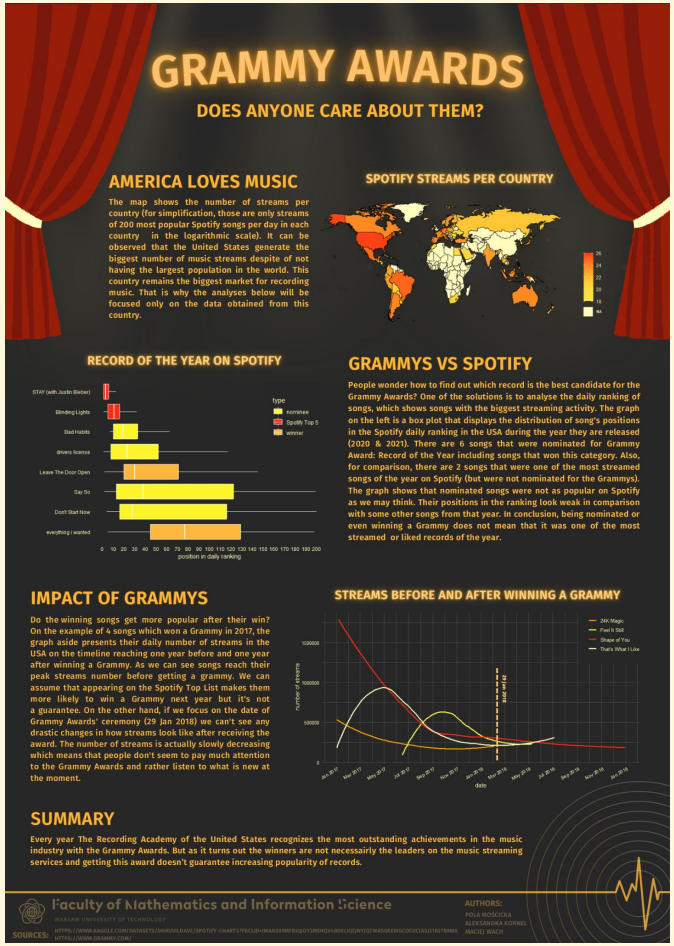

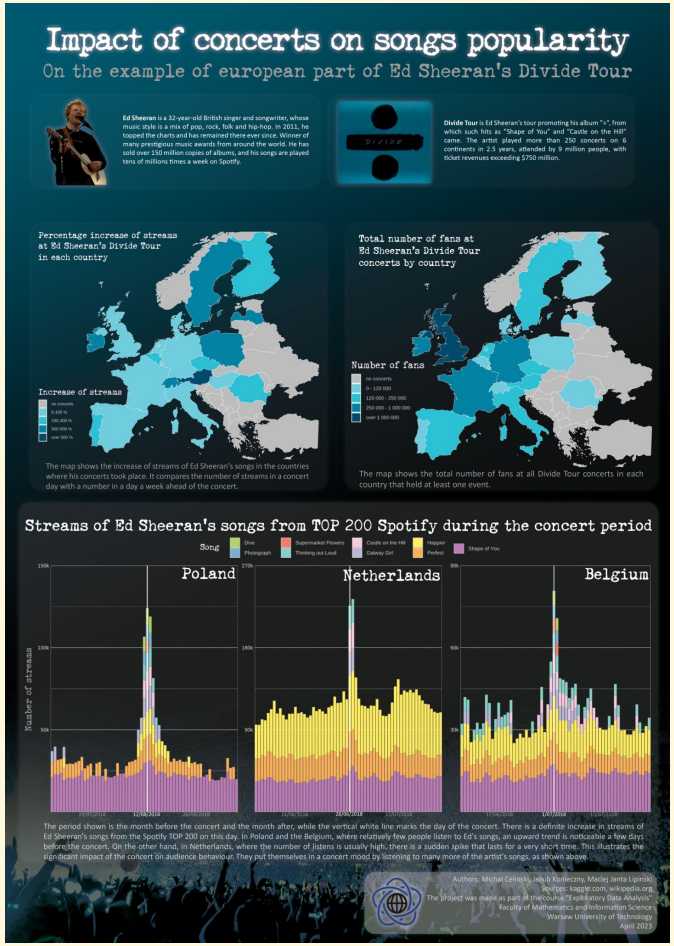

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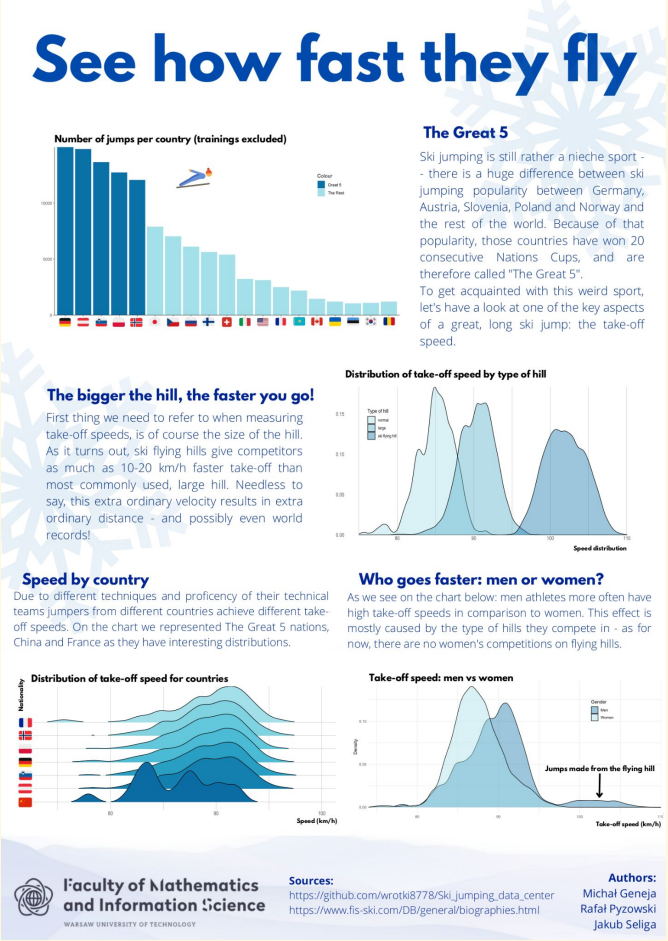

