Python Project

## Comparison of European and Intercontinental passenger numbers

To gain insights into answers to the dynamics of the by Covid-19 impacted Dutch air travel patterns, a comparison must be made between passenger number in the pre and post covid years. Additionally, a split has been executed to examine to passenger number differences between intercontinental travellers and travellers who fly to and from destinations within the European continent. Both decisions result in better understanding of changes of air travel patterns, and how covid affected this in terms of passenger volumes.

### Approach and Assumptions

To ensure that the yearly passenger numbers in intercontinental flights can be compared to the European passenger numbers some filtering in the data must be executed. Additionally, airports such as Eindhoven airport and Rotterdam the Hague airport are excluded since these airports only operate European flights and not intercontinental flights. Thus, data from these airports is not applicable to this comparison.

Furthermore, it is decided to focus on only the yearly data instead of monthly or quarterly data. By merely including the yearly passenger numbers during the years of 2016 – 2023 it would ensure that the visualizations yield a clear overview of passenger numbers so that trends in these numbers could easily be extracted. Lastly, it is decided to also include the years that are identified as ‘special cases’ (2020 and 2021) in the analysis. These years are involved to create a comprehensive visualization so that the pre-and post-covid years can easily be compared in terms of passenger decline or growth.

### Results

Hence, two visualization graphs are constructed. Firstly, the histogram displaying the yearly total travel numbers, and travel volumes for European and intercontinental travellers. Also see Figure (1).

A graph of different colored bars

Description automatically generated

Figure Histogram of yearly passenger numbers

Secondly, a line graph (Figure (2)) has been created to underline the shown passengers volumes in the histogram. In addition, the line graph allows for a better comparison between European and intercontinental passenger volumes since the yearly total passenger volumes are excluded. Moreover, the data is visualized in such a way that year-on-year trends are clearly spotted.

A graph with a line graph

Description automatically generated with medium confidence

Figure Line graph of European versus Intercontinental yearly passenger volumes

### Analysis and Conclusions

By observing both visualizations, it can be stated that passenger number started to recover gradually. By 2022, there was a noticeable increase, with European travel rebounding more strongly compared to intercontinental travel. In the year of 2023, the recovery continued, with passenger volumes nearing the pre-pandemic levels but still slightly below the peak values of 2019. Hence, European travel tends to have recovered more robustly compared to intercontinental travel. This could be a results of fewer travel restrictions within Europe and the corresponding shorter travel distances.

Overall, it can be concluded that passenger volumes for both travel types rebounded after the covid travels restrictions. However, the passenger volumes for European flights increases relatively more compared to the intercontinental flights. Still, both yearly passenger numbers have not yet reached to peaks of the pre-covid volumes.