

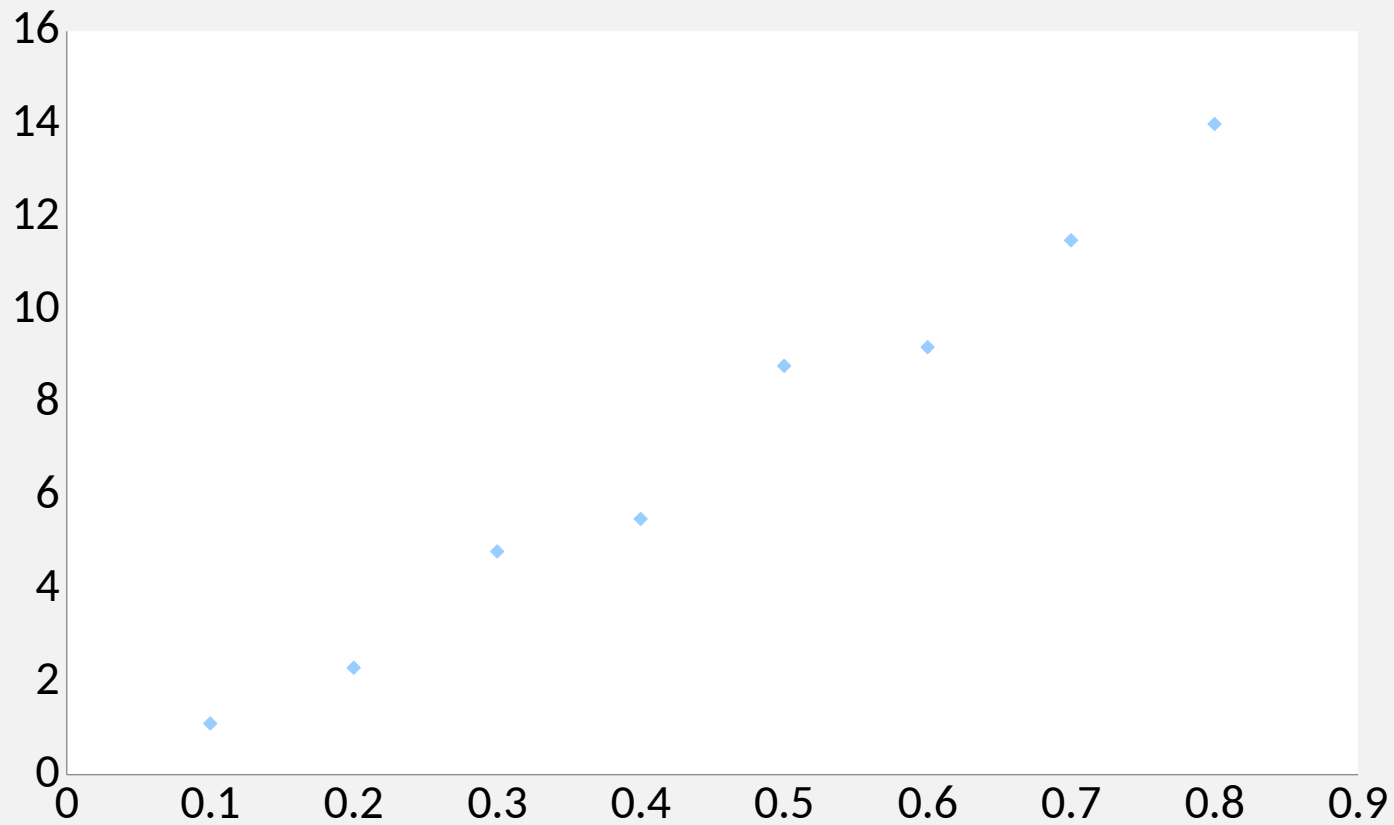
SVM

主讲人：唐婧尧

监督式学习与无监督学习

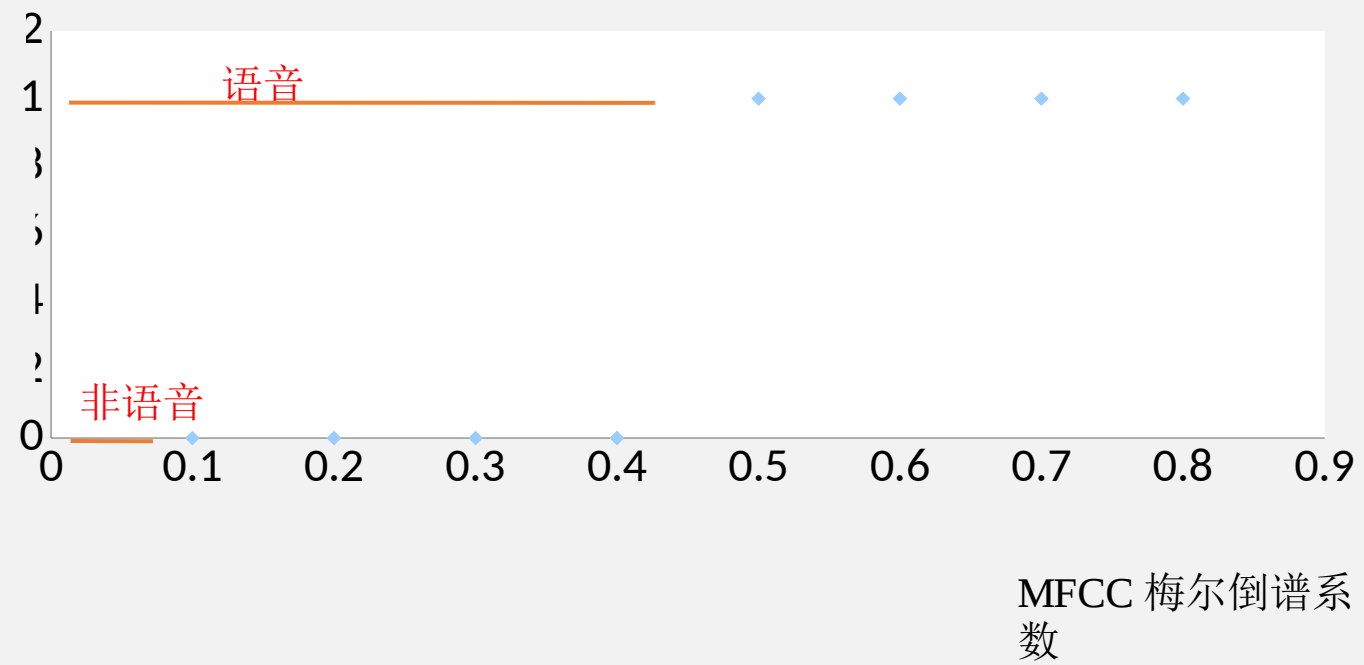
回归问题

◆ 股价

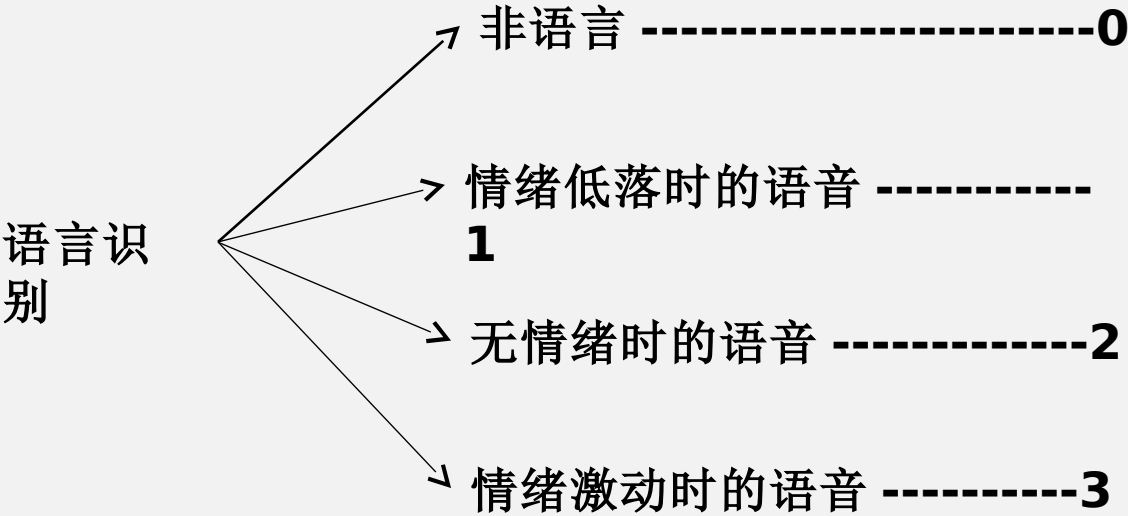


营业利润增长率

二元分类问题



多元分类问题



特征

营业利润增长率

市盈率

总资产增长率

Mel 倒谱系数

MFCC 梅尔倒谱系数

对数流通市值

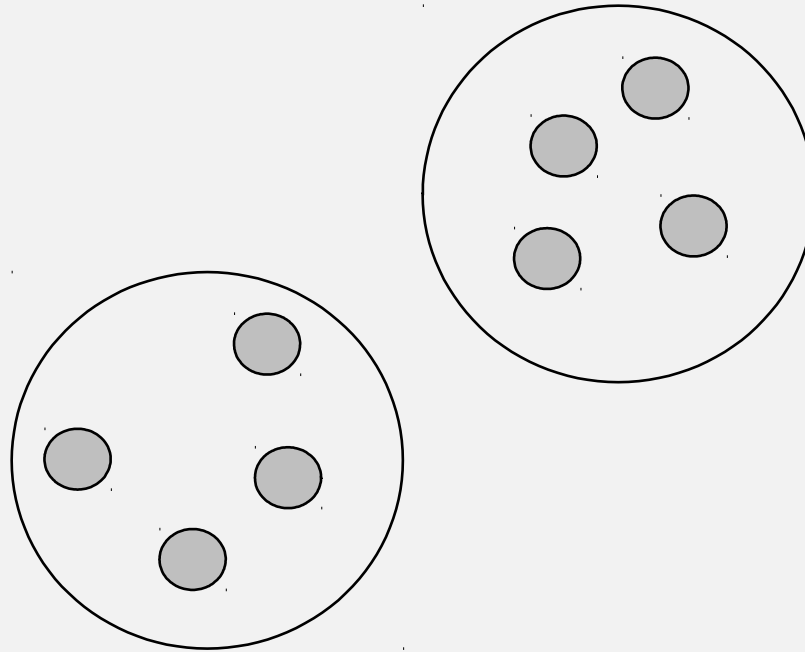
CEP 倒谱系数

LPC 线性预测系数

构造自己想要的特征属性

无穷
...

聚类算法



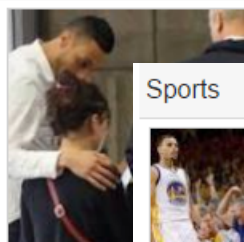


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CNN - 46 minutes ago



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co Police Department »
CO »

Sports



The Warriors don't allow opponents to let up for even a second

SB Nation - 11 hours ago



The only way to beat the Warriors when they are healthy and focused is to not make mistakes and never relax. Execute for the full 48 minutes, even when th

The banged-up MVP: A recent Stephen Curry injury history ESPN (blog)

Thompson: Steve Kerr is Warriors' X-Factor San Jose Mercury News

Trending on Google+: Stephen Curry Puts on a Show as Warriors Even Series New York Times

Opinion: Stephen Curry Comments on Swollen Elbow After Game 2 Win vs. Thunder Bleacher Report



Slate Magazine



The Young Tu...

