The fourth task is to gain an insight of which countries have the significant increasing trend of suicide rate in contrast with those have the significant decreasing trend between 1985 and 2016. Furthermore, we will look deep into these countries and analysis what is the primary reason or similar features for a significant increasing trend among these countries.

Since there are 101 countries in this dataset, it is important to note that drawing all the trends in the single graph might not truly representative, which come across several problems such as a substantial amount of crossing lines, overly complex structure, increasing the risk of misleading the audience. In order to derive the countries with the similar pattern in terms of suicide rate trend, small multiple offer some valuable features to solve this problem. Small multiple use the same basic chart to display difference slice of a dataset. As a result, the audience can quickly learn from an individual chart and apply this knowledge as they scan the rest of the small charts. This reduce the audience’s effort from understanding what the chart represents. In addition, it enables the comparison across countries and hence reveal the pattern of different trends. It conveys vast amounts of information in a small, well contained visualization

For our case, we decide to draw 12 small charts with respect to the trend of suicide rate, in which will be separated into two clusters. One of the clusters display the 6 steepest increasing trends, while the other display the steepest decreasing trends. The y-axis is suicide per 100k and the x-axis denote year from 1985 to 2016.

In order to identify the significant trend, use R to generate hypothesis testing regarding of the linear relationship between variable years and suicide rate. Those p-values smaller than 0.05 are considered as significant linear trend. Then, the countries with significant trend should be included in the small multiples. R provide advance and decent graph drawing library, use ggplot to generate small multiple with smooth line across the scatter plots. The plot is extremely easy and fast.

done