Q1. Write a short guidance note explaining feature selection techniques in machine learning to a hypothetical student struggling with the concept.

The first thing that we must understand is what the word feature in machine learning means. In simple terms, a feature is a parameter based on which our machine-learning model comes up with the final outcome. There can be several features in a dataset on which the model is trained. For example in order to make a model that predicts the price of a car, a feature can be the color of the car, the horsepower of the car, whether it is first-hand or second-hand, etc.

Owing to the fact that you have understood what a feature is, let’s move on to the next term which is feature selection. Feature selection is nothing but a process that chooses the best features from the available original features in order to make our model optimal and highly accurate.

Some of the popular techniques of feature selection in machine learning are:

* Filter methods: Used during the pre-processing step. The features that are selected here are independent of the algorithm that is used to develop our model.
* Wrapper methods: The fundamental idea over here is to train the algorithm by using a subset of features in an iterative manner and it does not consider the final conclusion that is made after the model is trained.
* Embedded methods: The feature selection is a part of learning and has its own built-in features. Takes various combinations into consideration and most importantly is faster.