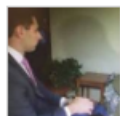


NewsOK.com

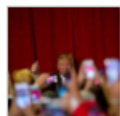
See realtime coverage



The Atlantic



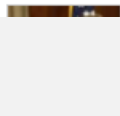
CBS Local



New York...



CapitalGa...



New York...

The Atlantic

CBS Local

New York...

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New York...



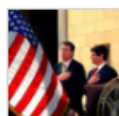
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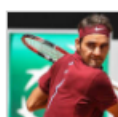
SB Nation



FOXSport...



ESPN



ESPN

Raptors vs. Cavaliers 2016 results: 3 things from Cleveland's 108-89 Game 2 win

SB Nation - 45 minutes ago

The Cleveland Cavaliers' playoff winning streak has reached double digits, with Cleveland beating the Raptors 108-89 in Game 2 as their dominant postseason continued

Mickelson to lose \$1M in SEC case involving Vegas gambler (May 19, 2016)

FOXSports.com - 3 hours ago

FILE - In this May 29, 2014, file photo, Phil Mickelson reacts after making double bogey on the 17th hole during the first round of the Memorial golf tournament in Dublin, C

Jalen Ramsey, No. 5 overall pick, suffers small meniscus tear

ESPN - 8 hours ago

JACKSONVILLE, Fla. -- For the second offseason in a row, the Jacksonville Jaguars' first-round draft pick went down with a knee injury, but the one that corner back Jale the one that cost defensive end Dante Fowler ...

