

100% Dataset		
(Rank,MaxIter,Reg)	RMSE	RUNTIME
(20,10,0.1)	0.8280620259	1083.9011
(20,10,0.01)	0.9017563741	1325.87645
(25,10,0.1)	0.8268152294	1677.67484
(25,10,0.01)	0.9081534667	1750.34979
(30,10,0.1)	0.8260922467	1655.63719
(30,10,0.01)	0.9132506163	2432.30352
(50,10,0.1)	0.8244731456	2655.29246
(20,15,0.001)	1.081273103	2510.23531
(20,15,0.5)	0.9826545096	1324.85451
(20,20,0.001)	1.062023453	3146.43004
(20,20,0.5)	0.9826990485	1684.00494

optimal hyperparameters

25% Dataset		
(Rank,MaxIter,Reg)	RMSE	RUNTIME
(10, 10, 0.01)	1.092652367	457.37342
(15, 10, 0.01)	1.113526649	887.35707
(20,10,0.01)	1.125610315	1123.68323
(25,10, 0.1)	0.8963203185	1006.92284
(25, 10, 0.01)	1.137665674	795.86822
(30, 10, 0.1)	0.8956324349	1272.13186
(30,10, 0.01)	1.140069106	1061.58761
(50, 10, 0.1)	0.8933498148	1295.26898
(40,10, 0.01)	1.144560338	1336.31196
(40, 10, 0.1)	0.8941941865	958.43052
(40, 10, 1)	1.318151148	476.01685
(50, 15, 0.1)	0.8905453664	1857.97531
(50, 20, 0.1)	0.8896555544	2288.39139
(60, 15, 0.1)	0.8900114111	2523.82427
(60, 20, 0.1)	0.8891404416	3149.39003
(42, 10, 0.1)	0.8939770587	1095.44358
(44, 10, 0.1)	0.8937151692	1155.2739
(46, 10, 0.1)	0.8937616883	1017.38946
(34, 10, 0.1)	0.894790668	704.32922
(36, 10, 0.1)	0.8947730612	765.07557
(38, 10, 0.1)	0.8945927935	870.42662
(32, 10, 0.1)	0.8951392394	866.16406
(30, 10, 0.1)	0.895632435	816.11016
(28, 10, 0.1)	0.8954895516	653.73384

5% Dataset		
(Rank,MaxIter,Reg)	RMSE	RUNTIME
(15, 10, 0.01)	1.530085289	170.95418
(16, 10, 0.01)	1.528310695	187.4078
(17, 10, 0.01)	1.527314123	195.37225
(18, 10, 0.01)	1.519136432	218.63439
(19, 10, 0.01)	1.521786426	245.50013
(20, 10, 0.01)	1.516723502	195.87573
(21, 10, 0.01)	1.515266505	208.89717
(22, 10, 0.01)	1.517982864	262.43506
(23, 10, 0.01)	1.509151	260.74154
(24, 10, 0.01)	1.50100543	354.78078
(25, 10, 0.01)	1.502983406	290.72523
(10, 10, 0.01)	1.531958102	136.46345
(20, 10, 0.01)	1.516723543	209.77145
(30, 10, 0.01)	1.491534591	266.45392
(40, 10, 0.01)	1.48467344	432.97793
(50, 10, 0.01)	1.480143303	620.47685
(60, 10, 0.01)	1.484279562	893.5228
(70, 10, 0.01)	1.486836842	1122.13911
(80, 10, 0.01)	1.495166926	1467.52491
(90, 10, 0.01)	1.502686085	2238.62057
(100, 10, 0.01)	1.505943364	2903.16575
(42, 10, 0.01)	1.474976819	636.91672
(45, 10, 0.01)	1.481325735	624.98941
(48, 10, 0.01)	1.477743393	704.71292
(51, 10, 0.01)	1.480143303	684.99045
(53, 10, 0.01)	1.479851626	672.3221
(56, 10, 0.01)	1.48295356	898.19525
(50, 2, 0.01)	2.186390556	257.16737
(50, 5, 0.01)	1.655580545	380.404
(50, 8, 0.01)	1.529577224	584.89347
(50, 10, 0.01)	1.4801433	728.48816
(50, 12, 0.01)	1.442540421	904.28728
(50, 15, 0.01)	1.399273458	1065.80647
(50, 18, 0.01)	1.365499201	1086.15863
(50, 20, 0.01)	1.346368435	1225.07318
(50, 10, 0.0001)	3.160753837	3313.78813
(50, 10, 0.001)	2.144235203	1467.08118
(50, 10, 0.01)	1.480143301	606.79283
(50, 10, 0.05)	1.122285029	627.80341
(50, 10, 0.1)	1.04964022	415.14915
(50, 10, 0.5)	1.038420308	296.51064
(50, 10, 1)	1.340256496	244.84617

1% Dataset		
(Rank,MaxIter,Reg)	RMSE	RUNTIME
(10, 10, 0.01)	2.102912881	67.19825
(15, 10, 0.01)	1.913327718	61.58017
(16, 10, 0.01)	1.916245625	61.22694
(17, 10, 0.01)	1.905710569	65.1497
(18, 10, 0.01)	1.916051538	57.63646
(19, 10, 0.01)	1.905961751	54.27765
(20, 10, 0.01)	1.909475794	67.71065
(21, 10, 0.01)	1.906188695	84.10007
(22, 10, 0.01)	1.90842573	62.08019
(23, 10, 0.01)	1.9085115	146.09093
(24, 10, 0.01)	1.896067731	89.85521
(25, 10, 0.01)	1.911777626	76.60179
(30, 10, 0.01)	1.919662836	75.80026
(40, 10, 0.01)	1.922894005	96.59519
(50, 10, 0.01)	1.935781667	122.58772
(60, 10, 0.01)	1.931768445	161.0789
(70, 10, 0.01)	1.931019919	193.87193
(80, 10, 0.01)	1.934655578	297.23198
(100, 10, 0.01)	1.928402664	446.34356