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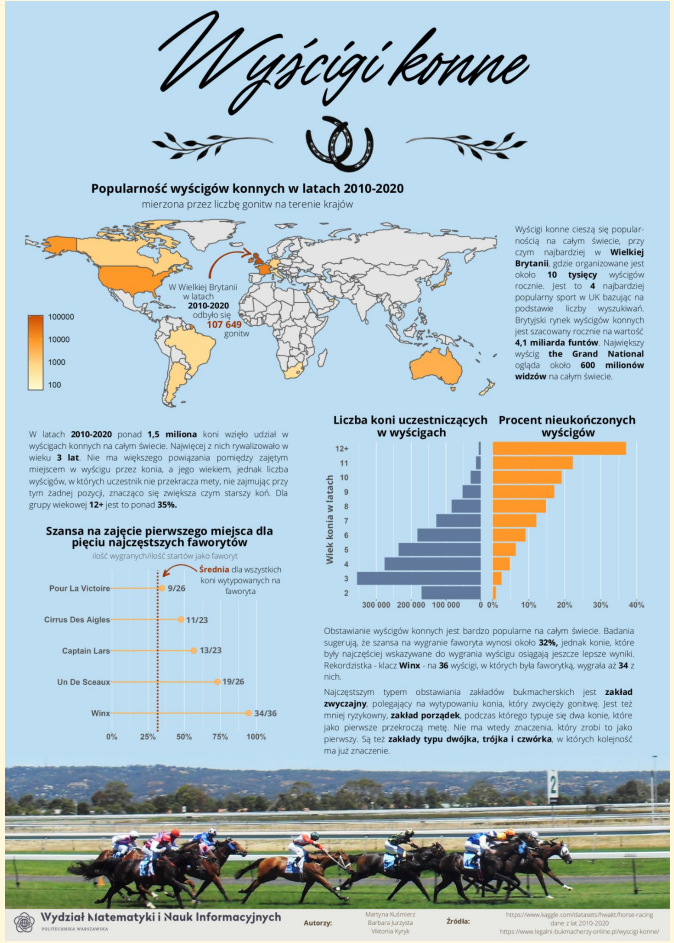

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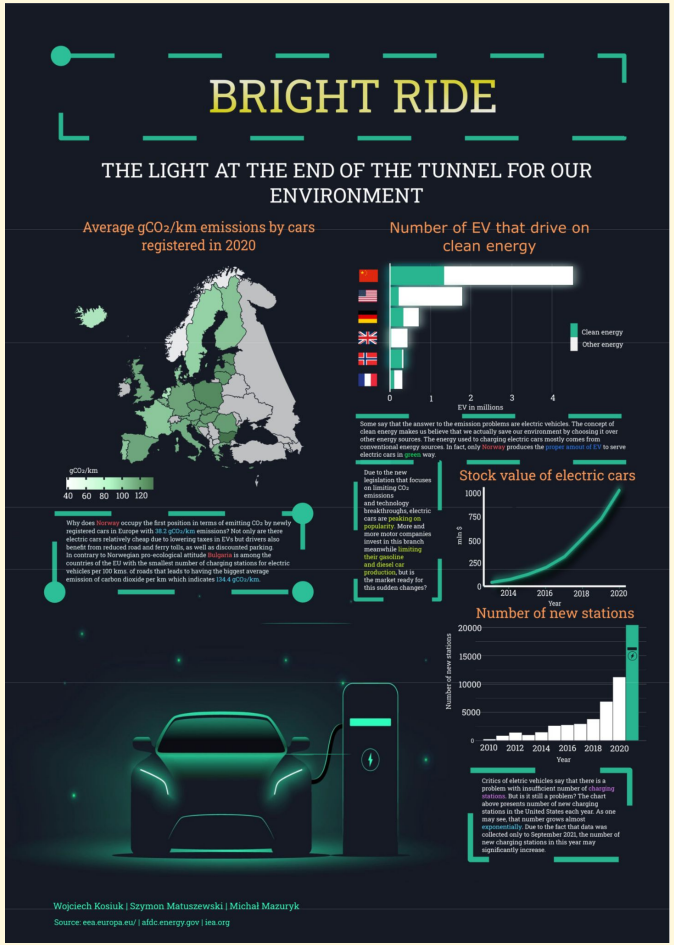
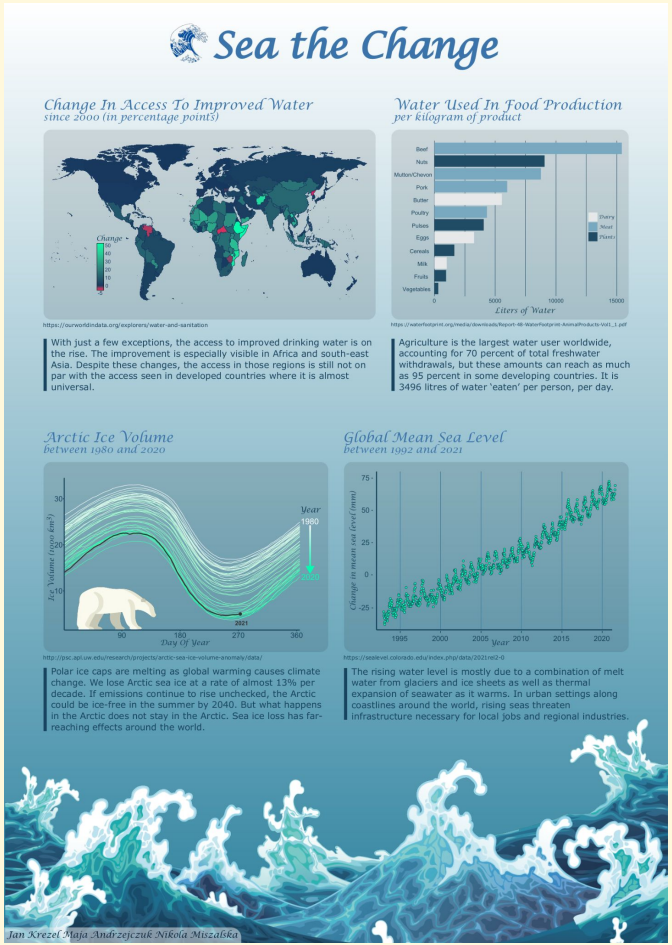
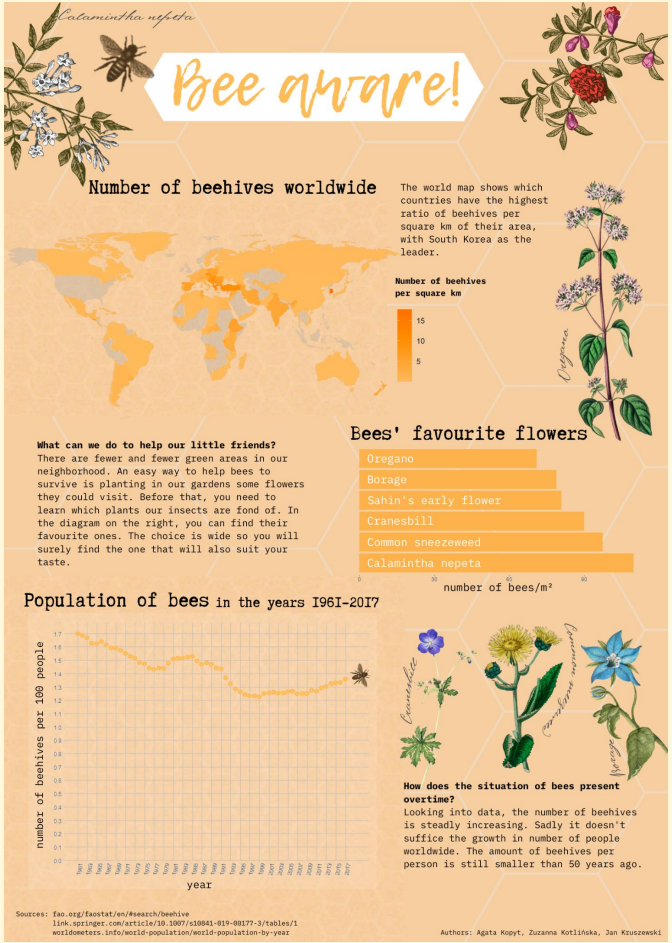
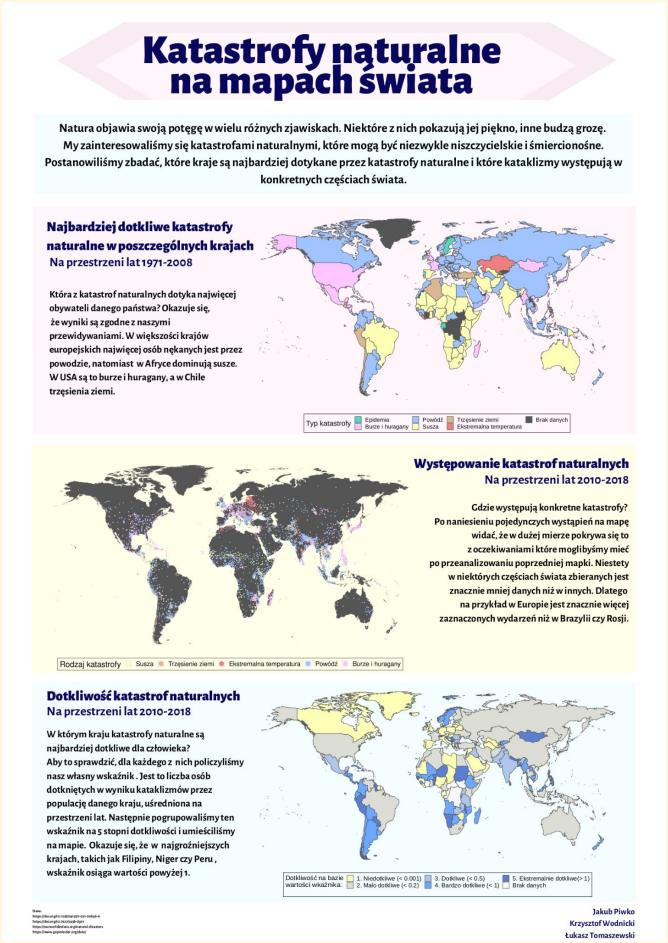