Roger Federer drifting earthward, but he's not done

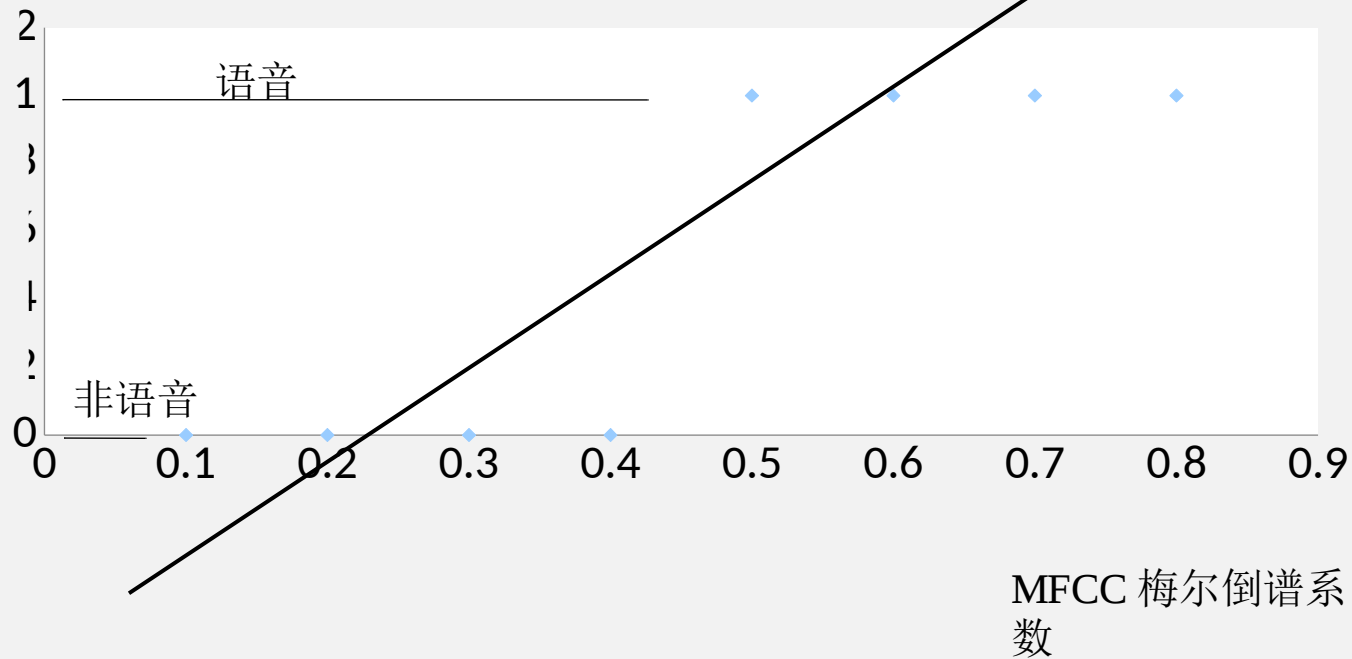
ESPN - 10 hours ago

Roger Federer, 34 years old and no longer impervious to the ravages of age, has pulled out of the French Open. He made the announcement Thursday on his Facebook page: "I'm not in the best progress with my overall fitness, but I am still ..."

