**Team ID : PNT2022TMID38300**

**PRIOR KNOWLEDGE**

**Supervised learning:**

* Forest fires have become one of the most frequently occurring disasters in recent years. The effects of forest fires have a lasting impact on the environment as it lead to deforestation and global warming.
* Its major cause of occurrence. Forest fires are dealt by collecting the satellite images of forest and if there is any emergency caused by the fires then the authorities are notified to mitigate its effects.
* By the time the authorities get to know about it, the fires would have already caused a lot of damage. Data mining and machine learning techniques can provide an efficient prevention approach where data associated with forests can be used for predicting the eventuality of forest fires.
* This paper uses the dataset present in the UCI machine learning repository which consists of physical factors and climatic conditions of the Montesinho park.
* AI based Sensors for fire alarms once Wildfires are detected The AI based sensors can be installed in forest at an equal distance. The distance should be equal to the range of the sensor used.
* The key function of the sensor is to detect the fumes and gases released in case of fire in forest.

**Unsupervised learning:**

1. Importing necessary libraries
2. Exploratory data analysis
3. Data cleaning
4. Model development (RandomForestRegressor)
5. Tuning the model (RandomSearchCV)
6. bz2 module (big bonus)

* The AI based sensors can be installed in forest at an equal distance. The distance should be equal to the range of the sensor used. The key function of the sensor is to detect the fumes and gases released in case of fire in forest. Further, the sensor is provided with a GPS locator, whose main purpose is to send the GPS location to the forest fire fighting units. Once the message is reached by the forest department, the same can be verified with the help of any kind of satellite image or quick manual visit.