Predicting Future Climate Indicators

Group C : G.A Akila Shashith Ganegoda, M.L.N.Kaushalee, K. G. Inuka Manmitha, R Nilakshan, S.P.A.G.T Rajapaksha

Introduction

Climate change is one of the most pressing issues facing our planet. Understanding and predicting future climate trends is crucial for mitigating its impact. This project proposes utilizing a data-driven approach to forecast climate indicators, specifically surface temperature changes, for specific locations.

About the Dataset

The project will leverage the "Climate Change Indicators" dataset available on Kaggle (Climate Change Indicators). This dataset contains annual surface temperature changes for various countries from 1961 to 2022, along with additional information like ISO codes, area, density, and sub-region.

https://www.kaggle.com/datasets/tarunrm09/climate-change-indicators

Problem Statement

The primary objective of this project is to develop a model that can **predict future surface temperature changes for a given location based on historical data**. This will enable us to:

- Identify areas susceptible to significant temperature increases.
- Inform climate change mitigation and adaptation strategies.

Proposed Solution

This project aims to predict future surface temperature changes using a regression approach.

Mapping the Problem:

- We will treat this as a **regression** task. Our model will learn the relationship between past temperature changes ("Annual Surface Temperature Change") and other relevant features (e.g., location data) to predict future values.
    - Data Preprocessing (Pandas)
    - Model Selection & Exploration (Matplotlib, Scikit-learn)
    - Training & Evaluation (Scikit-learn)
    - Prediction & Visualization (Streamlit dashboard)