

# **APPLIED DATA SCIENCE ASSIGNMENT-1**

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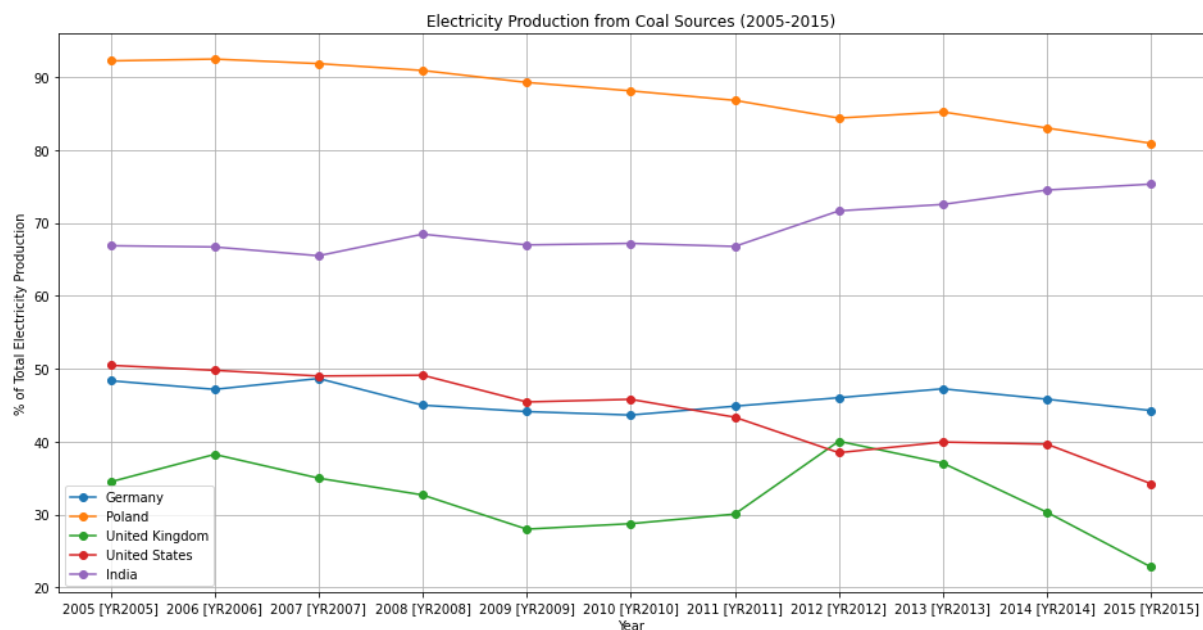
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# Applied Data Science

## Assignment-1

**Data Source and Variables:** The data for this visualisation was obtained from the World Bank's portal. Electricity production from coal is a major component of global energy generation. It involves burning coal to create electricity, but its environmental impact is a concern. Visualisations, such as line charts, bar charts, and pie charts, are vital for understanding and tracking the role of coal in energy production and its transition towards cleaner alternatives.