Muirfield Golf Club Picks Discrimination Over the British Open

逻辑回归

二元分类问题



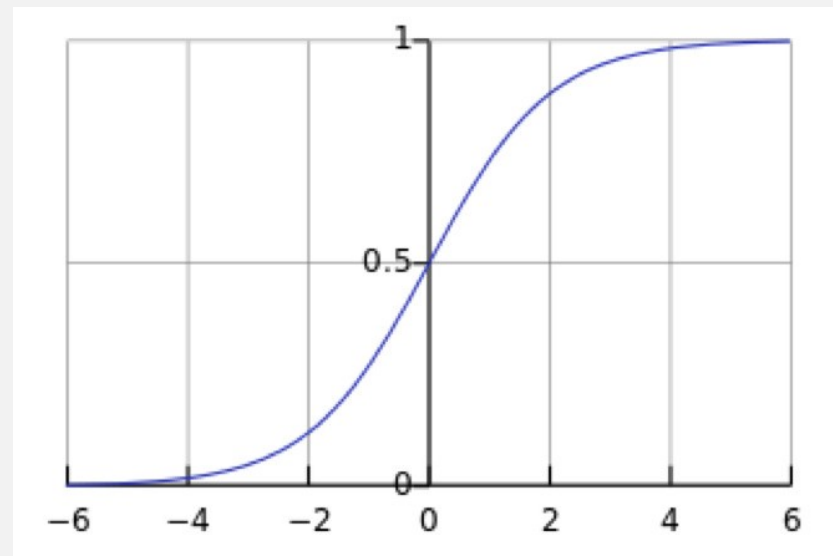
假设函数: $h_{\theta}(x) = \theta^T x$

代价函数: $J(\theta) = \frac{1}{m} \sum_{i=1}^m (h_{\theta}(x_i) - y_i)^2$

线性回归

假设函数： $h_{\theta}(x) = \theta^T x$

