Data Viz Task

Practical Task 1:

1.1 Costa Rica, Belgium, Denmark
1.2 Korea, Japan, Chile
1.3 From some brief research, Costa Rica takes clear, deliberate measures to raise the standards of female education. To the extent that they rank number 1 on the World Economic Forum's Gender Gap Index for women's educational attainment, which actually has created an education gap where women outperform men. Because of this, the effects are that women will go into further education, undergo occupations that are higher skilled and in turn qualify for higher paying roles which will greatly reduce the gender pay gap. Furthermore, national attitudes to childbirth in relation to employment are markedly progressed which is reflected in their low level of fertility rates. Higher education is linked to lower fertility rates, and lower fertility rates results in less time spent out of the workforce due to maternity leave so will likely advance their careers in the long term in a manner more traditional to that of a male's.

Source: https://www.elibrary.imf.org/display/book/9781513516103/ch025.xml

2.1 From the graph we can see a dramatic increase in sales of all three of the measures of Isopropanol. The previous 5 months exhibit a steady state around 50 US cents per lb, even slightly decreasing to around 30-40 US CTS/lb in the months preceding March. Yet in the space of just the month of March 2020 we see that rise up to 125 US CTS/lb. Representing an over 200% increase in sales.

2.2 The most obvious reason for this observation is the COVID-19 outbreak. Even though its first reported case was 2019, it didn't become a global issue until 2020. And in relation to the graph specifically, in the US the first lockdown instilled by the government was March 15, 2020. Based on government advice and regulation, this prompted and panicked people to look after their personal hygiene and one of these products that would have been instantly swept up was hand sanitiser, explaining the increase in sales of Isopropanol.

3.1

Before diving into each continent individually, it's essential to recognize a general relationship between CO_2 emissions per person and GDP per capita across all continents. Generally, as GDP per capita rises, CO_2 emissions per capita increase in a parallel trend. This relationship appears symbiotic, where neither GDP growth nor emissions directly cause the other, but each seems to drive or support the other's growth to some extent.

Africa: Here, at the lower end of both CO_2 emissions and GDP per capita, the relationship between the two is not as evident. While a basic pattern persists—the lower the CO_2 emissions per person, the lower the GDP per capita—the data points show high variance. The relationship becomes somewhat clearer only toward the higher end of the axes.

Americas: Starting at a higher range on both axes, the Americas show a strong, clear pattern where higher GDP per capita corresponds with higher CO_2 emissions. Notably, there appears to be a "cap" on CO_2 emissions per person, with emissions leveling off as GDP per capita increases, indicating potential economic or environmental thresholds.

Asia: Given Asia's massive population size, its data points are large and prominently follow the general trend, though CO_2 emissions per person tend to be higher at lower GDP levels compared to other continents. This may reflect varied industrial activities and energy demands across Asian economies.

Europe: With densely clustered data points near the higher end of both axes, Europe follows the expected trend. Similar to the Americas, there's a slight flattening of CO_2 emissions per person around the 10-ton mark, suggesting a potential stabilization in emissions even as GDP per capita continues to grow.

Oceania: Oceania shows data points spread widely across the axes, covering both low and high ends for both GDP per capita and CO_2 emissions per person. However, it closely aligns with the broader pattern of a positive correlation between economic output and emissions.

Practical Task 2:

1. They are histograms, which represent the frequency of numerical data, which help us to visualize the distribution of the data. It helps to give a summary at a glance of the data clusters on each variable, for example see how the Sale Price is skewed to the left, and take a look at the data points in the scatterplots above it.
2. Smaller
3. After
4. It is a generally positive correlation that the larger the size of living area, the greater the sale price. There are a few outliers the higher up each axis but the general trend applies.