**Feature Vector in ML**

**What is feature vector in supervised machine learning?**

In supervised machine learning, a feature vector is a numerical representation of an object or data point, which is used as input to a machine learning algorithm. It consists of a set of features or attributes that describe the characteristics of the object being analyzed. These features can be quantitative or categorical and are designed to capture relevant information for the specific task at hand. For example, in a classification problem where you're trying to categorize emails as spam or not spam, a feature vector for each email might include features like the length of the email, the frequency of certain words, and other relevant attributes. These feature vectors are used to train a machine learning model, making it capable of making predictions or classifications based on new, unseen data.

**What is data point?**

A data point, in the context of data and data analysis, is a single unit of data or a single observation. It represents a specific instance or entry in a dataset and is typically composed of values or attributes that describe some characteristic or aspect of the subject being measured or observed. Data points are often used in various data analysis tasks, including statistical analysis, machine learning, and data visualization.

For example, if you have a dataset of student records, each data point could represent an individual student and contain attributes like the student's name, age, test scores, and other relevant information.

In the context of machine learning, a data point is often referred to as an input example, and it's used to train and test machine learning models. Each data point corresponds to a specific input instance, and the goal is to make predictions or classifications based on these data points.