Bean

Machine Learning(机器学习)

I start the course Machine Learning on courser on the day 27th Sep, I will keep on doing what I am interested in.

Machine Learning

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# Chapter 1: The first algorithm: Liner regression

Definition of Machine Learning:

1、The field of study that gives computers the ability to learn without being explicitly programmed

2、A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P if its performance at tasks in T, as measured by P, improves with experience E.

The classification of Machine Learning:

1. Supervise Learning

Supervised learning is the machine learning task of inferring a function from labeled training data. The training data consist of a set of a set of training example. In supervise learning, each example is a pair consisting of an input object and a desired output value.

Supervise learning has 2 categories:

① In classification, the target variable is categorical

② In regression, the target variable is continuous

举个例子，把机器学习应用到股票分析上，给定一个上市公司以往的各种数据，预测该公司的未来的股价。如果是想要预测公司股价未来具体的价格，这就是一个回归问题，如果想要预测该公司在未来是涨是跌，这就是一个分类问题。

1. Unsupervised learning

Unsupervised learning is the machine learning task of inferring a function to describe hidden structure from unlabeled data. Since the examples given to the learner are unlabeled, there is no error or reward signal to evaluate a potential solution.

给定的数据集只有特定的输入，没有期望的输出。非监督学习的任务就是要去发现这些数据集之间隐藏的结构关系。

Gradient descent algorithm：

Repeat until convergence {

=-

(for j=0 and j=1)

}

Liner Regression Model:

Hypothesis:=+

J: J() =