In supervised learning, you know what the target variable is and you try to build a model with a minimum error rate for that target variable, in this case, the target variable could be qualitative or quantitative, whereas in unsupervised learning you are not aware of what the outcome is going to be. So in the case of building the model of customer attrition supervised learning would be a good technique to build the model, reason been here we know what outcome has to be, which would be either classifier/qualitative whether a customer will churn or quantitative one about the probability of the customer churn.

Supervised learning has both input data and output that needs to be identified whereas in case of unsupervised you just provide the input and let the algorithms decide what the output would be. In the case of unsupervised technique, there is no right or wrong answer and there are no instructions provided, various algorithms decide on their own what the outcome is going to be. Supervised learning is not that flexible, so it does not capture complex relationships.

Supervised learning can be further categorized into

Classification – This is a quantitative predictor, in the case of the customer attrition model, the classifier could be Yes/No.

Regression – This predicts real quantitative value in amount ($), percentages (%), in the case of the customer attrition model it could be percentage or custom loyalty score associated with the parent organization.

Unsupervised learning can be further categorized into

Clustering – This is usually used for categorizing data into clusters with common traits. It is useful in finding the structure or pattern in an uncategorized dataset.

Association – This is used for identifying relationships between variables in a large dataset, e.g. amazon recommendation, people who buy this tend to buy this. Unsupervised learning helps in finding all kinds of unknown relationships between the dataset.

So, considering all the factors above, the Supervised technique is the optimal method to build the model for customer churn. The classification technique would be the best approach to build this model. So, in this process of the building model, gather all the customer data this includes behavioral data based on their interactions at the point of sale e.g. website, transactional dataset e.g. monthly payment patterns, demographics data. Post data gathering perform feature engineering and data cleaning, after that that use this dataset in combination with all possible supervised learning algorithms to identify the one which is of lowest error rate. This model can be used to predict customer churn and train continuously with newly available data.

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