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3. K-Nearest Neighbor Method

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K-Nearest Neighbor Method



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Our goal in the movie recommender system problem is to predict the movie ranking that user a will give to movie i that (s)he has not seen.

Let m be the number of movies and n the number of users. The ranking Y_{ai} of a movie i by user $a \in \{1, \dots, n\}$ may already exist or not. Our goal is to predict Y_{ai} in the case where it does not exist.



The K -Nearest Neighbor method makes use of ratings by K other "similar" users who have rated movie i .



Let $KNN(a)$ be the set of K users "similar to" user a , and let $\text{sim}(a, b)$ be a similarity measure between users a and $b \in KNN(a)$. The K -Nearest Neighbor method predicts a ranking \hat{Y}_{ai} to

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$$\hat{Y}_{ai} = \frac{\sum_{b \in KNN(a)} \text{sim}(a, b) Y_{bi}}{|KNN(a)|}$$

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