

$$sim_{pearson}(a,b) = \frac{\sum_{p \in P} (r_{a,p} - \bar{r}_a) \times (r_{b,p} - \bar{r}_b)}{\sqrt{\sum_{p \in P} (r_{a,p} - \bar{r}_a)^2} \times \sqrt{\sum_{p \in P} (r_{b,p} - \bar{r}_b)^2}}$$