### VISUALISATION 1:- Electricity production from coal sources(2005-2015)



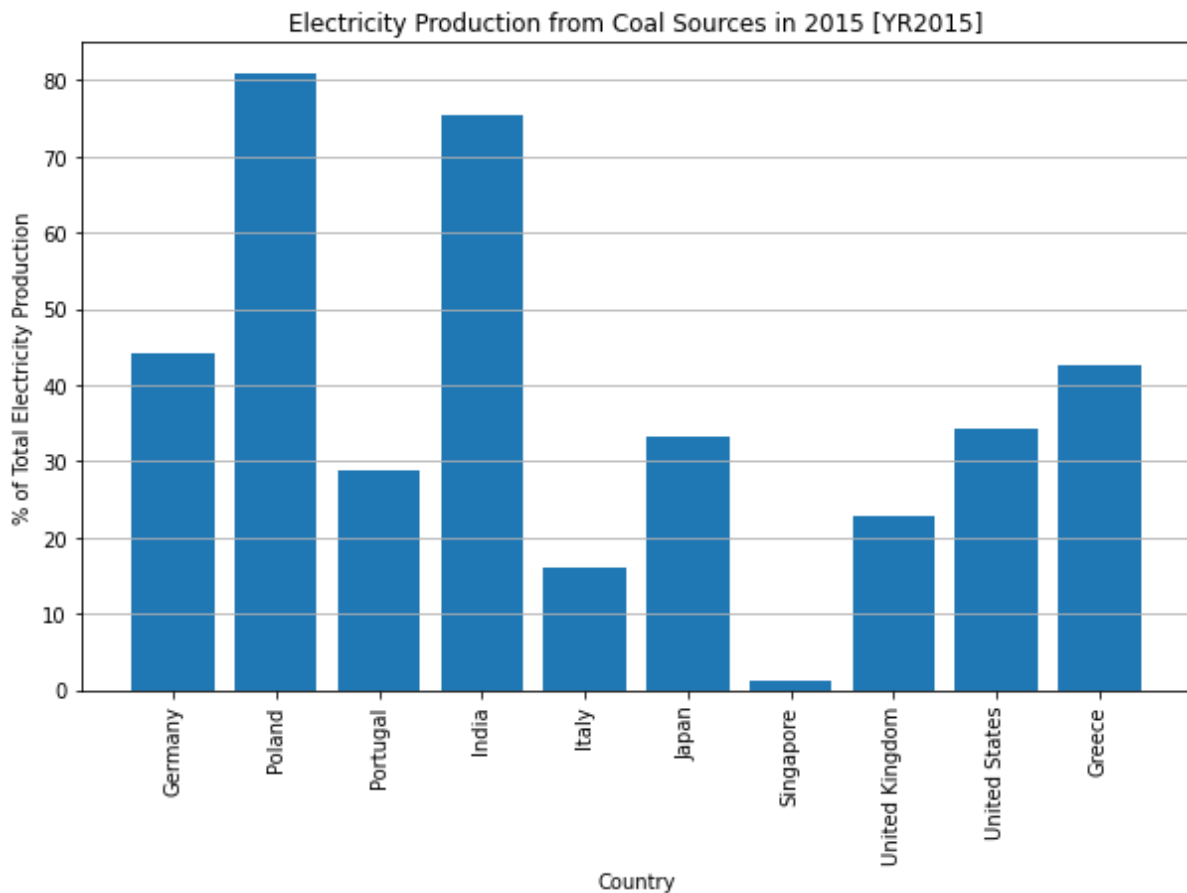
electricity production for coal sources over 2005 to 2015 years of time /n among various countries

A multiple line plot is used to display and compare multiple lines or datasets on a single graph.

The "Multiple Line Chart" function is designed to visualise and compare electricity production from coal sources across multiple countries over the years 2005-2015. The function takes three main parameters: data, a DataFrame containing the relevant data; selected countries, a list of countries to be compared and years, a list of specific years for the time series chart.

It utilises matplotlib to create a large line chart, where each country's production data is plotted as a line with distinct markers. The resulting visualisation offers insights into how different countries' coal-based electricity production evolved over the specified time frame. Key details, such as labels, titles, and gridlines, ensure clarity. The legend provides clear country differentiation. Overall, the function enables effective comparative analysis of coal-based electricity production for selected countries.

