Write a short guidance note explaining feature selection techniques in Machine learning to a hypothetical student struggling with the concepts?

* Feature selection techniques in machine learning involves the process of selecting the most relevant features from a larger set in order to improve model performance, reduce complexity, and improve interpretability. It varies based on the objectives. In most of the cases we use the following three techniques. Feature selection techniques are used to reduce the number of input variables by eliminating redundant/repeated or irrelevant features. It then reduces the set of features to those most important to the machine learning model.
* Feature selection techniques can be divided as supervised and unsupervised. Supervised methods may be divided into three types: wrapper methods (forward, backward, and stepwise selection), filter methods (ANOVA, Pearson correlation, variance thresholding and embedded methods (Lasso, Ridge, Decision Tree).
* Filter Methods: It determines feature relevance using statistical measures or correlation with the target variable. Pearson's correlation coefficient and variance thresholding are two examples. Filter methods are generally used as preprocessing steps, and their selection is independent of any machine learning algorithm. Features are selected based on scores in various statistical tests to determine their correlation with the outcome variable which might be subjective.
* Wrapper Methods: In this method, it test different subsets of a model and use performance as a criterion to evaluate feature quality. Examples include recursive feature elimination and genetic algorithms. Wrapper methods are used to train a model using a subset of features. We decide whether to include or exclude certain features from the subgroup.
* Embedded Methods: It involves using techniques like LASSO, ridge regression, and decision trees. Embedded methods combine the best features of filtering and wrapping by implementing algorithms with built-in methods for selecting features.