代价函数： $J(\theta) = \frac{1}{m} \sum_{i=1}^m (h_{\theta}(x_i) - y_i)^2$



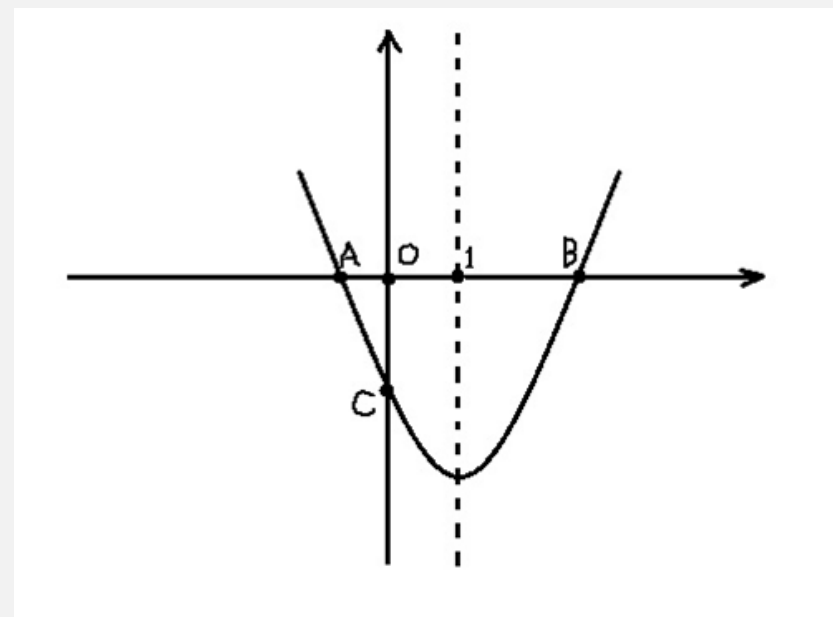
逻辑回归

假设函数：

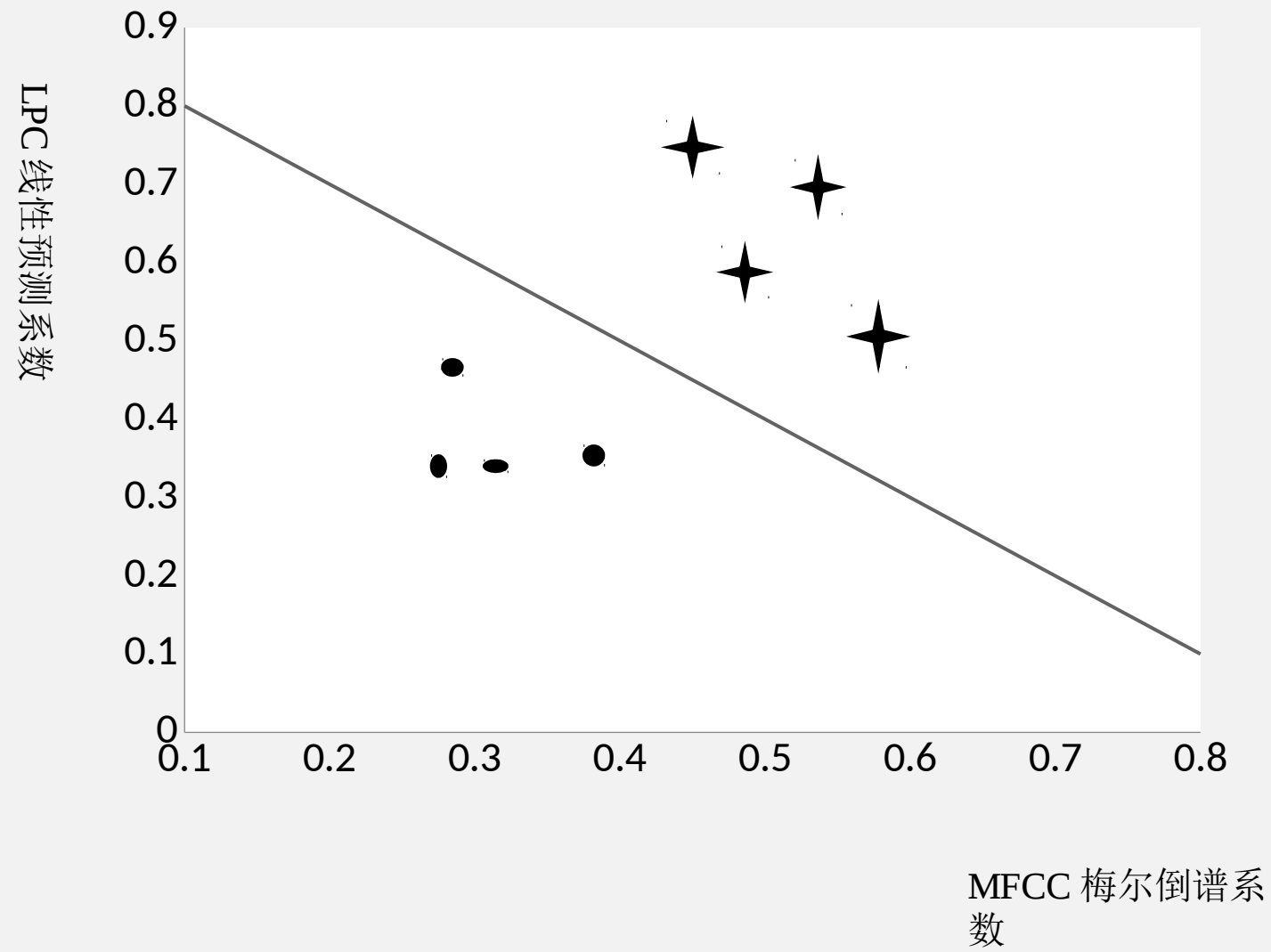
$$h_{\theta}(x) = g(\theta^T x) = \frac{1}{1 + e^{-\theta^T x}}$$