https://medium.com/responsibleml/posters-that-change-the-perspective-on-climate-and-the-environment-c3682c0f6c39





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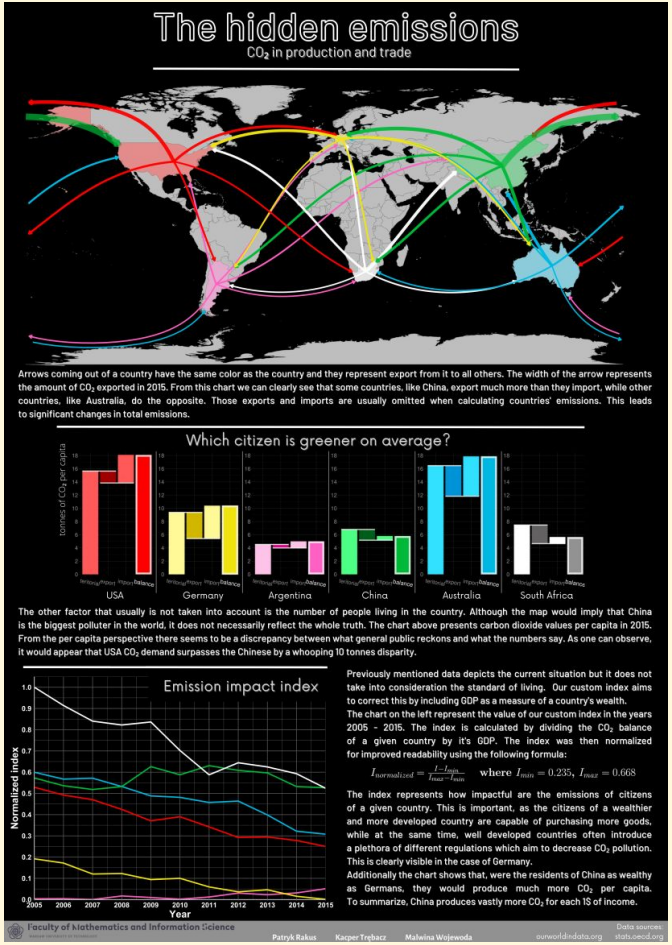
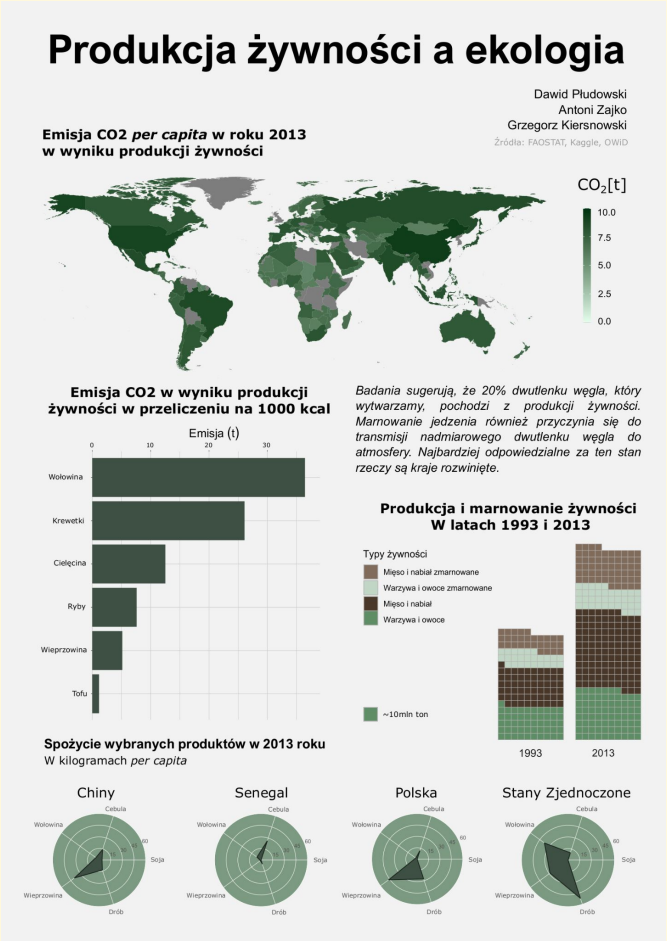
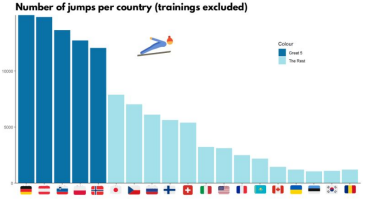




