Hyperparameters for experiments reported in paper:

Improving novelty and diversity of nearest-neighbors recommendation by exploiting dissimilarities

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Pablo Sánchez, Javier Sanz-Cruzado, and Alejandro Bellogín

Table 1: Hyperparameters tested on each recommender.

Recommender	**Parameters**
Pop	None
UB	$w^{+}_{u,v}$ = {Cosine, Jaccard}, $\lvert N_u \rvert$ = {20, 40, 60, 80, 100, 120}
UB-nndiv	$w^{+}_{u,v}$ = {Cosine, Jaccard}, $\lvert N_u \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{u,v}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, $\gamma = \{-1, +1\}$
UB-inds	$w^{+}_{u,v}$ = {Cosine, Jaccard}, $\lvert N_u \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{u,v}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, $\theta = \{\pm 0.1, \pm 0.2, \pm 0.5, \pm 0.7, \pm 1\}$
UB-indr	$w^{+}_{u,v}$ = {Cosine, Jaccard}, $\lvert N_u \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{u,v}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, norm = stdnorm, comb = defaultcomb
IB	$w^{+}_{i,j}$ = {Cosine, Jaccard}, $\lvert N_i \rvert$ = {20, 40, 60, 80, 100, 120}
IB-nndiv	$w^{+}_{i,j}$ = {Cosine, Jaccard}, $\lvert N_i \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{i,j}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, $\gamma = \{-1, +1\}$
IB-inds	$w^{+}_{i,j}$ = {Cosine, Jaccard}, $\lvert N_i \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{i,j}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, $\theta = \{\pm 0.1, \pm 0.2, \pm 0.5, \pm 0.7, \pm 1\}$
IB-indr	$w^{+}_{i,j}$ = {Cosine, Jaccard}, $\lvert N_i \rvert$ = {20, 40, 60, 80, 100, 120}, $w^{-}_{i,j}$ = $\{\text{sim}_{\text{rat-diff}}, \text{sim}_{\text{rdsupp}}, \text{sim}_{\text{bin-sets}}\}$, norm = stdnorm, comb = defaultcomb
HKV	Iter = 20, Factors = {10, 50, 100}, λ = {0.1, 1, 10}, α = {0.1, 1, 10, 100}
BPRMF	Factors = {10, 50, 100}, BiasReg = {0, 0.5, 1}, LearnRate = 0.05, Iter = 50, RegU = RegI = {0.0025, 0.001, 0.005, 0.01, 0.1}, RegJ = RegU/10
EASEr	λ = 0.5, Implicit = {true, false}
$\text{RP}^3\beta$	β = {0.6, 0.7}, α = {1, 2}, Implicit = {true, false}

Table 2: Hyperparameters selected in each dataset.

