**Springboard Data Science Career Track Unit 4 Challenge**

In this case study, the data of 32 boroughs within Greater London are examined to find some more desirable areas to live in. A rule of thumb is more desirable areas, more increasing in housing prices so a ratio of the average prices in 1995 divided by average prices in 2018 for all boroughs is calculated. Then, these ratios are compared, and top 5 highest ratios are selected as more desirable areas. The asked questions are answered as followings:

* What did you find? Which borough is the most expensive? Any other interesting trends?

Figure 1 The growth of house prices in all boroughs

Graphical user interface, application, Word

Description automatically generated

As Figure 1 shows the house prices in all districts are increased over the last two decades. However, the highest growth trend belongs to district NORTH EAST that is distinguished among others. In addition, all districts’ trends show the decreasing in house pricing in 2009 that considered as the impact of the recession. However, this condition had intensive effect on the decreasing of house pricing in the district NORTH EAST.

Figure 2 The five most desirable districts base on the calculated ratio of average prices in 1995 divided by average prices in 2018.

Graphical user interface, application, Word

Description automatically generated

Figure 2 shows five districts, NORTH EAST, WEST MIDLANDS, YORKS & THE HUMBERS , NORTH WEST, EAST MILDLANDS are being more desirable than other districts.

* How did you arrive at your conclusion?

At this point, we know all price houses, on average, increased over the last two decades. So, the ratio formula is used to compare price houses growth together. The ratio of average prices in 1995 divided by average prices in 2018 is calculated. Then, a histogram of 10 highest ratios is plotted in descending order. Figure2 visualizes the result.

* What were the main challenges you encountered? How did you overcome them?

The coding part is straightforward with the help of the use case tier 2 but analyzing data and interpreting plots need some knowledge beyond coding skills. In this case study, I relied on my knowledge and searched some information on the internet.

* What could you not overcome?

Visualization helps to draw a lot of valuable information from each data dataset. In this case study, only two plots are drawn that revealed a part of information, but it needs more work.

* Is there anything you’d like to investigate deeper?

The result of this case study is an answer to the question "which boroughs of London have seen the greatest increase in housing prices, on average, over the last two decades". However, having detail information about the buildings and districts helps data scientists to interpret data and modeling it more precisely.