

# Estimating SVD through Stochastic Gradient Descent

Considering the logic as we increase number of splits the size of training-data increases.  
Total size of data - 1m

## 1. Fold = 2 ( 5 lac)

	Fold 1	Fold 2	Mean	Std
MAE (testset)	0.7234	0.7213	0.7223	0.0011
RMSE (testset)	0.9201	0.9182	0.9191	0.0009
Fit time	67.66	51.99	59.82	7.84
Test time	13.74	8.25	11.00	2.75

## 2. Folds = 4 (7.5 lac)

	Fold 1	Fold 2	Fold 3	Fold 4	Fold 5	Fold 6	Mean	Std
MAE (testset)	0.6974	0.6980	0.6992	0.6968	0.6984	0.6980	0.6980	0.0007
RMSE (testset)	0.8920	0.8923	0.8937	0.8901	0.8931	0.8927	0.8923	0.0011
Fit time	134.26	148.31	159.43	151.82	134.10	90.22	136.36	22.55
Test time	5.86	7.33	4.81	6.98	4.74	2.77	5.42	1.53

## 3. Folds=6 (8.3 lac)

	Fold 1	Fold 2	Fold 3	Fold 4	Fold 5	Fold 6	Fold 7	Fold 8	Mean	Std
MAE (testset)	0.6967	0.6948	0.6938	0.6976	0.7022	0.6973	0.6943	0.6962	0.6966	0.0025
RMSE (testset)	0.8904	0.8884	0.8878	0.8902	0.8978	0.8901	0.8866	0.8896	0.8901	0.0032
Fit time	135.47	173.31	165.68	168.67	165.69	167.10	135.03	84.94	149.49	28.16
Test time	4.45	4.44	4.34	4.31	3.44	3.47	3.40	2.04	3.74	0.78

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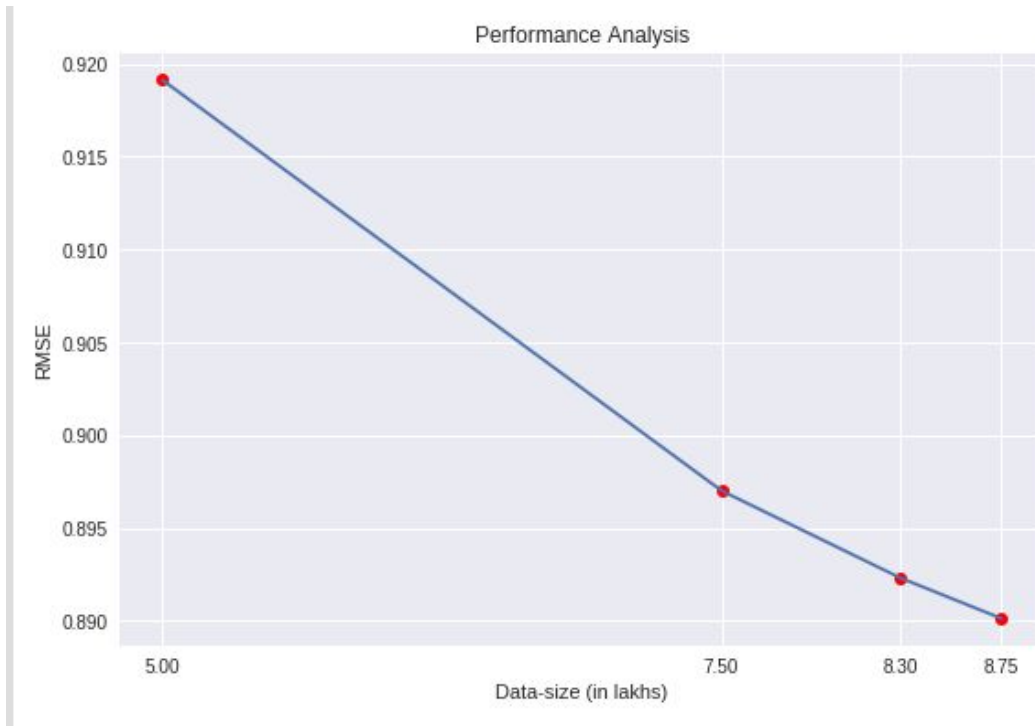
## 4. Folds=8 (8.75 lac)

	Fold 1	Fold 2	Fold 3	Fold 4	Mean	Std
MAE (testset)	0.7021	0.7004	0.7042	0.7029	0.7024	0.0014
RMSE (testset)	0.8969	0.8939	0.8985	0.8988	0.8970	0.0020
Fit time	125.81	135.53	118.56	78.98	114.72	21.50
Test time	7.49	10.10	5.61	3.30	6.63	2.50

## Performance analysis

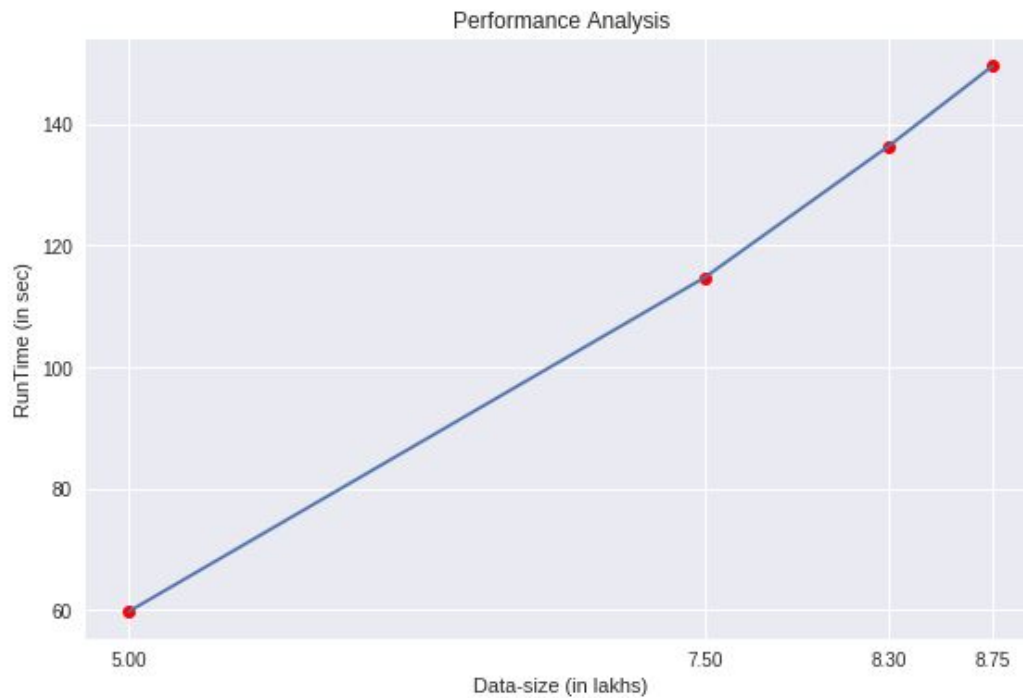
### 1. RMSE accuracy

*As training data increases root-mean square error decreases. (non-linearly)*



### 2. Runtime

*As training data increases runtime increases (non-linearly)*



### 3. Memory

*As training data increases memory taken increases. (Although exact memory size can't be calculate for the whole model as required we used have plot graph using corresponding memory management)*