代价函数：

$$J(\theta) = \sum_{i=1}^m \left\{ y_i \left[-\log \left(\frac{1}{1 + e^{-\theta^T x_i}} \right) \right] + (1 - y_i) \left[-\log \left(1 - \frac{1}{1 + e^{-\theta^T x_i}} \right) \right] \right\}$$



SVM



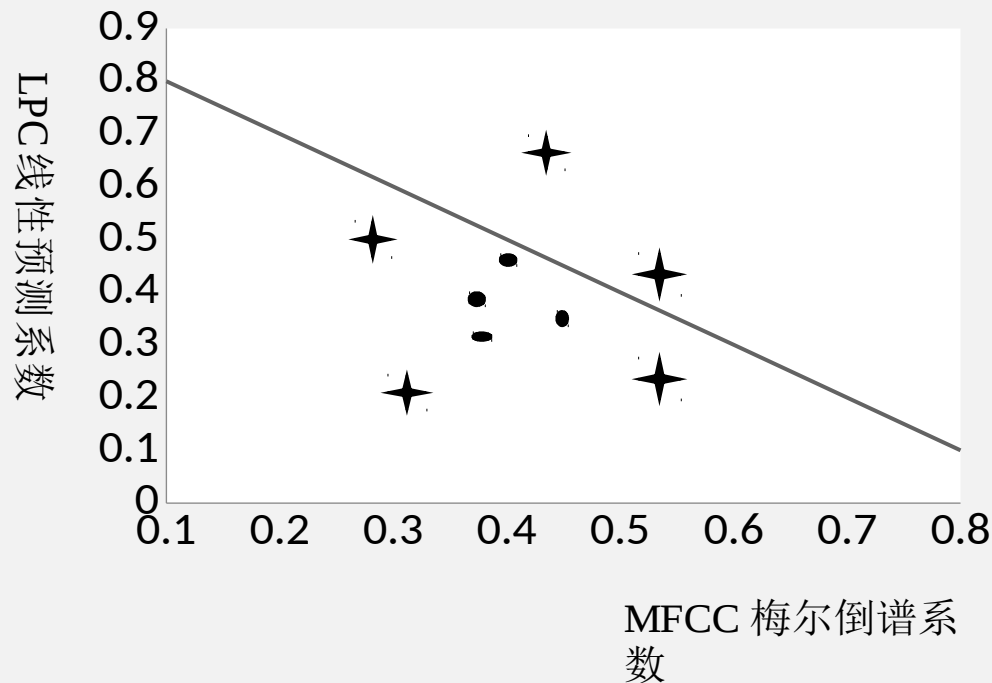
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SVM

假设函数：

$$f(x) = \text{sign} \left(\sum_{i=1}^m \alpha_i y_i k(x_i, x) + b \right)$$

代价函数：

$$J(\theta) = \sum_{i=1}^m \left\{ t_i \left[-\log \left(\frac{1}{1 + e^{A f(x) + B}} \right) \right] + (1 - t_i) \left[-\log \left(1 - \frac{1}{1 + e^{A f(x) + B}} \right) \right] \right\}$$

核函数将数据集从二维平面映射到高维空间

