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The Story of My visualization: The effects of two main factors (life expectancy and GDP) on world happiness

I went detailed about Two factors that affect world happiness, especially life expectancy, which is one of the most critical factors.

I tried to answer the questions below in my visualization.

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| 1 | As information background, see the happiest countries and what makes them the happiest ones |
| 2 | Everything about life expectancy |
| 3 | How GDP affects life expectancy and happiness? |
| 4 | look at the American's life expectancy changes from 2000-20015 |

Datasets have been downloaded from https://www.kaggle.com/kumarajarshi/life-expectancy-who, https://www.kaggle.com/unsdsn/world-happiness, https://www.kaggle.com/fernandol/countries-of-the-world

I used three different Datasets. The first one is The World Happiness Report, which is a landmark survey of the state of global happiness. The report was published in 2015, which ranks 155 countries by their happiness levels. The second one is related to life expectancy, health factors for 193 countries, which has been collected from the WHO (World Health Organization) data repository website, and its corresponding economic data was collected from the United Nations website. Among all categories of health-related factors, only those critical factors were chosen, which are more effective. Furthermore, the third dataset is the countries of the world report, which has information on population, region, area size, infant mortality, and GDP over 15 years (2000-2015).

The variables that were used in my project has been defined below:

Region: Region the country belongs to.
Happiness Rank: Rank of the country based on the Happiness Score.
Happiness Score: A metric measured in 2015 by asking the sampled people the question: "How would you rate your happiness on a scale of 0 to 10 where ten is the happiest."
Economy (GDP per Capita), Generosity, Freedom, Trust, family, life expectancy in the world happiness report dataset: The extent to which each factor contributes to the calculation of the Happiness Score.
GDP in other datasets: Gross Domestic Product per capita (in USD)
Life expectancy: Life Expectancy in age
Diphtheria: Diphtheria tetanus toxoid and pertussis (DTP3) immunization coverage among 1-year-olds (%)
Hepatitis B: Hepatitis B (HepB) immunization coverage among 1-year-olds (%)
Measles: number of reported cases per 1000 population

Total expenditure: General government expenditure on health as a percentage of total government expenditure.

***Challenges:***

The first challenge was to find the datasets that are related to the same year (2015), and after I found proper datasets, I used inner joint method to join the datasets in Tableau, but after joining the datasets, I found out that some countries have been removed however those countries exist in all dataset. So, after going back to the datasets, I found out that there are slight differences in the name of those countries, so I had to rename the countries name to match them among my datasets. That was the most important challenge that I dealt with.

***Tableau Workbook:***

- **World happiness map:**

I used orange color to show happy countries (Happy colors should be bright, warm) and gray colors for unhappy countries. Rachel suggested me to add a label to countries that say the happiness rank which I prefer not to cause first of all it makes the map so messy and confusing and secondly, I just wanted to give the audience an idea about what regions are happiest and what not

- **Happiest and Least Happiest Countries:**

Rachel asked about what the numbers represent, I already mentioned it in my presentation and also in variables definitions.
Also, I changed the dark red to a light brownish to make the black font more visible (as Rachel suggested), and I kept other colors as they were because I tried to choose the best color for each variable based on my researches.

- **Does Life expectancy effect on happiness?**

The graph is showing how life expectancy is related to happiness score and color-coded by happiness rank. we can see darker blue countries are located on the top right of the graph which means happier countries have a higher life expectancy

- **Status of the country:**

Box plot quickly shows that developed countries have higher life expectancy than developing ones. I reduced the size of circles based on Rachel suggestion because It will reduce the printer ink if I want to print it out and also start the y-axis from 45 to reduce the blank space

- **Life Expectancy factors:**

In this graph, we can see different factors that affect life expectancy over many years, the mistake that I made in this graph was that I color code the graph by sum (life expectancy) instead of average. So, in my new uploaded workbook, I did fix it. Moreover, Rachel suggested using red-green diverging color, which I prefer to keep it as it was. Because its green-red color is not suitable for color blinded people and also the green intensity changes will clearly show the life expectancy changes.

- **Where Does the USA Stand?**

I used highlight action to show the USA place among other countries and also after Rachel's suggestions I changed the x-axis range from 7.5 to 5.3

- **USA Life Expectancy changes:**

I used line graph to show the USA life expectancy changes over time. at first, I plotted all lines in the same chart, but I changed it because the changes over time were not apparent due to the different ranges for each variable and I updated colors to get a better visual understanding