https://medium.com/responsibleml/posters-that-change-the-perspective-on-climate-and-the-environment-c3682c0f6c39

See how fast they fly

Number of jumps per country (trainings excluded)



The Great 5

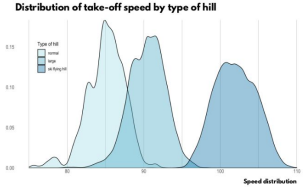
Ski jumping is still rather a nieche sport - - there is a huge difference between ski jumping popularity between Germany, Austria, Slovenia, Poland and Norway and the rest of the world. Because of that popularity, those countries have won 20 consecutive Nations Cups, and are therefore called "The Great 5".

To get acquainted with this weird sport, let's have a look at one of the key aspects of a great, long ski jump: the take-off speed.

The bigger the hill, the faster you go!

First thing we need to refer to when measuring take-off speeds, is of course the size of the hill. As it turns out, ski flying hills give competitors as much as 10-20 km/h faster take-off than most commonly used, large hill. Needless to say, this extra ordinary velocity results in extra ordinary distance - and possibly even world records!

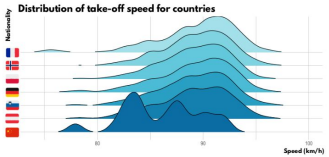
Distribution of take-off speed by type of hill



Speed by country

Due to different techniques and proficency of their technical teams jumpers from different countries achieve different take-off speeds. On the chart we represented The Great 5 nations, China and France as they have interesting distributions.

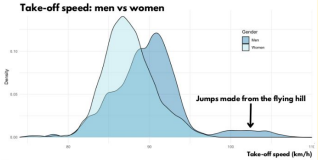
Distribution of take-off speed for countries



Who goes faster: men or women?

As we see on the chart below: men athletes more often have high take-off speeds in comparison to women. This effect is mostly caused by the type of hills they compete in - as for now, there are no women's competitions on flying hills.

Take-off speed: men vs women



Faculty of Mathematics and Information Science
WARSAW UNIVERSITY OF TECHNOLOGY

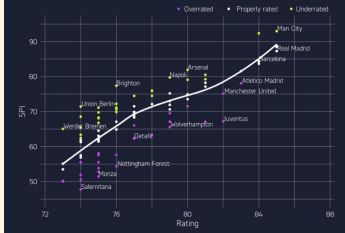
Sources:
https://github.com/wrotki8778/Ski_jumping_data_center
https://www.fis-ski.com/DB/general/biographies.html

Authors:
Michał Geneja
Rafał Pyzowski
Jakub Seliga

FIFA VS REALITY

With the release of every single FIFA people argue about the ratings of players and call the creators biased. But is FIFA really that bad in terms of ratings and statistics?

FIFA TEAM RATINGS VS SPI

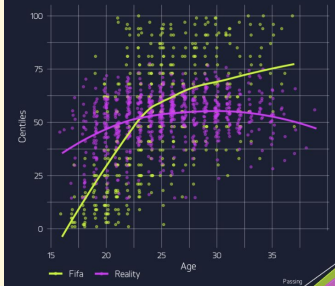


The first graph shows the dependence of the teams' overall rating in FIFA 23 on the soccer power index as of the start of the 22/23 season. SPI determines how good a team is based on match statistics from the last few months. The trend is that the higher the SPI, the higher the rating. However, at the extreme values of the rating, the trend line is a bit more vertical, which indicates that FIFA tries not to create extremely strong and extremely weak teams. It can be also observed that the greatest discrepancies between the ratings and the SPI are in case of the weaker teams.

CURRENT RATINGS OF PERSPECTIVE PLAYERS

Can FIFA accurately predict how good a player will become? The chart on the right presents those players whose potential in years 2015-2017 was rated above 83 and had an overall rating lower than 72. As you can see, the creators' predictions were not very precise. In fact, only about 15% of those players have become world-class footballers.

DEPENDENCE OF FORWARDS STATISTICS ON AGE

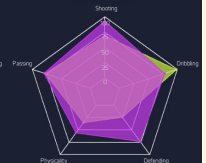


Players in FIFA are rated also on factors unrelated to their skills such as age of a player. The graph on the left compares the strikers' statistics in reality and in FIFA. According to the trend lines of these statistics, older players, despite a significant decrease in technical skills and physical ability, do not lose their statistics in FIFA. Similarly, young players whose form has exploded receive inadequate and underestimated statistics.

Great examples are Vinicius Jr (born in 2000) and Cristiano Ronaldo (born in 1985). Below you will find a comparison of their statistics in percentiles against other footballers playing in the same position.

RONALDO

VINICIUS



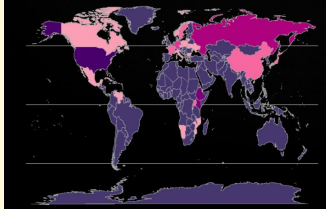
Authors:
Tymoteusz Urban
Sebastian Trojan
Wiktor Wójcik

Faculty of Mathematics and Information Science
Warsaw University of Technology

Sources:
kaggle.com/stefanoleone992/datasets
data.fivethirtyeight.com/#soccer-spi
kaggle.com/vivovinco/datasets

https://medium.com/responsibleml/posters-about-sports-enter-the-game-4cd77e659afe

WORLD RECORDS



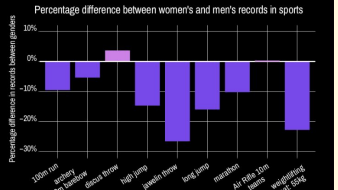
World Records in athletics
(0,2]
(2,4]
(4,5]
(5,10]
(10,20]
(20,30]
NA

CHAMPION COUNTRIES

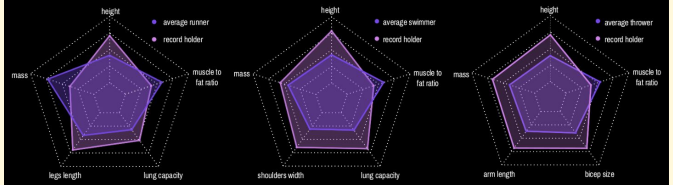
In many athletic sports, the current world records are those set several decades ago. While the United States has 30 records, Kenya and Ethiopia each have 15, the numerator of most countries equals zero. You can see it on the map shown on the side. The query remains. Do the countries with the most record holders lead in athletics through discipline, budget, or perhaps outstanding individuals were born in them?

