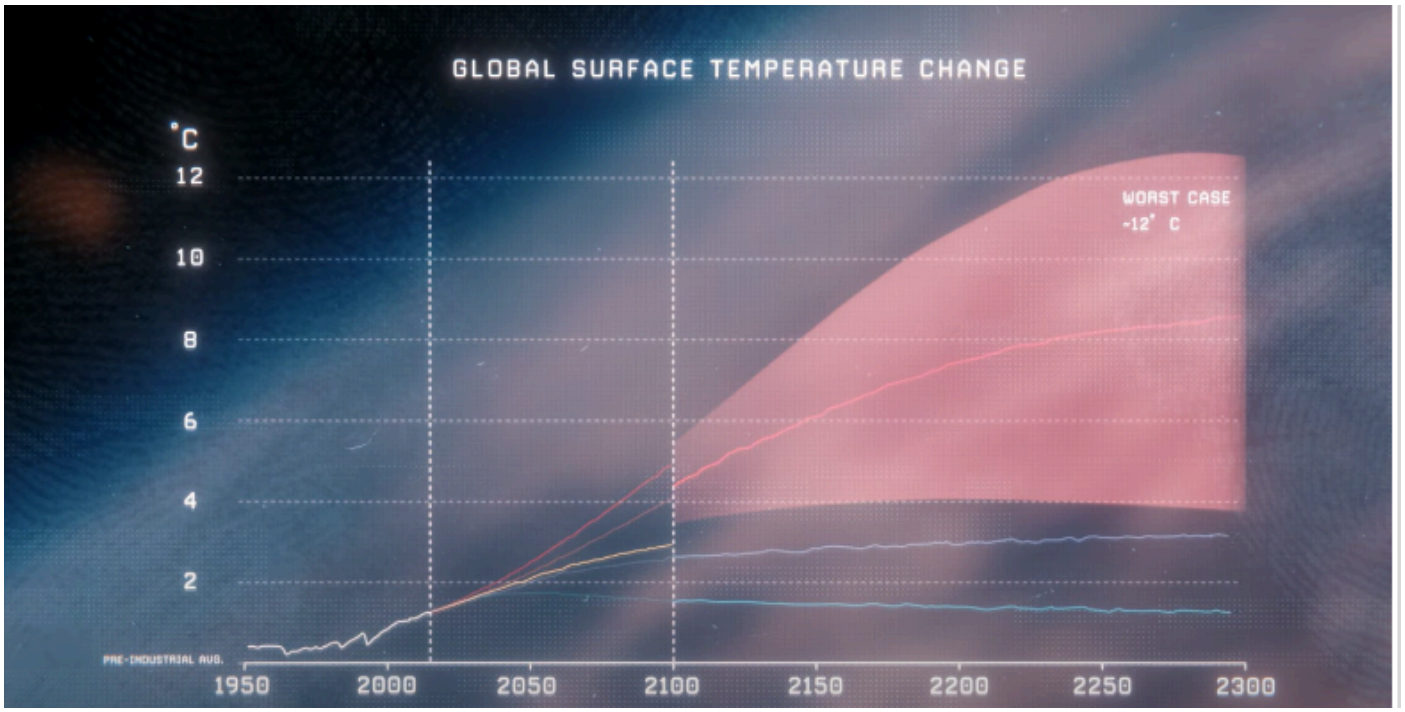
Project Overview

This project aims to develop a machine-learning model to predict the global average temperature based on historical climate data. The project involves two main components: data analysis and backend development using Django.

In the following Graph, you can see the global average temperature change and long-term projection. You have to perform regression prediction with a target column showing a rise in future temperature like in the image below.

Dataset: GlobalTemperature.csv



Data Analysis

The dataset used for this project includes historical climate data containing information about global average temperatures over time. This dataset may consist of multiple tables combined, providing various features related to climate, such as temperature, humidity, precipitation, and more. In the data analysis phase, you will perform Exploratory Data Analysis (EDA) to understand the dataset's structure, identify trends and patterns, and preprocess the data for model training. Additionally, time series analysis techniques, including regression-based analysis, will be applied to predict future temperature trends accurately. The notebook will include all cells and outputs to ensure transparency and reproducibility.

Backend Development

For the backend development, a Django-based web service will be created to train the machine learning model and make temperature predictions. The backend will expose two endpoints:

- `/train`: This endpoint will transform the dataset using CSV files and create a machine-learning model to predict global average temperatures. After training, the model will be saved as a `model.pkl` file for future use.
- `/predict`: This endpoint will accept JSON payloads containing relevant features and return predicted global average temperatures using the trained model.