

# Collaborative Filtering - Memory based

Goal

	A	B
$u_1$	?	4
$u_2$	1	
$u_3$	3	5
$u_4$	3	1
$u_5$		
$u_6$	5	4

Find similar users

	A	B
$u_1$	?	4
$u_2$	1	
$u_3$	3	5
$u_4$	3	1
$u_5$		
$u_6$	5	4

Since  $u_1$  has rated only book B we'll focus only on that column

Choose similarity metric (Euclidean distance in this case)

	A	B
$u_1$	?	4
$u_2$	1	
$u_3$	3	5
$u_4$	3	1
$u_5$		
$u_6$	5	4

Hyperparameter  
Let's say we look at the 2 closest neighbors

	A	B
$u_1$	?	4
$u_2$	1	
$u_3$	3	5
$u_4$	3	1
$u_5$		
$u_6$	5	4

$u_1$  is most similar to  $u_6$  then to  $u_3$  and then  $u_4$

We then take the average of the ratings for book A for users  $u_3$  &  $u_6$

	A	B
$u_1$	4	4
$u_2$	1	
$u_3$	3	5
$u_4$	3	1
$u_5$		
$u_6$	5	4

We can also take weighted average such that closer neighbor has more impact on the final rating.