# Assignment 1: Visualisation

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## **Introduction**

Data visualisation is nothing more than a comprehensible graphical representation of the information and data. Visualization entails putting a tonne of data into visual contexts like a line graph or charts so that it is simpler for the human brain to understand and draw conclusions from it.

I create three visualisations using two different datasets: a line plot displaying rail fares grouped by rail ticket type, a bar plot, and a sub-pie plot showing Great Britain Rail's annual revenues. Both data sets are modified in MS Excel and saved in MS OneDrive.

Github: https://github.com/OyeItsTom/Tom_Thomas.git

**Train Fares**

The data table worksheet contains annual data on the average change in rail fares grouped by rail sectors and ticket type on Great Britain's railway network. It covers the average change in fares for mainline operators.

Data Source: https://www.data.gov.uk/dataset/a3e245f1-1e96-45fb-9c58-d6024c265f83/rail-finance

**Rail Passenger Revenue**

The data table worksheet provides annual information on rail passenger revenue production (in million pounds), divided down by ticket type.

Data Source: https://www.data.gov.uk/dataset/fe23a1a4-f279-4180-bd14-87429b28166c/passenger-rail-usage

The following groups comprise the different ticket types for both data:

- Anytime: tickets with complete flexibility that works on most trains and at most hours. Usually, these are more expensive.
- For a given train, advance tickets are single, one-way tickets. Typically, these are less expensive than other ticket kinds.
- Off Peak: less expensive than any time rates, but not available during peak hours.
- Super Off Peak: less expensive than off-peak tickets but with the same limitations
- Seasons: permits unrestricted movement between two areas for a predetermined time.
- The term "other" includes special offers, rover tickets, group tickets, and package tickets.

**Visualisation 1 : LINE PLOT**
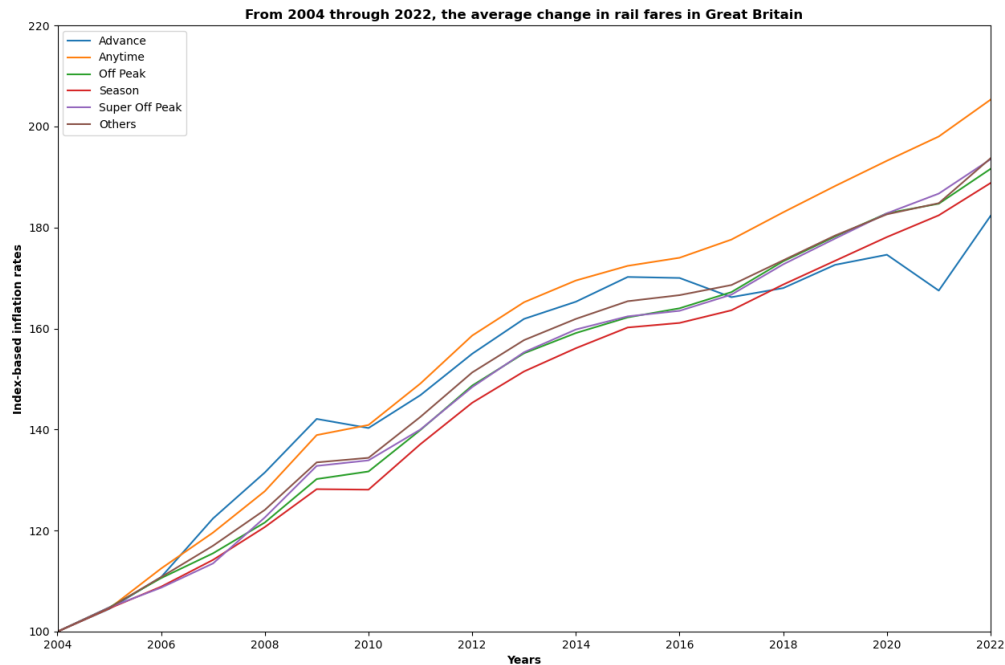


I choose line plots because it is useful for comparing continuous data, so compared the year-over-year inflation change in the price of a rail ticket using a line plot.

The average change in British train fares between 2004 and 2022 is depicted in the line plot above. The average fare change for all ticket categories increased steadily up until 2005. Advance tickets exhibit the largest fare change through 2010 after 2006. The price range for fully flexible tickets, which are good on most trains and at most times, displays the largest fare volatility since 2010. Season ticket prices fluctuated often and had the least amount of pricing variations up until 2018. One-way tickets purchased in advance have experienced the fewest price changes since that time. In conclusion, it is obvious that, regardless of the kind of tickets, rail fare variances continue to rise.

