## For my project, I examined data on temperature change and data on possible factors that drive that change.

**“The Hot Planet”**

**1.**

* As you all probably know, our planet has been heating up over the past decade and is likely to heat up even more.
* The result will likely be devastating for us, the environment and all living organisms on earth.
* We definitely have to do something about that.
* (that’s all I am gonna say about that, I am not gonna start ranting about how no one with the power or money necessary for that is doing anything and how almost every politician in this world is only catering to the wills of themselves or the rich and so on)
* But what I am going to do, what I have done in my project, is to think about likely reasons for that temperature change and examine a few of those reasons in order to see, if there are correlations or causal links between them and the temperature

**2.**

* So, firstly, the reasons I “uncovered” and picked for my analysis are:
  + Agricultural factors like cereal production, meat production and forest land (so land that is covered by forest)
  + Economical factors like Fuel Oil Import and use and trade between countries (so imports and exports of goods)
  + Demographical factors like number of inhabitants

**3.**

* But first, lets have a look at the actual temperature change for the last 30 years in the EU:
  + As you can easily see, it has been rising
  + The annual maximum temperatures have risen by roughly 1.9° Celsius since 1990

**4.**

* But what about the other factors, have they had a similar development?
  + The answer is: yes, most of them have
    - For example inhabitants and Import/Export of goods
    - .. or wheat production
    - fuel use also has been rising the past the decades with the exception of the years 2016-2018, where it declined
  + The only exceptions are barley production and meat production (mainly because what is less produced is now more imported)
  + But overall, the amounts of “factors” (be they tonnes or dollars) have risen as well

**5.**

- but does that really prove, that those factors are responsible for the rising temperatures?

**6.**

* actually not really. All I have shown so far is, that they have all been growing or rising.
* So what I did was, I manufactured new data, to test, if there is a relation between them.
  + For that, I created 2 new datasets, one in which I halved the amount of all my factors and one where I divided them by 10, so on tenth
  + Then I fed my original data into a prediction model (GradientBoostingRegressor) and took this trained model to predict temperature change with my two new data sets.

**7.**

* And this is what happened:
  + The fist graph is the actual temperature change
  + The second is temperature change with half as much amount for my factors
  + And the last is on tenth
* And what happened is, the less consumption or inhabitants there are, the less our temperature is rising,
  + Also there is less variance from year to year, less extremes

**8.**

* so my conclusion is, that this still does not 100% prove, that there is a causal link between temperature change and factors, but there just might be one!

**9.**

* thank you