Binary Classification:

In this our dependent variable (y) is a discrete variable where it takes two values i.e. $y \in \{0,1\}$ where 0 represents negative class and 1 represents a positive class.

Examples:

Email : Spam or not ?

Online Transactions : Fraud or not ?

Tumor : malignant or Benign ?

Threshold classifier output : We use linear regression and map all predictions greater than 0.5 as a 1 and all less than 0.5 as a 0. However, this method doesn't work well because classification is not actually a linear function.

What if we use linear reg for classification problem ?

If we use linear regression model then out predicted output might be <0 or sometimes it might be >1, both the cases are not suitable for classification problem.

We can use classification algorithms such as **logistic Regression** for the binary classification.