WOMEN VS MEN

It is rather well known that generally, men outperform women in sports. But every discipline is different - some rely mostly on stamina, others on speed or strength. So, how does women's records compare to men's in different sports? The graph beside shows difference in records beetwen genders in chosen disciplines. It confirms general belief in all of selected areas, exept for shooting and discuss throw. It is worth noting that in the latter discipline woman's disscus weights 1,5kg and men's - 2kg, which makes it hard to truly compare. It may come as a bit of a surprise, that the biggest difference is not in weightlifting, but in javelin throw.



WHAT MAKES THE BEST



It is without a doubt, that when it comes to competing in sports, there are many factors which weigh on our performance and while noone is questioning the importance of things like mental strength or right diet, the phisical factor remains the most important one. We have selected 5 different phisical components, which according to our analysis are keys to better results in 3 disciplines we have chosen. The graphs above show that the record holders tend to have much better phisical atributes than their competitors.

Sources: https://www.topendsports.com, https://www.researchgate.net, https://pl.wikipedia.org
https://www.worldathletics.org, https://worldarchery.sport, https://www.issf-sports.org

Autors: Osmałek, Szczepaniak, Szpetmański

how to
GOAL!

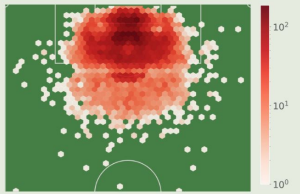
Football is a low-scoring game. Each goal brings forth an explosion of emotions. Let's dive into goal stats for major European leagues.

11% of shots end up as goal

25.3 avg shots per game

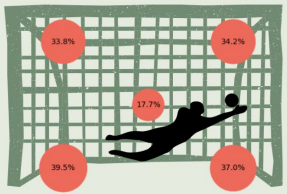
16% of set pieces end up as goal

Shot positions



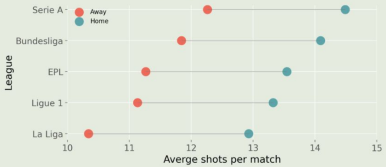
Goals usually come from the center of the pitch. The closer to the goal box, the better!

Goal probability by shot location



Sending the ball toward the bottom corners maximizes the chances of scoring. Aiming at the center of the net may not lead to the desired result.

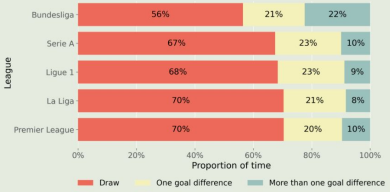
Home vs Away shots per game



Teams across all the analyzed leagues benefit from playing on their home turf. La Liga fans will, on average, see almost three more attempts on goal while playing at home!

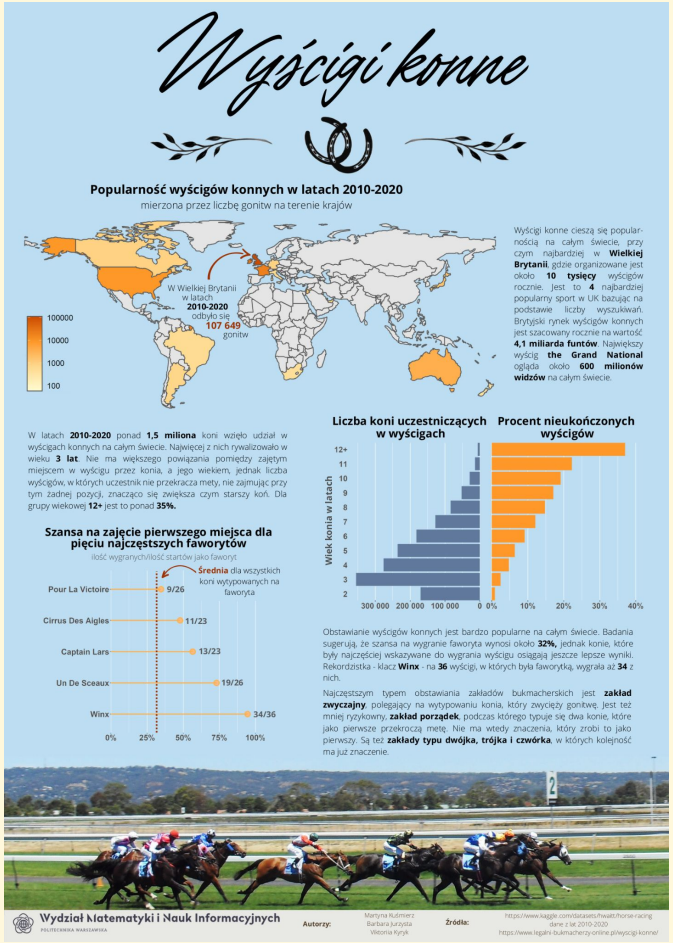
Proportion of time in each game state across different leagues

Premier League has the most balanced matches - the teams go even 70% of the time. In Bundesliga matches, on the other hand, teams go even 56% of the time, with one team having at least two goals lead 22% of the time.



Jeremi Kurdek & Karol Wiewiór
understat.com
kaggle.com/datasets/secareanualin/football-events

https://medium.com/responsibleml/posters-about-sports-enter-the-game-4cd77e659afe