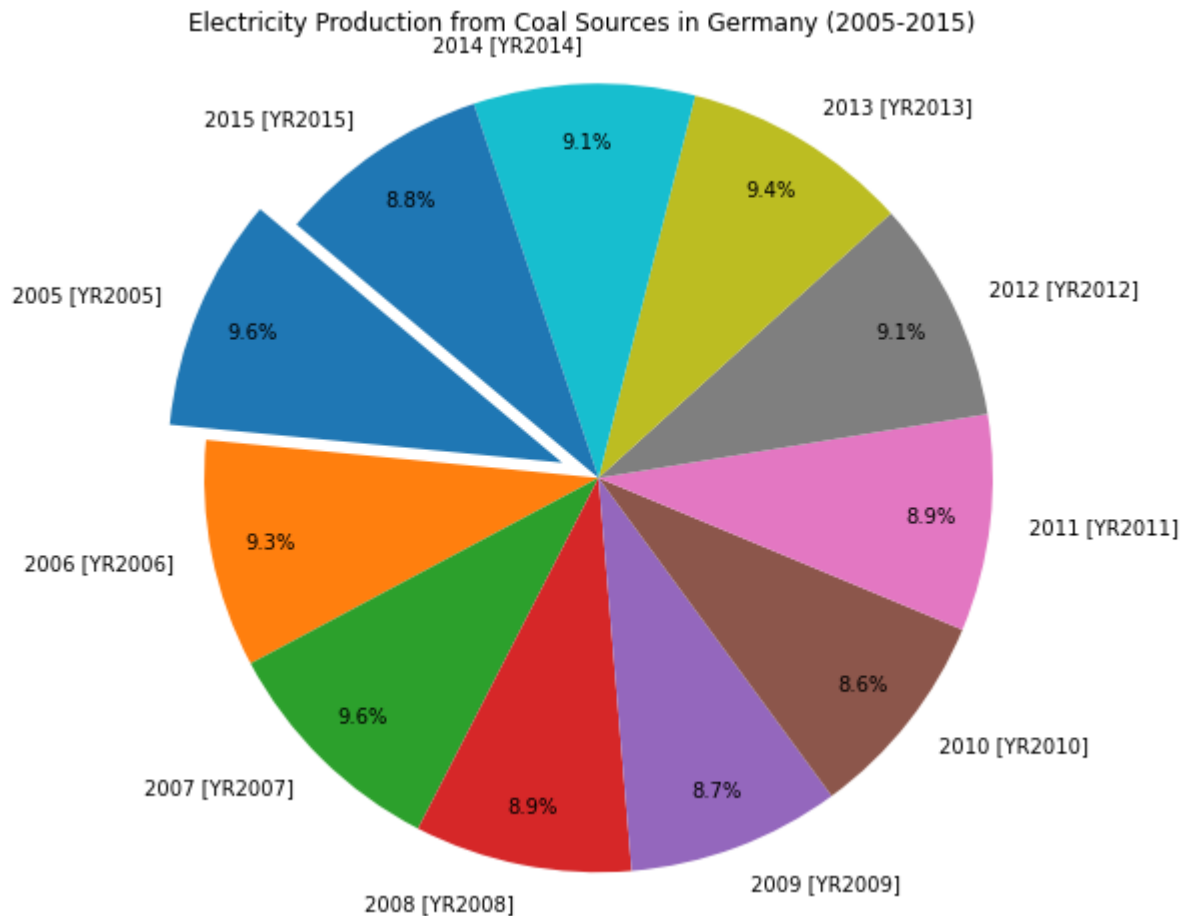
## VISUALISATION 2:-



A bar graph visually represents data using rectangular bars, making it easy to compare values among categories or over time.

The "Bar Chart for a Specific Year" function is designed to create a bar chart that visually represents the percentage of electricity production from coal sources for different countries in a specific year. It begins by filtering the data to exclude countries with missing data for the chosen year. Subsequently, it plots each country as a bar on the x-axis, with the bar's height indicating the percentage of electricity production from coal sources. The countries are sorted from highest to lowest, allowing for a straightforward comparison. The chart's title specifies the year being analysed, and labels on the axes provide clarity. This function is a valuable tool for identifying countries with significant coal-based electricity production and comparing them.

### VISUALISATION 3:



The pie chart visually represents the composition of electricity production from coal sources in a particular country for a specific year, highlighting individual year percentages using an exploded slice.

The "Pie Chart for a Specific Country" function is designed to create pie charts showcasing the composition of electricity production from coal sources over a range of years in a chosen country. This function extracts the data for the specified country, calculates the percentage of production for each year, and constructs a pie chart to visualise the distribution. An "explode" feature can be used to emphasise a specific year. The chart is labelled with percentage information for clarity, providing an overview of the country's coal-based electricity production trends.

**Github-Link:**<https://github.com/RAVIAPTISWETHA/ADS-1-ASSIGNMENT-upload/main>