**Visualisation 2 : BAR PLOT**
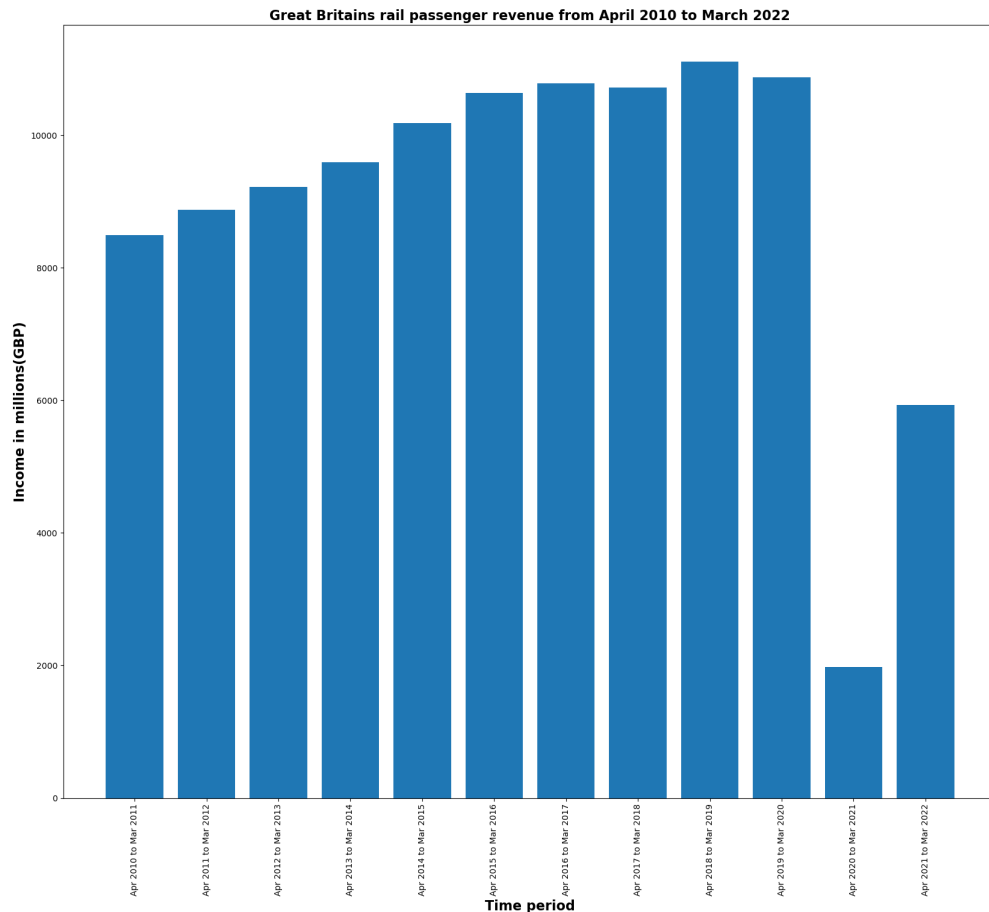


I choose bar graphs to compare the revenue from all trains in operation in Great Britain because it is a useful tool for comparing and visualising category data. Each bar's length or height corresponds to a particular value in the data being plotted.

The above bar plot displays the revenue from all trains in operation in Great Britain from April 2010 to March 2022. The revenue grew from 2010 to 2017. The biggest revenue is seen in 2018-2019, followed by a sharp difference. Travel is unpredictable as a result of the pandemic and the tendency to work from home, which has led to a large drop in income. The revenue is now returning to normal following the corona pandemic. To sum up, the only significant difference is the revenue decline caused by the epidemic.

## Visualisation 3 : PIE PLOT

### Great Britain, 2020–2021, proportion of passenger revenue by ticket type



Total Revenue: £1,934.22 Millions
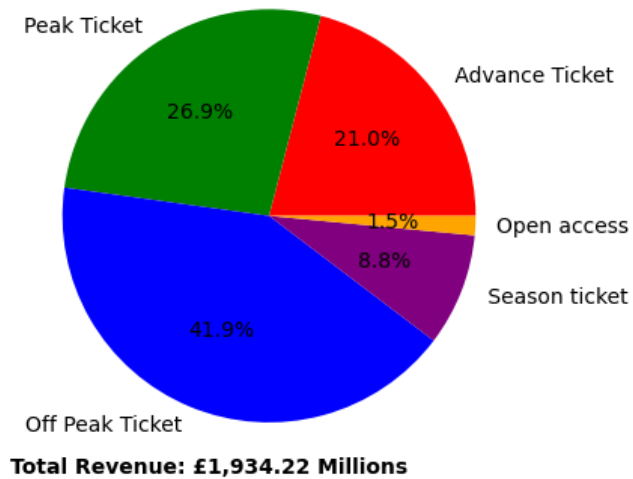
### Great Britain, 2021–2022, proportion of passenger revenue by ticket type



Total Revenue: £5,972.67 Millions
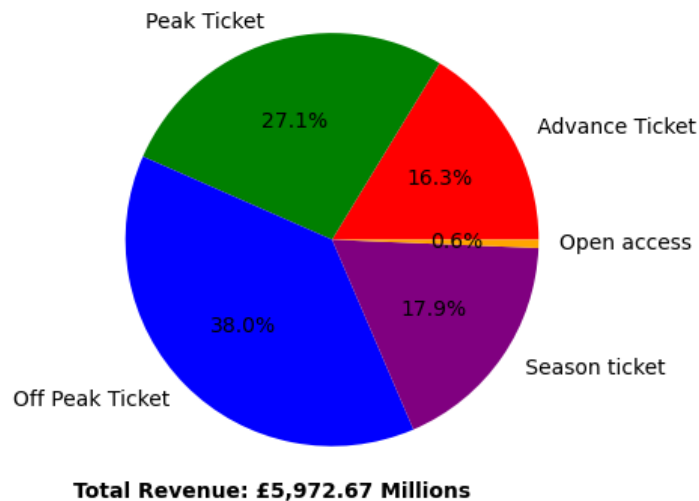
I choose to utilise a sub-pie plot with two pie charts with comprehensive colour tagging and labelling to compare the percentage of income between two years in order to make the comparison easier to understand.

Based on the sub-pie figure above, which shows how the two years' worth of passenger revenue was divided up by ticket type. Off-peak tickets are clearly the major source of rail revenue in each of these years, and the only one that shows a significant variation is season tickets. The lowest passenger revenue comes from open access. Yet, by comparing the total revenue of these two years, we can observe that the corona pandemic has a significant negative impact on the revenue for 2020–2021.