

Question 1

How is Soft Margin Classifier different from Maximum Margin Classifier?

Answer: The Maximum margin classifier is a type of a hypothetical classifier that shows how SVM works. N- dimension space is formed with n input variables which is split by a hyperplane. The Soft margin classifier relaxes the constraint of maximizing the margin as in reality, not always the input variables can be split by a hyperplane. Hence new coefficients are introduced for the margin to take some space.

Question 2

What does the slack variable Epsilon (ϵ) represent?

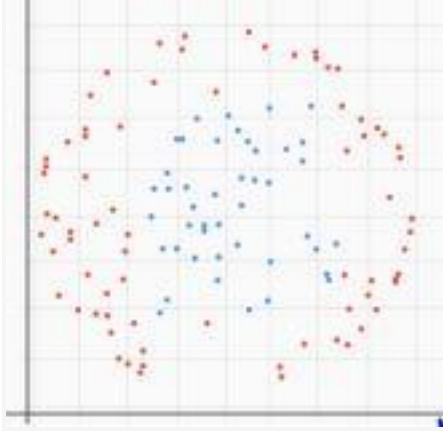
Answer: The coefficients introduced in soft margin classifier for some room to move are called Slack variables. If epsilon is large, then there is a room for many errors.

Question 3

How do you measure the cost function in SVM? What does the value of C signify?

Answer: The sum of all the epsilons is denoted by cost or 'C'. When C is large, large number of data points are allowed to violate the margin. When C is small, the individual slack variables are forced to be small, hence the model is less flexible with high variance.

Question 4



Given the above dataset where red and blue points represent the two classes, how will you use SVM to classify the data?

Answer: We can convert this into a space that is separable linearly by transforming into new feature space (X' , Y').

Question 5

What do you mean by feature transformation?

Answer: The process of converting original variables to a new feature space is called feature transformation. We convert non-linear data into linear space.