

## Assignment Feedback: Toby Draper

### What you did well:

**Analysis:**

You followed coding best practices throughout your notebook, with great use of functions and Markdown headers for section delimitation. I particularly liked your use of functions to modularise repetitive actions such as data validation as this increases the portability of your codebase. I thought that your Twitter analysis was well-integrated, and evidenced good data wrangling skills. Your visualisations made good use of data annotation, legends and were easy to interpret. Overall - great work!

**Report:**

You begin your report with a strong opening statement which contextualises the importance of addressing the shortfall in GP Appointments and how your analysis seeks to address this. It's clear that you engaged with the case study through your extensive analysis and appendix. Your data cleaning was well documented, and you outline the methodology you used during the analysis. You use visualisations well throughout and your patterns and predictions were logical and linked back to NHS priorities.

**Presentation:**

Your presentation was clearly laid out, with an introduction, contextual exposition and conclusion. Your slides were professionally curated and the quality of your delivery and embedded visualisations inspired confidence. I liked that you justified your findings well in relation to NHS operations throughout. You put forward sensible business recommendations and expanded on the technical improvements which would add value to the NHS.

### Areas for growth:

**Analysis:**

Please make sure to run your notebook end-to-end before submission to ensure that errors are flagged and outputs printed to the terminal for ease of marking. In your log\_data\_validation function, your decision to use `df.duplicated()` resulted in every row of the table being printed to the log file. This meant that you missed duplicate values in the ar file, which would have been flagged if you aggregated the count. I would like to have seen more

written Markdown interpretation of your findings at the end of each section / for key visualisations as this will help other analysts pick-up your work. Remember to relate these back to the NHS business objectives throughout your script. To reach the pinnacle of industry best practice, I would recommend adding docstrings consistently and defining the data types for function inputs (i.e. parameters) and the function output. For example:

```
e.g. def z(col: pd.Series, val: float) -> float:  
      """ Describe what your function does here """
```

This validation reduces the incidence of bugs when other analysts use your functions and docstrings help with editor support via the help() function.

**Report:**

In your technical report, the analytical approach would have been more effective if you reformulated the NHS's business questions into clear analytical objectives which address the business intent. Think about the key metrics you used to answer the assignment questions on utilisation and capacity, and their respective strengths and limitations. Please do take care when using tables for content which outlines the main argument of your report. Tables are best used as supplementary evidence to your report narrative. I know that you wanted to include as much of the extensive analysis you did as possible, but know that the limit exists to test your ability to prioritise your findings in a concise manner.

**Presentation:**

The quality of your visualisations was good throughout, however at points you included too many per slide which made them hard to read. For example, for your Attendance analysis, consider breaking this into two separate slides to give your timeseries more space to increase their interpretability. Your recommendations were sensible, but be specific. How would you ensure that demand is met during Autumn peaks? Which ICBs would you prioritise for increased staffing? Think about how you can integrate quantitative data from your analysis which you can anchor to your recommendations to increase the likelihood that they will be implemented by the NHS.

Toby, this was a high quality submission. It's clear you put a lot of effort into your Analysis and Report, and you left no stone unturned. Focus on making your recommendations more specific. It is more convincing when they follow as a direct consequence of your findings, and including figures or KPIs from your analysis can help you communicate this. Great work here!