

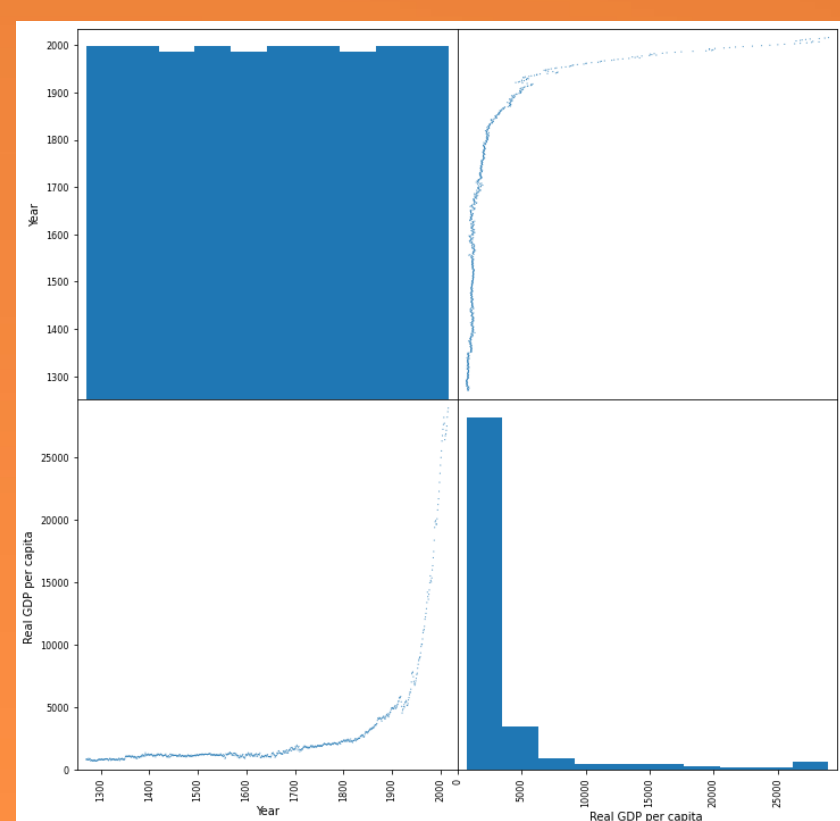
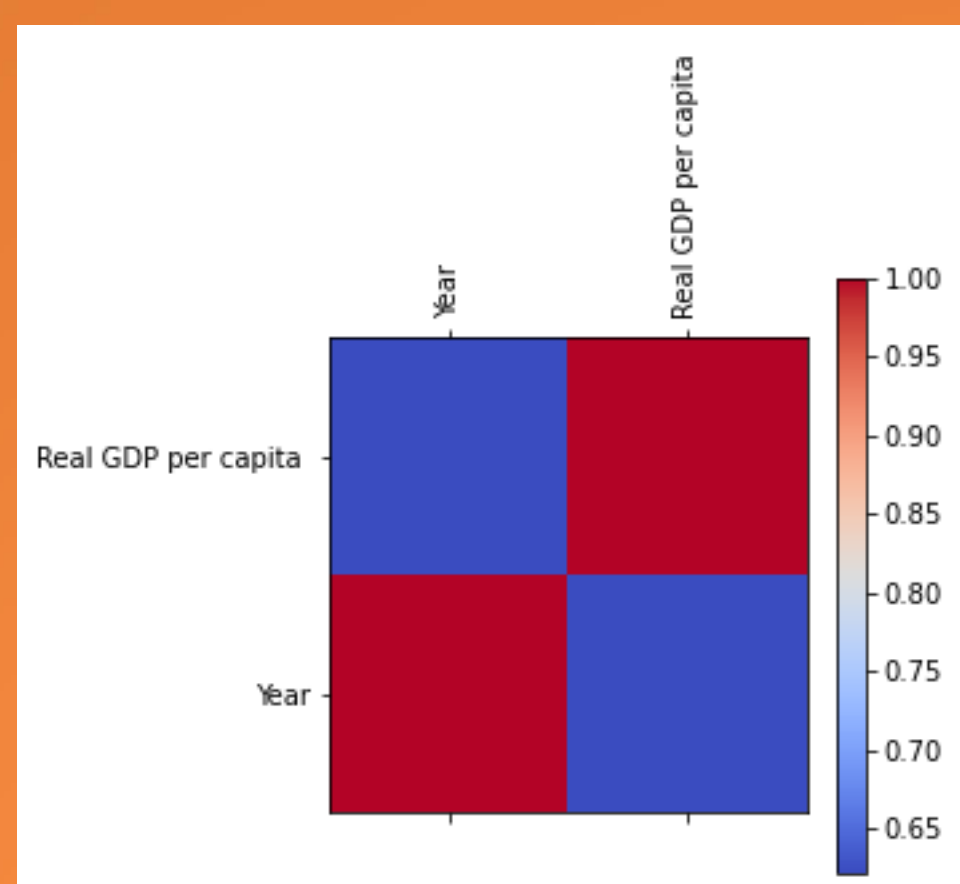
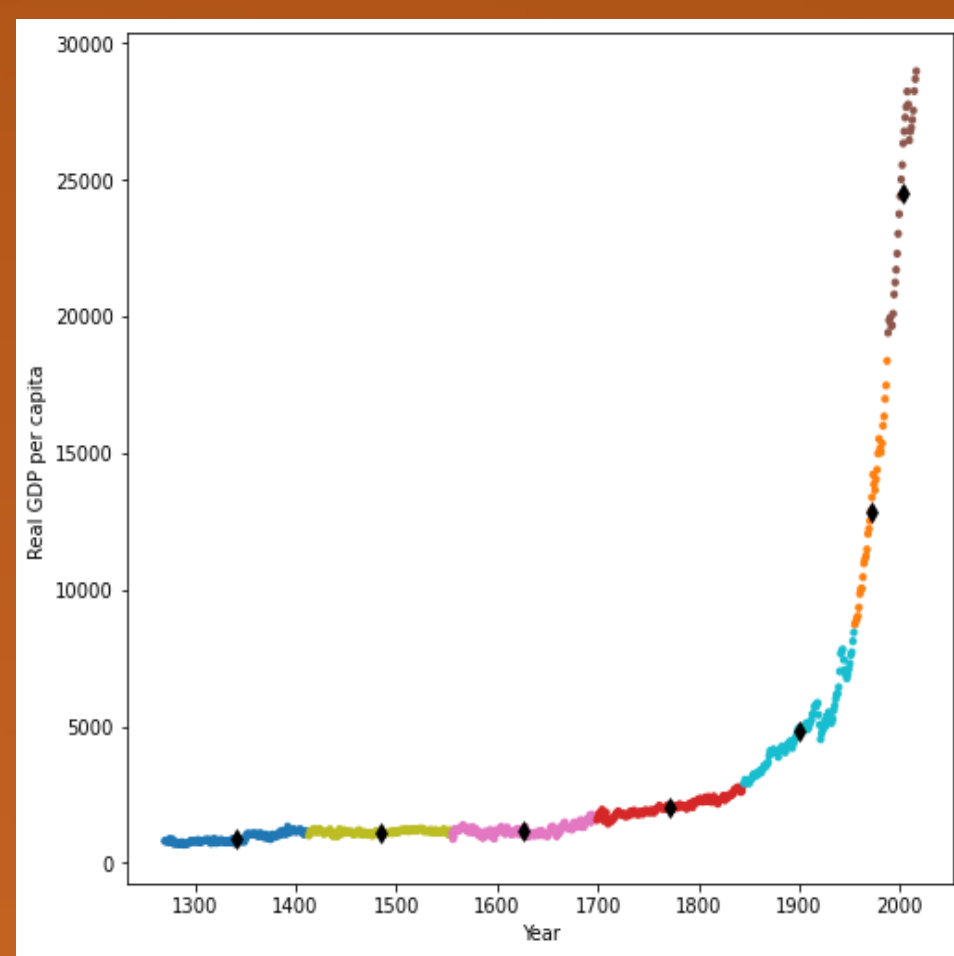
# Analysis of UK GDP per capita from 1270 to 2015: Trends, Patterns and Factors Influencing Economic Growth.

