Unsupervised Learning

Supervised Learning

Scores_{i,j}

Meanings

$u = m + w$

$User_i Item_j$

User_Item

Top

Perfect Dater Online Recommendation System

$U1$

Scores

Scores

(u, u)

$(m, w), (w, m), (m, m), (w, w), (w, u), (m, u)$

Scores

(u, u)

Scores_{i,j}

N

$U1$

?

-

Euclidean Distance

-

Cosine Distance

-

-

$$\text{ED}(u_1, u_2) = \sqrt{(u_{11} - u_{21})^2 + (u_{12} - u_{22})^2 + ... + (u_{1onum} - u_{2onum})^2}$$

(1)

u_1, u_2

u_{1i}

u_1

$onum$

$$\cos(u_1, u_2) = \frac{\sum\limits_{i=1}^{onum} u_{1i} u_{2i}}{\sqrt{\sum\limits_{i=1}^{onum} u_{1i}^2} \sqrt{\sum\limits_{i=1}^{onum} u_{2i}^2}}$$

(2)

??

$centroidSet[i,j] = min(j) + (max(j) - min(j)) * random(0, 1)$

(3)

$centroidSet[i,j]$

$min(j)$

$max(j)$

$random(0, 1)$

User_Item

User_Class

UCI

Iris

??

User_Item

Top

Scores

Top

UCI

Iris

??

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{n} \alpha_i \Delta Y_{i-1} + \mu_i$$

α_0

α_i

μ_i