

# Assignment7

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For parametric methods, it correctly points out that these types of models make an assumption on the underlying pattern of the data by using a fixed number of parameters, thus allowing for efficiency and interpretability (as you would not be stuck guessing the number of parameters needed to fit the data well, and their parameters are easier to interpret and provide insights into relationships between data). However, it lacks the flexibility in modelling complex relationships, and if the assumptions made about the data are erroneous, or not the best, then the model accuracy suffers.

Meanwhile, non-parametric methods make few assumptions about the data, allowing to model complex patterns without a predefined number of parameters, but they are computationally expensive and may overfit in certain cases. Finally, it may be hard to interpret them due to their data-driven nature.

However, there are certain points that ChatGPT could add, such as:

- Non-Parametric methods require more data to achieve good performance, since they are data-driven by nature, they need to model the data's structure from the data itself. Thus, Non-parametric methods are not the best choice when it comes to smaller datasets.
- Non-Parametric models are not always more robust to outliers, as k-nearest neighbors can be sensitive to outliers as they rely on the proximity of data points.
- ChatGPT could have added that Parametric models, when its assumptions are wrong, then induce high bias.

Overall, ChatGPT captured the essence of parametric vs non-parametric statistical learning approaches, but could have added a few more details about it, and did an error when it comes to robustness in non-parametric models.