Algorithm1: Rating decomposition

R $W^{(1)}$ $W^{(2)}$ $W^{(3)}$ $W^{(4)}$ $W^{(5)}$ $\bar{R}^{(1)}$ $\bar{R}^{(2)}$ $\bar{R}^{(3)}$ $\bar{R}^{(4)}$ $\bar{R}^{(5)}$

$r_1 = 4$

$r_2 = 3$

$r_3 = 3$

$r_4 = 3$

$r_5 = 5$

$r_i \times w_i$

Algorithm2: Model retraining

Model Θ_1 Θ_2 Θ_3 Θ_4 Θ_5

Predictive rating $\hat{r}^{(1)}$ $\hat{r}^{(2)}$ $\hat{r}^{(3)}$ $\hat{r}^{(4)}$ $\hat{r}^{(5)}$
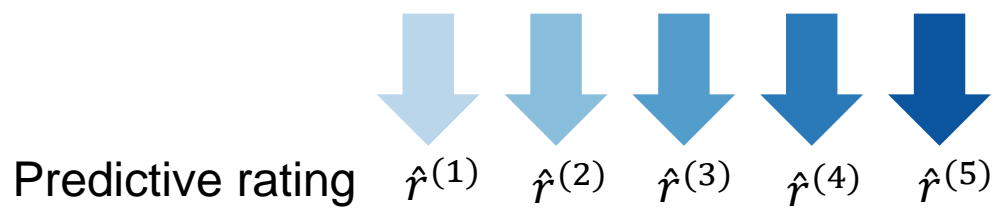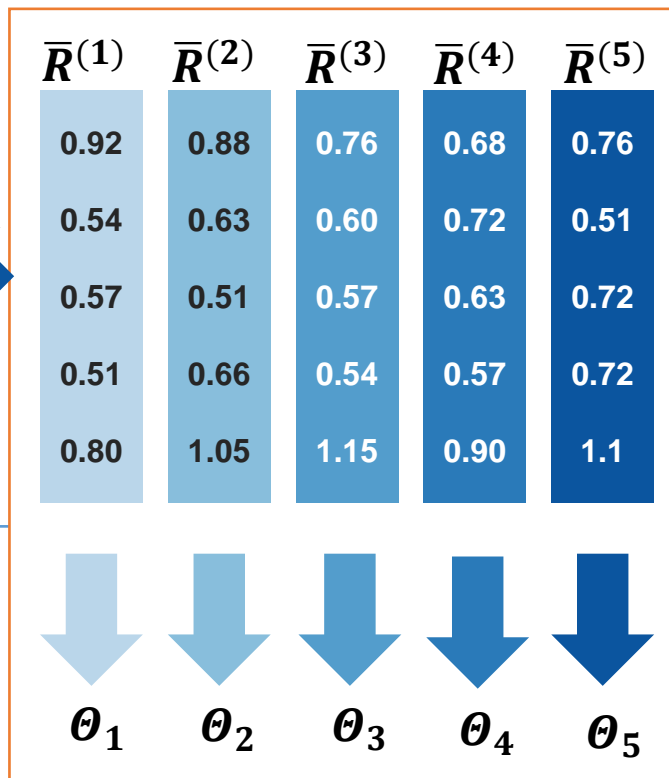
Final rating $\hat{r} = \hat{r}^{(1)} + \hat{r}^{(2)} + \hat{r}^{(3)} + \hat{r}^{(4)} + \hat{r}^{(5)}$