

### Anime Categories

$$A_i = \sum_i^n a_i = 1$$

*where  $A_i$  is the anime scores*  
*where  $a$  is the catagory*  
*where  $i$  is the score*  
*where  $n$  is the num of catagories*

### User preferences

$$U_i = \sum_i^n u_i = 1$$

*where  $U_i$  is the user scores*  
*where  $u$  is the catagory*  
*where  $i$  is the score*  
*where  $n$  is the num of catagories*

### User Vector

$$U = \{u_i\}_{i=1}^n$$

*where  $U$  is the User Vector*  
*where  $u$  is the catagory*  
*where  $i$  is the score*  
*where  $n$  is the num of catagories*

### User preferences adjustments

$$Nu_i = u_i + \alpha \cdot A_i$$

*where  $Nu_i$  is the new User score*  
*where  $u$  is the catagory*  
*where  $i$  is the score*  
*where  $\alpha$  is the penalty/reward*

### User preferred category

$$C = \max (u_i)$$

*where  $C$  is the highest score*  
*where  $u$  is the catagory*  
*where  $i$  is the score*  
*where  $\alpha$  is the penalty/reward*

Distance between vectors

$$d_i = d(U|A_i) = \sqrt{\sum_{j=1}^n (u_j - a_{ij})^2}$$

where  $d_i$  is the distance in relation to user vector ( $U$ ) and filtered Anime vectors ( $A_i$ )

where  $u$  is user catagory

where  $a$  is user catagory

where  $j$  is the score

where  $n$  is the num of catagories

User Suggestions

$$A_s = \min (d)$$

where  $A_s$  is the suggested anime

where  $U$  is the user vector

where  $A_i$  is the Anime vector

where  $d$  is the distance