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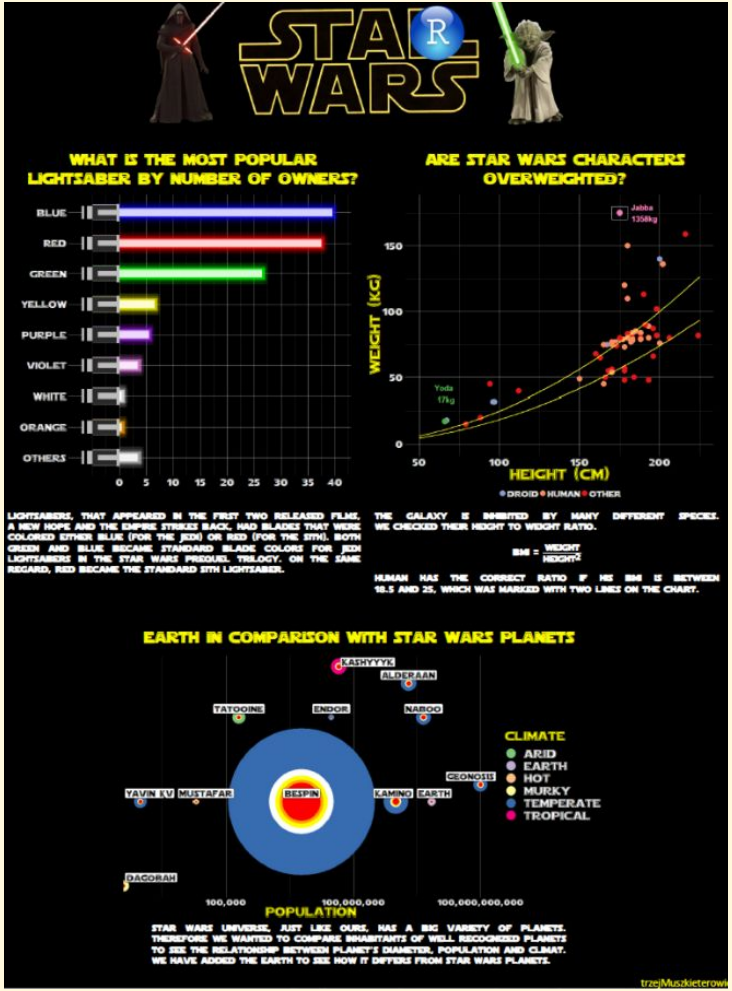
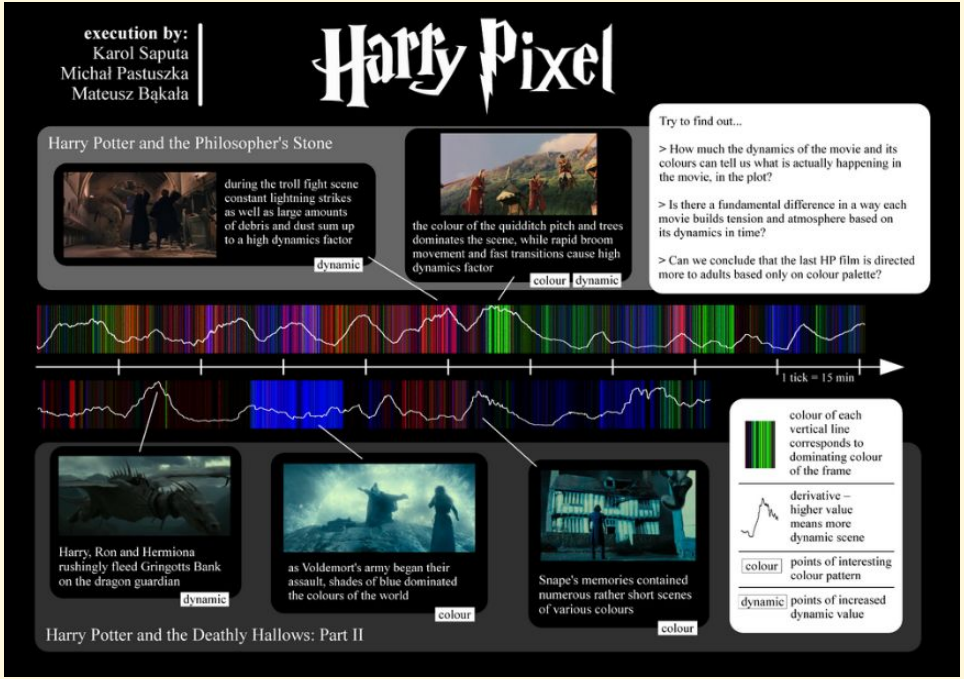
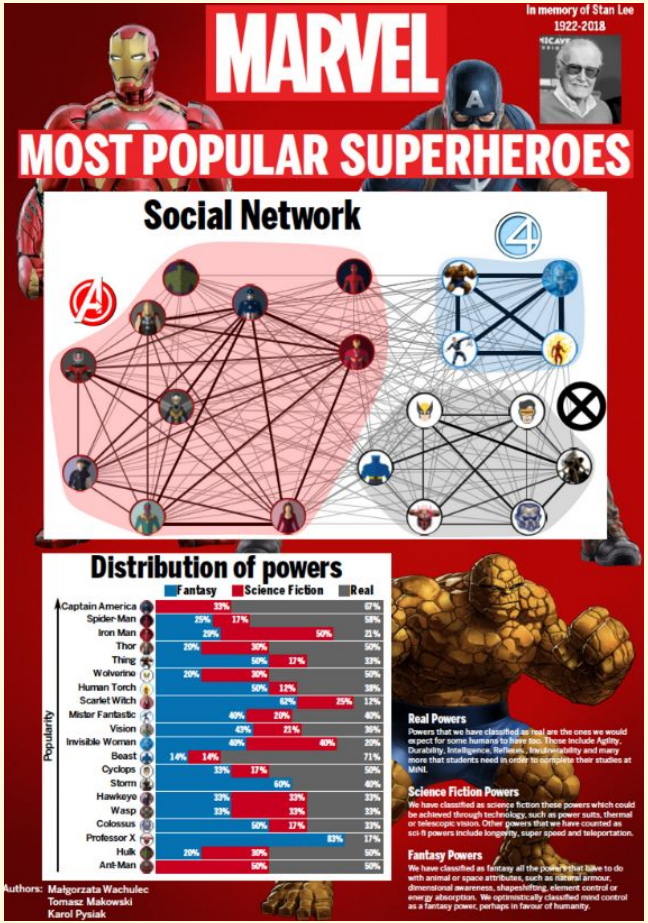
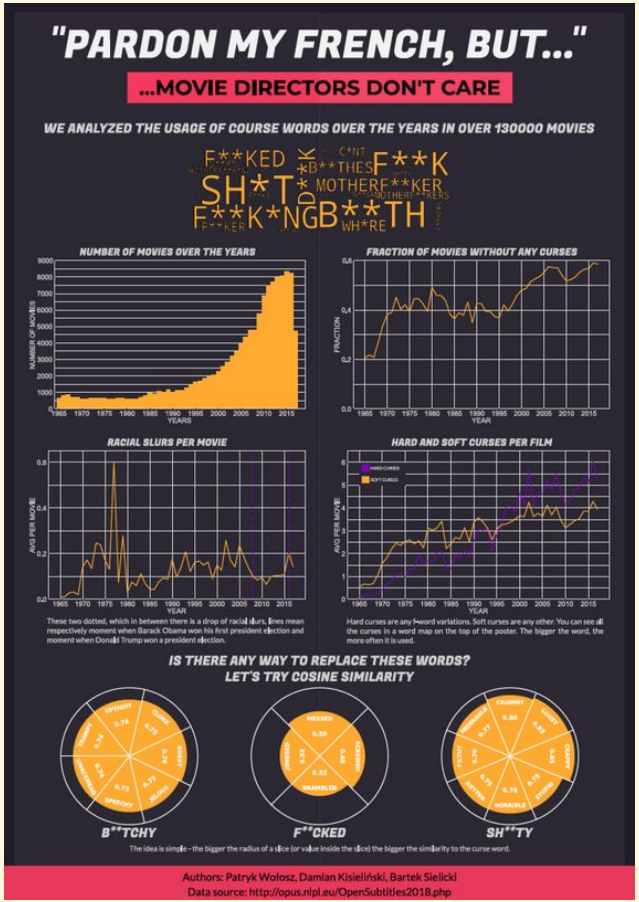




