

Project Proposal for STAT 4185

Title: Analysis of Global Climate Change Trends

Objective Statement:

The purpose of this project is to analyze global climate change trends over the past century. The project aims to identify significant patterns and correlations in temperature changes and extreme weather events globally, providing insights into the ongoing impact of climate change.

Data Collection:

Data will be collected from the NASA's Global Climate Change database.

The database includes historical temperature records, CO2 levels, and instances of extreme weather events. A link to the dataset will be provided in the project repository.

Data Cleaning:

Python's pandas library will be used to clean and preprocess the data.

This will involve handling missing values, normalizing data formats, and filtering relevant information for analysis.

Data Visualization:

Various visualizations will be created using Python's matplotlib and seaborn libraries.

These will include temperature trend lines, heat maps for weather events, and CO2 concentration graphs. Each visualization will have clearly labeled axes and titles to aid in understanding.

Data Modeling and Analysis:

Machine learning models (like linear regression) will be used to predict future climate trends based on historical data. The focus will be on understanding the relationship between CO2 levels and global temperature changes. Model performance will be evaluated and discussed in the context of the objective statement.

Submission and Documentation:

The project will be documented through a series of Jupyter notebooks, detailing each step of the process with accompanying code and explanations. A final write-up summarizing findings and conclusions will be included. The project, including code and data, will be hosted on a GitHub repository, which will be linked in the proposal.

GitHub Repository Link: <https://github.com/theaayushg/STAT4185FinalProject>

This project proposal aims to use data science tools to provide meaningful insights into a globally relevant issue. It will demonstrate the application of data collection, cleaning, visualization, and modeling techniques learned in the course.