

## Work Guide

These are some suggested guidelines for the first phase of the project and our first objective – *design a streamlit table with data from our Kaggle dataset*.

For the first graphs here is my suggestion:

- **Streamlite Graph 1** – shows chart graph of the 10 happiest countries, having the option to choose 2018 or 2019)

We could for example, make a select option where the user could select the year (between 2018 and 2019) of the happiest countries. This way we could see if there are any variations.

- **Streamlite Graph 2** – shows chart graph of the 10 unhappiest countries, having the option to choose 2018 or 2019)

We do the same thing, but now for the unhappiest countries

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Information Note: The Kaggle dataset that is presented to us tries to compare Happiness side by side with the following factors:

- Economic Production – `'GDP per capita'`

This represents **the potential for a country to provide a happier life to its citizens**, meaning that higher values are translatable to a country's capacity to do such. We assume that these values, being relative, can be affected by a multitude of factors.

For example, Qatar has if not the biggest value in this variable, meaning that it is the country, in terms of wealth, most capable of funding a healthier life for its citizens. Yet, it does not show up with the ten happiest nations. PS - Why? There can be several reasons, such as the money being generated by its oil exports being kept within the companies/families that control them, or that the state is more worried in opening hotels and other stuff in the desert, instead of investing in better services in its population (such as education, health, Research and development (R&D), and so on)

It is important to understand that despite being called "GDP per capita" (meaning the total production of goods and services by the country being divided by all citizens) it really isn't. It actually measures **the potential that its current GDP has in improving citizens lives/happiness**. We should probably name it something like **"National Wealth Potential for Happiness"** or something like that.

- Social Support – **'Social support'**

Measures overall well-being and happiness of people living in different countries. This can be translated into the quality of social services provided to the citizens (benefits, free education, free healthcare, all that stuff)

- Life Expectancy – **'Healthy life expectancy'**

Pretty much how many years people live – reflects the quality of health services, presence of pollution, for example.

- Freedom – **'Freedom to make life choices'**

Extent to which people in a country feel like they have personal freedom and autonomy

- Generosity – **'Generosity'**

Represents a country's culture of altruism

- Absence of Corruption – **'Perceptions of corruption'**

Basically the countries where there is the least perceived amount of corruption

From these, we could for example, pick two or three (or more) and make some comparisons (still only using Kaggle Data) to see if we spot some sort of correlation

- **Streamlite Graphs 3 and 4 – Compare the 10 happiest countries with the 10 countries in the list with highest “GDP per Capita” in 2019**

In the previous graph we should be able to see them (one after the other) how many of the happiest countries are present within the ten ones with highest values for the “GDP per Capita” values. Lets anchor these comparison in the latest year of 2019 (we might also use other years, but right now lets keep things simple and just use one year)

Note: I have already seen the two tables in Google Colab and noticed that only Norway and Switzerland are the common elements. What this, in practice, means is that these countries have very happy citizens while having the wealth to improve it more.

I can see it as a reasonable conclusion since Norway has considerable quantities of undrilled oil in its territory (they made the political decision of keeping it underground in order to save it for future generations) so its basically wealth that it is sitting idle. Switzerland, on the other hand, has a very strong financial sector – lots of money that might be used to fund the States services of the population if needed.

**PS – Later one, in order to better understand the reasons why happiness and these GDP potential variable aren't correlated we will include economic data from the website to try to find reason – where this potential money might be ending up to (WEBSCRAPING)**

After that, I think we can add to the streamlit the following comparison:

- [Streamlite Graphs 5 and 6 – Compare the 10 happiest countries with the 10 countries in the list with highest “Social Support” in 2019](#)

Social support can be loosely translated into the social services provided to the population. In this case we are talking about matters like access to healthcare (free/state provided versus fully private), access to education (free or public education), sick and maternity leave and so on. Such services being made available to the population can have a strong correlation with their happiness levels and, as such, we should take a look into them.

Note: By observing the tables it is possible to observe a stronger correlation between these variables. 5 of the 10 happiest countries are present in this table and as such it is difficult to ignore the presence of a correlation.

I think we already have a good scope regarding most of the important matters of our Kaggle data for now.

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#### OPTIONAL GRAPH

One thing that came into my mind was “okay, so Social support shows that 5 out of 10 top happiest countries are present in that variable, which definitely shows some correlation. When comparing the top 10 happiest countries with the GDP, only 2 of the showed up. How about the other variables in our Kaggle data?”

I think it would be interesting (also to vary our graphs a little bit) to create this circular graph where you show how many times do the top 10 happiest countries show up in the leaderboard of the remaining columns (“Health Life Expectancy”, “Freedom to make life choices”, “Generosity” and “Perceptions of corruption”). I’ve already visualized it in Google Colabs and here are the results:

- GDP Potential – 2/10
- Social Support – 5/10
- Health Life Expectancy – 2/10
- Freedom to make life choices – 6/10
- Generosity – 1/10
- Perceptions of corruption – 6/10

I did find out some hilarious conclusions that genuinely made me seriously doubt of this dataset integrity (although not enough to discredit it entirely for our project, which is after all to test out technical abilities at the end of the day)

Rwanda, is indicated as the second less corrupted country in the world, after places such as Finland, Sweden and so on. In the Freedoms part the UAE (dubai) somehow scores better in this category than countries like Finland. And the top winner in this matter is Uzbekistan. Okay.

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#### Resume

- **Streamlite Graph 1** – shows chart graph of the 10 happiest countries, having the option to choose 2018 or 2019
- **Streamlite Graph 2** – shows chart graph of the 10 unhappiest countries, having the option to choose 2018 or 2019
- **Streamlite Graphs 3 and 4** – Compare the 10 happiest countries with the 10 countries in the list with highest “GDP per Capita” in 2019
- **Streamlite Graphs 5 and 6** – Compare the 10 happiest countries with the 10 countries in the list with highest “Social Support” in 2019

#### Optional

- **Streamlite Graphs 7** – Circular graph showing how many times the 10 happiest countries show up within the top 10 of all categories in our Kaggle database (GDP Potential, Social Support, Health Life Expectancy, Freedom to make life choices, Generosity, Perceptions of corruption)