**Different ways to change the categorical data to numerical data:**

1. Label encoding: This involves assigning a unique numerical value to each category in a categorical variable. For example, if we have a variable called "Color" with categories "Red", "Green", and "Blue", we could assign the values 0, 1, and 2 to each category, respectively.
2. One-Hot Encoding: his involves creating a new binary column for each category in a categorical variable. The value 1 is assigned to the column for the category that applies to each observation, while the other columns are assigned a value of 0. For example, if we have a variable called "Color" with categories "Red", "Green", and "Blue", we could create three new binary columns called "Color\_Red", "Color\_Green", and "Color\_Blue", with the values (1, 0, 0), (0, 1, 0), and (0, 0, 1), respectively.
3. Dummy Encoding: This is a variation of one-hot encoding that involves creating k-1 new columns for a categorical variable with k categories. For example, if we have a variable called "Color" with categories "Red", "Green", and "Blue", we could create two new binary columns called "Color\_Green" and "Color\_Blue", and leave out "Color\_Red". This reduces the risk of multicollinearity (i.e., when two or more predictors are highly correlated) in regression models.
4. Frequency Encoding: This involves assigning a numerical value to each category in a categorical variable based on its frequency in the dataset. For example, if "Red" appears 10 times, "Green" appears 20 times, and "Blue" appears 30 times, we could assign the values 0.2, 0.4, and 0.6 to each category, respectively.
5. Target Encoding: This involves assigning a numerical value to each category in a categorical variable based on the mean value of the target variable for each category. For example, if "Red" has a mean target value of 10, "Green" has a mean target value of 20, and "Blue" has a mean target value of 30, we could assign the values 10, 20, and 30 to each category, respectively. This method can be useful in predicting the target variable in regression models.