

Lec3:Ex1

Think about some possible binary classification, multi-class classification and regression tasks. What hypothesis spaces can be considered?

Ans:

Binary Classification: Binary classification tasks involve one class that is the normal state and another class that is the abnormal state. As example “*no spam*” is the normal state and “*spam*” is the abnormal state. Another example is “*cancer not detected*” is the normal state of a task that involves a medical test and “*cancer detected*” is the abnormal state. The class for the normal state is assigned the class label 0 and the class with the abnormal state is assigned the class label 1.

Some possible hypothesis space for the Binary Classification:

1. To find out an email is spam or no spam in Gmail. For that we can use decision tree, SVM (Support Vector Machine), logistic regression.
2. Conversion Prediction whether to buy or not. For that we can use decision tree, logistic regression.

Multi Class Classification: Multi class classification is the basically classifying the element into different classes, it can allow many numbers of classes. Like foe analysing people we can use different classes, “Happy”, “Sad” or “positive”, “Negative”.

Some Possible hypothesis space for the Multi Class Classification:

1. Plant Species Classification, we can use convolutional neural network (CNNs) & deep neural networks (DNNs) as hypothesis space.
2. Face classification, we can also use convolutional neural network (CNNs) and deep neural network (DNNs) as hypothesis space.

Regression: Regression predicts the random continuous values like Car Price based on the age of the car.

Some Possible hypothesis space for the Multi Class Classification:

1. Predicting the car price based on the usage of the car (age of the car), For that we can use Decision tree, Linear regression and polynomial regression as hypothesis space.
2. Predicting the price of the house based on the area (square meter), number of rooms and the location of the house. As hypothesis space we can use decision tree, polynomial regression and linear regression.

