Meeting 1 + Project Selection

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IFT 593: Applied Project

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**1. Climate Change Impact Simulator**

Objective: This project aims to develop a tool that simulates the potential impacts of climate change on various regions. The primary goal is to provide a comprehensive view of how different scenarios of climate change could affect different geographical areas.

Data Model: The simulator will integrate climate models, historical weather data, and projections for future scenarios. This robust dataset will allow for accurate predictions and visualizations of climate impact.

Website Development: An interactive website is planned, where users can choose specific regions to view the projected climate changes and their potential impacts. This feature enhances the tool's accessibility and user engagement.

AWS Platform Usage: Amazon Web Services (AWS) will be utilized to handle the computing power required to run the complex climate models and to store the large datasets involved. This will ensure efficiency and scalability.

Relevant Dataset: The project will use datasets like the one available on Kaggle, which provides comprehensive data on Earth's surface temperature changes due to climate change.

<https://www.kaggle.com/datasets/berkeleyearth/climate-change-earth-surface-temperature-data/data>

**2. Renewable Energy Adoption Dashboard**

Objective: The project focuses on creating a dashboard that visualizes the global adoption rates of renewable energy sources, including solar, wind, and hydroelectric power. It aims to highlight the progress and trends in renewable energy utilization.

Data Model: Data collection will involve renewable energy production, usage statistics, and government policies from various countries. This comprehensive data gathering will enable a detailed analysis of global renewable energy adoption.

Website Development: An interactive web application is planned to display data through graphs, charts, and maps, providing a clear view of renewable energy trends worldwide.

AWS Platform Usage: The web application and its database will be hosted on AWS. Services like AWS RDS for database management and AWS Elastic Beanstalk for application deployment might be used to enhance performance and manageability.

Relevant Dataset: Data sources like the Kaggle dataset on renewable energy worldwide from 1965 to 2022 will be pivotal in providing historical and current data for analysis.

<https://www.kaggle.com/datasets/belayethossainds/renewable-energy-world-wide-19652022/data>

**3. Sustainable Agriculture Information System**

Objective: This project intends to provide a platform for farmers and agricultural stakeholders to access information on sustainable farming practices and data. It aims to promote sustainable agriculture through knowledge sharing and resource availability.

Data Model: The system will include data on crucial aspects of sustainable farming such as crop rotation, soil health, water usage, and organic farming techniques.

Website Development: An educational portal is planned, which will house resources, best practices, and interactive tools for planning and implementing sustainable agricultural practices.

AWS Platform Usage: AWS will be employed for storing agricultural datasets, web hosting, and potentially integrating AI for personalized recommendations, enhancing the user experience and resource utility.

Relevant Dataset: The dataset from Kaggle on agricultural data for Rajasthan, India, for the years 2018-2019 will be used as a reference for crop price data and other relevant agricultural information.

<https://www.kaggle.com/datasets/suraj520/agricultural-data-for-rajasthan-india-2018-2019?select=crop_price_data.csv>