**Artificial Intelligence**

**Project Proposal**

**Group Members:**

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**Project idea:**

The project idea is to provide a visual representation of the impact of greenhouse gases on temperatures around the world.

We will be using RCP 8.5 (Representative Concentration Pathway), which provides data records of greenhouse gas emissions in different regions around the world. These greenhouse gas emission data values will be analyzed to observe the changes in temperatures in different world regions, and will be visually represented accordingly, thus making it easier to identify global climate change patterns.

**Implementation Techniques:**

Our project focuses on the machine learning domain of AI. Techniques involving machine learning, primarily unsupervised learning will be used in this project. Unsupervised learning will be implemented through clustering by the technique of self organizing maps.

The data provided will contain information regarding the emission of greenhouse gases in various regions throughout different years. From that data, we will predict the impact on temperature and other climatic changes in these regions. Implementation of AI in our project will be the clustering of data through self organizing maps on the climatic change predictions that we obtained initially.

Self organizing maps are a type of Artificial Neural Network (ANN), which uses dimensionality reduction to represent its distribution as a map. Hence, it forms a map where similar samples are mapped closely together [2]. We will be clustering regions based on similar climatic conditions, and they will be mapped with similar colors. This mapping will then be visualized through a world map, where regions with similar climatic conditions will be colored with a similar color.

**Programming:**

Language: Python

Additional Libraries: Numpy, Matplot, Pandas, Scipy

**Datasets:**

Datasets will be obtained from RCP Database [1]. This RCPs dataset will provide us with the information regarding the emissions and concentrations of greenhouse gases. With this data, we can predict the impact of these gases on climate conditions (temperature, precipitation rates etc) and visualize these impacts on different regions of the world using the technique of self-organizing maps.

**References:**

[1] RCP Database (Version 2.0.4) [online].

Retrieved from:<http://www.iiasa.ac.at/web-apps/tnt/RcpDb> [Accessed 18.10.2019]

[2] "Smart cities, urban sensing, and big data: mining geo-location in social networks", in *Big Data and Smart Service Systems*, Pavia, Italy: Academic Press, 2017, pp. 59-84.