

Predicting Greenhouse Gas Emissions by Country

UVA Data Science Case Study by Sally Sydnor

Fall 2023

Context/Motivation: In a world grappling with the urgent need for sustainable development, environmental concerns take center stage. Governments, industries, and individuals are increasingly recognizing the impact of greenhouse gas emissions on climate change. As a data scientist, students are tasked with the mission of forecasting and informed decision-making to promote sustainable practices globally.

Scenario: Our World in Data sources greenhouse gas data from countries around the world. This data set can best be used to effectively predict future greenhouse gas emissions, as it includes data from the past two centuries. The motivation behind this study is to empower policymakers, environmentalists, and businesses with accurate insights into emission trends. The hope is to contribute to a global effort in mitigating climate change and promoting a more sustainable future.

Main Objective: To develop a robust predictive model that accurately forecasts greenhouse gas emissions for each country. This model will be a comprehensive tool that allows interested parties to assess the environmental impact of different countries overall, identify key contributors to emissions, and formulate targeted strategies for reduction.

Deliverables: The primary deliverable is a markdown file including a functional predictive model that can forecast greenhouse gas emissions for individual countries. This model should be built on the data provided, as well as any other sources included in this case study or through reputable sources. A GitHub link should be provided including the following:

- Sourced data (provided in the case study)
- Markdown file including:
 - o An effective KNN model or another model of your choosing
- Concluding thoughts

Further details on the above can be found in the rubric attached.