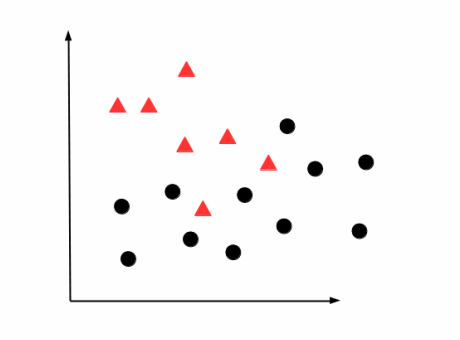
From January 2017

Are the two classes depicted below linearly separable in two dimensions? Explain why.



A Multi-Layer Perceptron is trained to classify points belonging to 3 classes. You are given a test set, and asked to describe the accuracy of the MLP on the data. How would you best describe the performance of the classifier? Choose one among: precision/recall, sensitivity/specificity, Matthews correlation coefficient, confusion matrix. Explain your choice.

From January 2018

Describe the difference between generative and discriminative classification methods.

Given the dataset: {<1,1,0>, <3,3,0>, <3,1,1>, <1,3,1>}, where the last element of each point is the class, classify the point <0,0> using the algorithm *nearest neighbour.* Justify your answer.

From question sheet

Consider the function $f(x, y, z) = x^2 + yz + yz^2$ and the current solution $x_t = \langle 1, 1, -1 \rangle$
compute one step of gradient descent with learning rate $\eta = 0.1$.

Construct a perceptron able to separate the points <1,1,0>, <1, -1, 1>, and <-1, 1, 1> where the last element is the class.