http://smarterpoland.pl/index.php/2018/12/data-movies-and-ggplot2/





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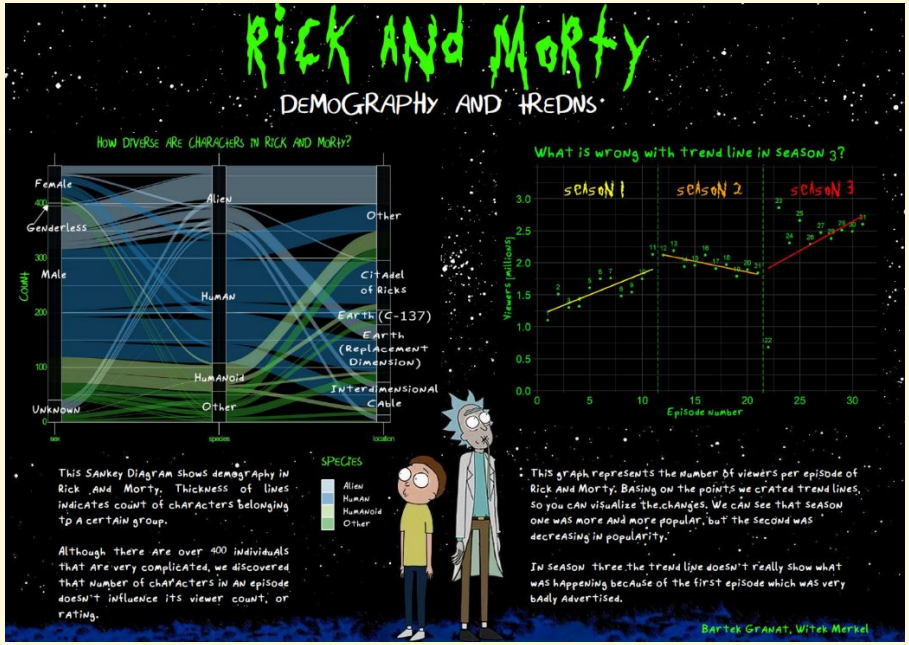

