参数调节

超参数: 是在开始机器学习过程ㄏ前需要设置的参数

模型参数: 是通过训练的过程学习得到的参数

In [1]:
```
import numpy as np
```

In [2]:
```
X = np.loadtxt('x.txt')
y = np.loadtxt('y.txt')
```

In [3]:
```
from ML.model_selection import train_test_split
```

In [4]:
```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size
= 0.2, seed=500)
```

In [5]:
```
from ML.knn import kNN_classify
```

In [6]:
```
y_predict = kNN_classify(X_train, y_train, X_test)
```

In [7]:
```
from ML.metrics import accuracy_score
```

In [8]:
```
accuracy_score(y_test, y_predict)
```

Out[8]: 0.9666666666666667

下面使用网格搜索对超参数 k 和 p 进行调节

In [9]:
```
best_k = 0
best_p = 0
best_score = 0

for k in range(1, 21):
    for p in range(1, 11):
        y_predict = kNN_classify(X_train, y_train, X_test, k=k, p=p
)
        score = accuracy_score(y_test, y_predict)
        if score > best_score:
            best_score = score
            best_k = k
            best_p = p
print("best_k=", best_k)
print("best_p=", best_p)
print("best_score=", best_score)
```

```
best_k= 7
best_p= 4
best_score= 1.0
```