**Project Proposal Document**

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IFT 593: Applied Project

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1. **Team Members**

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1. **Project Title :** Climate Change Impact Simulator
2. **Project Description**

The Climate Change Impact Simulator is a project designed to use the extensive "Climate Change: Earth Surface Temperature Data" from Berkeley Earth, integrating it with advanced climate models to simulate the effects of climate change on different regions. The project aims to develop an interactive website where users can visualize the potential impacts of climate change based on historical data and future projections. Leveraging the power of AWS for computational needs and data storage, the simulator seeks to provide a dynamic, user-friendly platform for understanding and analyzing the regional consequences of evolving climate patterns.

1. **Used Datasets, links to sources :** <https://www.kaggle.com/datasets/berkeleyearth/climate-change-earth-surface-temperature-data/data>
2. **Project Tasks**

List of tasks that need to be performed such as data collection, cleaning, visualization, analysis, ML tasks, etc.

1. **Data Collection:**

* Download and gather datasets from specified sources.

1. **Data Cleaning and Preprocessing:**

* Clean the data by handling missing values, removing duplicates, and filtering irrelevant data points.

1. **Data Integration**:

* Integrate the historical climate data with existing climate models.

1. **Data Visualization**:

* Develop visualizations to understand historical trends and project future scenarios.

1. Data Analysis:

* Analyze the data to derive insights on climate trends and patterns.

1. **Model Development:**

* Develop machine learning models to forecast future climate conditions based on historical data.

1. **Website Development:**

* Create an interactive website that allows users to visualize the data and model predictions.

1. **Testing & Quality Assurance:**

* Ensure the robustness of the models and the reliability of the website interface.

1. **Project Timeline**

1.List the timeline for the project tasks.

**Milestone 1: Project Proposal Document**

* Define project goals and objectives.
* Describe datasets and sources.
* Outline methodology and tools (AWS, Pega, Tableau, Power BI).
* Draft preliminary project timeline.
* Discuss potential challenges and solutions.

**Milestone 2: Project Progress Assignment**

* Report on data collection and preprocessing.
* Summarize initial data analysis and insights.
* Update on machine learning model development.
* Present preliminary visualizations/interface designs.
* Update project timeline based on progress.
* Reflect on feedback and adjustments made.

**Milestone 3: Final Project Delivery**

* Finalize data analysis and machine learning models.
* Complete and test web interface.
* Ensure integration of all components.
* Prepare final project documentation.
* Develop user manual/guide for the web interface.
* Conduct final project review and polish.
* Prepare a summary presentation.