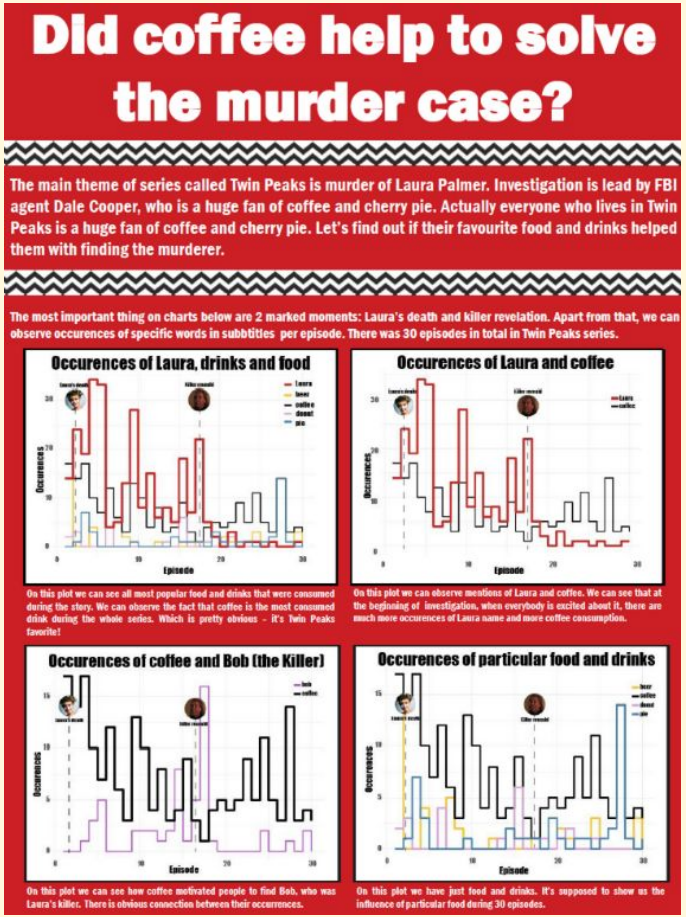

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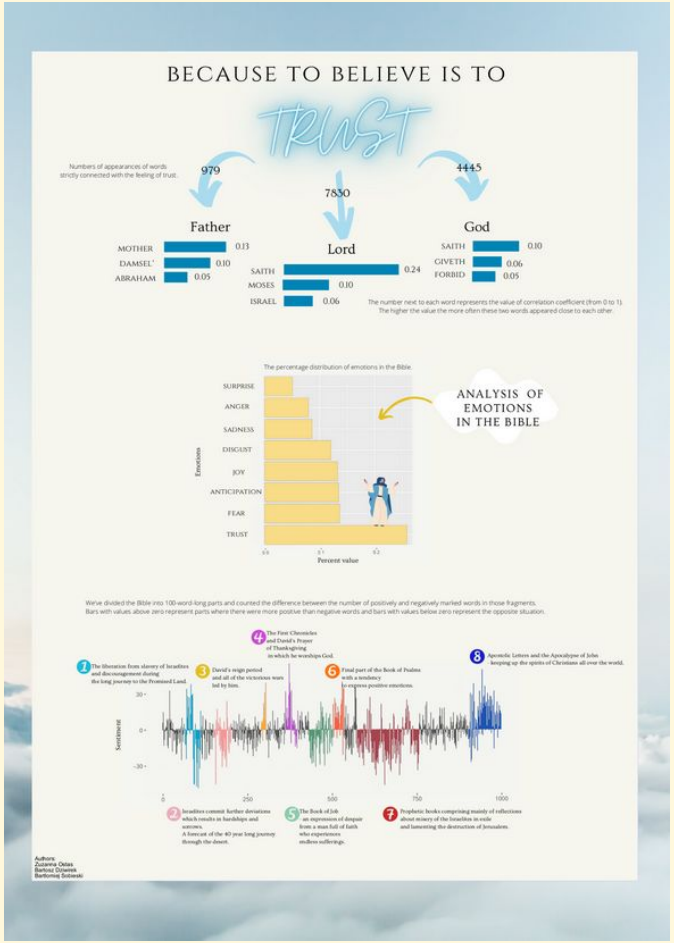
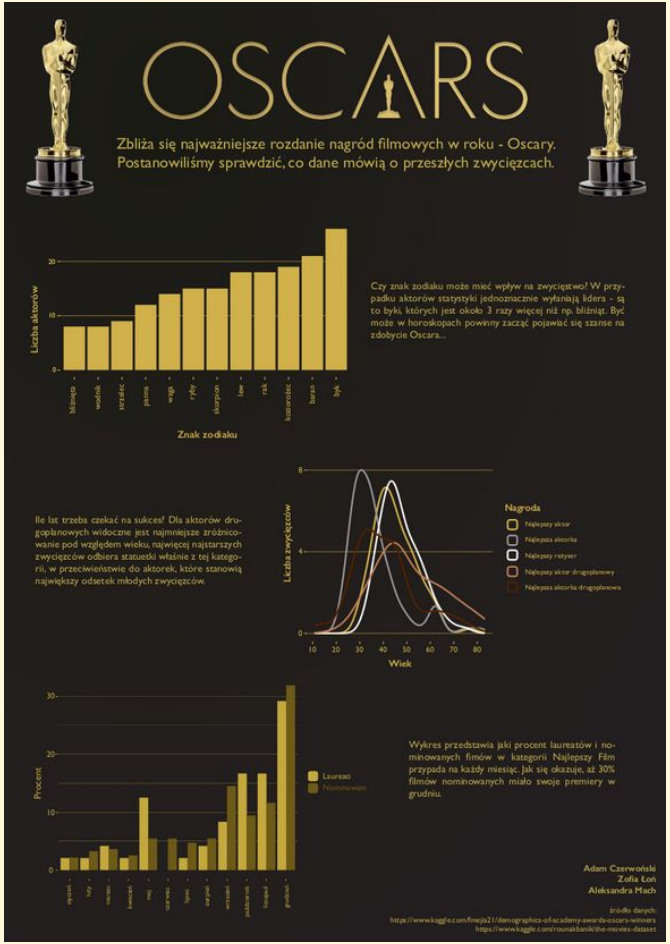
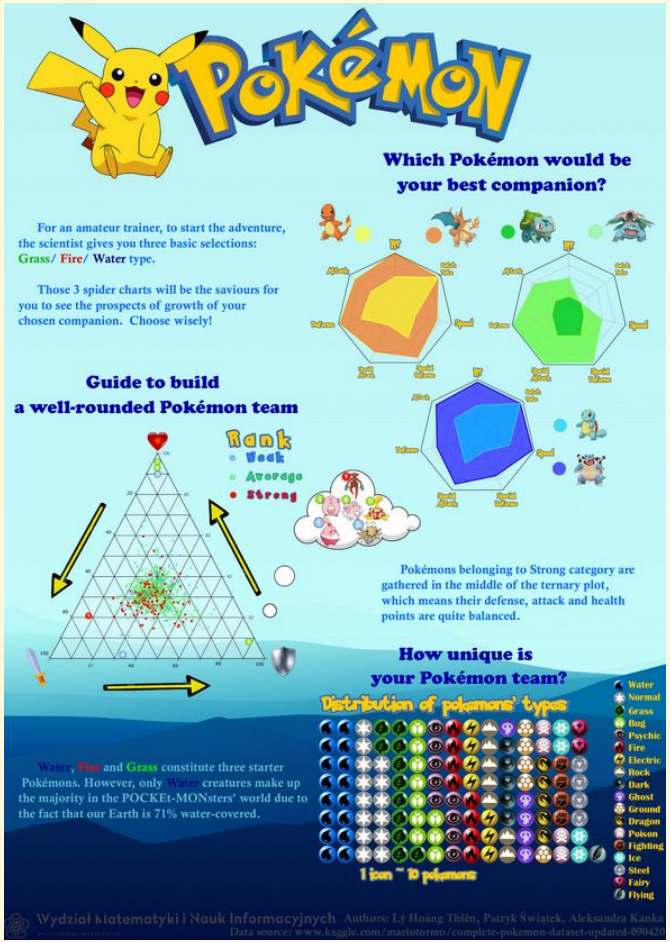
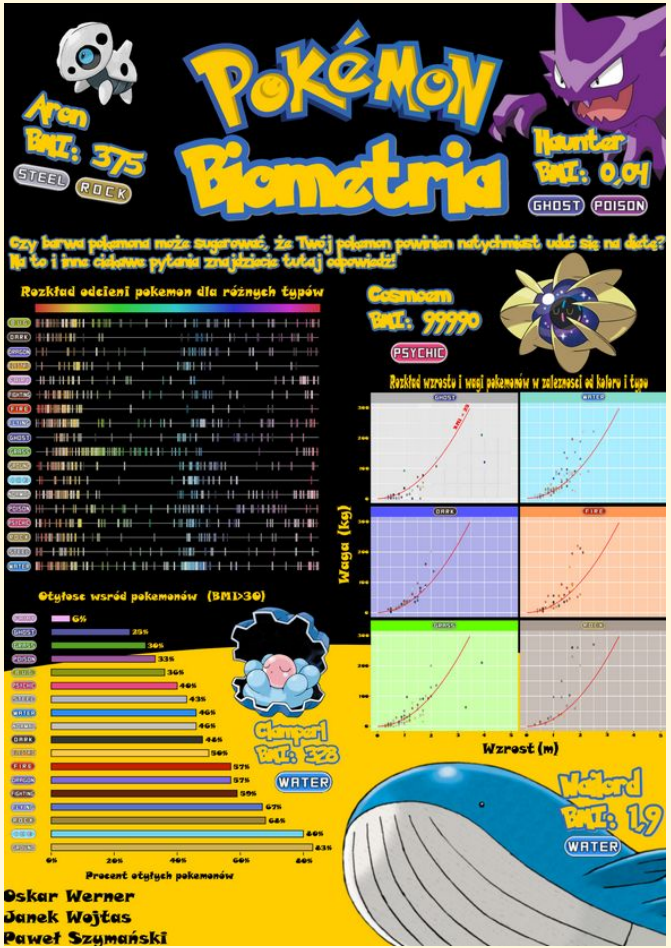




https://medium.com/responsibleml/poster-make-movie-book-series-3ac2c8a01180





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