Rec	**Mov20M**	**Greads**	**Vinyls**	**Lastfm**
Pop	None	None	None	None
UB	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 120	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 100	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 120	$w^+_{u,v}$ = Jaccard, $\lvert N_u\rvert$ = 20
UB-nndiv	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 120, $w^-_{u,v}$ = $\text{sim}_{\text{rdsupp}}$, $\gamma = -1$	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 100, $w^-_{u,v}$ = $\text{sim}_{\text{bin-sets}}$, $\gamma = -1$	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 120, $w^-_{u,v}$ = $\text{sim}_{\text{rdsupp}}$, $\gamma = 1$	$w^+_{u,v}$ = Jaccard, $\lvert N_u\rvert$ = 20, $w^-_{u,v}$ = $\text{sim}_{\text{bin-sets}}$, $\gamma = 1$
UB-inds	$w^+_{u,v}$ = Cosine, 120, $w^-_{u,v}$ = $\text{sim}_{\text{bin-sets}}$, $\theta = -1$	$w^+_{u,v}$ = Cosine, 120, $w^-_{u,v} = \text{sim}_{\text{rat-diff}}$, $\theta = -0.1$	$w^+_{u,v}$ = Cosine, 120, $w^-_{u,v} = \text{sim}_{\text{rdsupp}}$, inv = false, $\theta = 0.5$	$w^+_{u,v}$ = Jaccard, 20, $w^-_{u,v} = \text{sim}_{\text{rdsupp}}$, $\theta = -0.2$
UB-indr	$w^+_{u,v}$ = Cosine $\lvert N_u\rvert$ = 120, $w^-_{u,v}$ = $\text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{u,v}$ = Cosine $\lvert N_u\rvert$ = 80, $w^-_{u,v} = \text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{u,v}$ = Cosine $\lvert N_u\rvert$ = 100, $w^-_{u,v}$ = $\text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{u,v}$ = Jaccard $\lvert N_u\rvert$ = 20, $w^-_{u,v} = \text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb
IB	$w^+_{i,j}$ =Cosine, $\lvert N_i\rvert$ = 20	$w^+_{i,j}$ =Jaccard, $\lvert N_i\rvert$ = 20	$w^+_{i,j}$ =Jaccard, $\lvert N_i\rvert$ = 60	$w^+_{i,j}$ =Jaccard, $\lvert N_i\rvert$ = 120
IB-nndiv	$w^+_{u,v}$ = Cosine, $\lvert N_u\rvert$ = 20, $w^-_{u,v}$ =$\text{sim}_{\text{rdsupp}}$, $\gamma = -1$	$w^+_{u,v}$ = Jaccard, $\lvert N_u\rvert$ = 20, $w^-_{u,v}$ =$\text{sim}_{\text{rdsupp}}$, $\gamma = -1$	$w^+_{u,v}$ = Jaccard, $\lvert N_u\rvert$ = 60, $w^-_{u,v}$ =$\text{sim}_{\text{rdsupp}}$, $\gamma = -1$	$w^+_{u,v}$ = Jaccard, $\lvert N_u\rvert$ = 20, $w^-_{u,v}$ =$\text{sim}_{\text{rat-diff}}$, $\gamma = 1$
IB-inds	$w^+_{i,j}$ = Cosine, $\lvert N_i\rvert$ = 20, $w^-_{i,j}$ = $\text{sim}_{\text{rdsupp}}$, $\theta = -1$,	$w^+_{i,j}$ = Jaccard, $\lvert N_i\rvert$ = 20, $w^-_{i,j}$ = $\text{sim}_{\text{bin-sets}}$, $\theta = -1$	$w^+_{i,j}$ = Jaccard, $\lvert N_i\rvert$ = 100, $w^-_{i,j}$ = $\text{sim}_{\text{rdsupp}}$, $\theta = -0.5$	$w^+_{i,j}$ = Jaccard, $\lvert N_i\rvert$ = 120, $w^-_{i,j}$ = $\text{sim}_{\text{rat-diff}}$, $\theta = 0.2$
IB-indr	$w^+_{i,j}$ = Cosine, $\lvert N_i\rvert$ = 20, $w^-_{i,j}$ = $\text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{i,j}$ = Cosine, $\lvert N_i\rvert$ = 20, $w^-_{i,j}$ = $\text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{i,j}$ = Cosine, $\lvert N_i\rvert$ = 40, $w^-_{i,j}$ = $\text{sim}_{\text{rdsupp}}$, norm = stdnorm, comb = defaultcomb	$w^+_{i,j}$ = Jaccard, $\lvert N_i\rvert$ = 100, $w^-_{i,j}$ = $\text{sim}_{\text{rat-diff}}$, norm = stdnorm, comb = defaultcomb
HKV	Iter = 20, Factors = 50, $\lambda = 10$, $\alpha = 1$	Iter = 20, Factors = 100, $\lambda = 10$, $\alpha = 1$	Iter = 20, Factors = 100, $\lambda = 1$, $\alpha = 10$	Iter = 20, Factors = 100, $\lambda = 10$, $\alpha = 10$
BPRMF	Factors = 50, BiasReg = 0, LearnRate = 0.05, Iter = 50, RegU = RegI = 0.001, RegJ = RegU/10	Factors = 100, BiasReg = 0, LearnRate = 0.05, Iter = 50, RegU = RegI = 0.005, RegJ = RegU/10	Factors = 100, BiasReg = 0, LearnRate = 0.05, Iter = 50, RegU = RegI = 0.01, RegJ = RegU/10	Factors = 100, BiasReg = 0, LearnRate = 0.05, Iter = 50, RegU = RegI = 0.005, RegJ = RegU/10
EASEr	$\lambda = 0.5$, Implicit = false	$\lambda = 0.5$, Implicit = false	$\lambda = 0.5$, Implicit = false	$\lambda = 0.5$, Implicit = false
$\text{RP}^3\beta$	$\beta = 0.6$, $\alpha = 1$, Implicit = false	$\beta = 0.6$, $\alpha = 1$, Implicit = false	$\beta = 0.6$, $\alpha = 1$, Implicit = true	$\beta = 0.6$, $\alpha = 1$, Implicit = false