**Pre-processing Techniques**

Multiple pre-processing techniques can be used for prediction of solar radiations. Some of them discussed in the comparative analysis are :

* **Imputation :**

It refers to filling up missing values in the dataset. The most commonly used technique for imputation is Interpolation. It is used to increase the size of the dataset keeping in mind the dimensionality, and the variance of the data. This is a very crucial step as ML modelling is only possible on data with same dimensionality

* **Normalization (min-max scaling) :**

In this pre-processing technique, the data points are scaled to unit vectors and the data range is shifted between 0 and 1. It is done to prevent some features with larger variance overshadow the ones with smaller variance during the ML modelling.



* **One-Hot-Encoding :**

One-hot encoding is a common approach for dealing with categorical data in machine learning. Categorical variables must be converted in the pre-processing section since many machine learning models need numeric input variables.

* **Aggregation :**

It is a very important pre-processing technique in ML modelling. The most used types of aggregation are :

* Mean : It gives us a central tendency of the data.
* Median : It gives us the central tendency of sorted data
* Mode : It gives us the category having highest frequency count
* **PCA :**

It is a dimensionality reduction technique used for training conventional ML models. The transformed lower dimensions give an abstract representation of the variance of the data. It is based on the concept of Diagonalization and Eigen Value Decomposition.

* **Wavelet Transform :**

It is a pre-processing technique similar to the Fourier transform (or much more to the windowed Fourier transform), but with a completely different merit function. The major distinction is that the Fourier transform decomposes the signal into sines and cosines, or functions localised in Fourier space; on the other hand, the wavelet transform utilises functions localised in both real and Fourier space.