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## ABSTRACT

### About Data

- The dataset "GDP per capita in the UK since 1270" provides information about the Gross Domestic Product (GDP) per capita in the United Kingdom from the year 1270 to 2015. This dataset includes several variables such as the year, GDP per capita in pounds sterling.
- The data has been sourced from various historical and statistical records and has been compiled by economic historians and researchers. It allows to examine the long-term economic growth and development of the United Kingdom and provides insight into the various economic factors that have shaped the country's economy over the centuries.



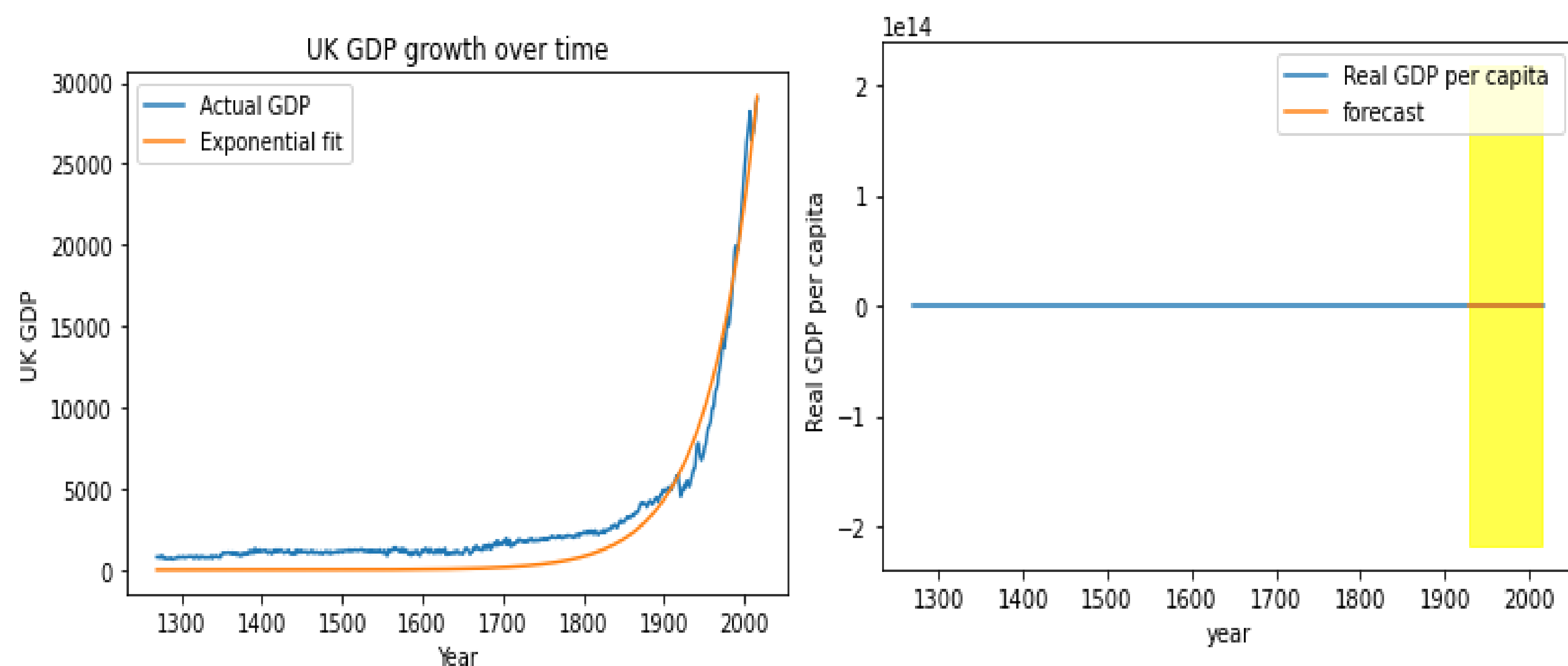
### Clustering

- The code demonstrates how to use the NumPy and Matplotlib and various libraries in Python to perform the curve fitting and visualize the results.
- It loads and pre-processes the data, visualizes the data using scatterplots and correlation matrices, and performs clustering using the KMeans algorithm.

- The number of clusters is determined based on the silhouette score, and the estimated cluster centers are plotted using scatterplots. Finally, the cluster centers are back-scaled to their original values.

### Fitting

- it implements a polynomial curve fitting method to fit a set of data points using the least-squares error function. The error function is defined as the sum of the squared differences between the observed data points and the predicted values from the fitted curve.
- The polynomial degree is chosen using cross-validation to minimize the mean squared error on a validation set. Therefore, resulting fitted curve can be used to interpolate or extrapolate the data.



### References

- GDP-per-capita-in-the-uk-since-1270 dataset from Kaggle website
- <https://www.kaggle.com/datasets/valchovalev/gdppercapitaintheuksince1270>
- <https://github.com/Sanshiya-23/Clustering-and-Fitting-Assignment.git>

### Acknowledgements:

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