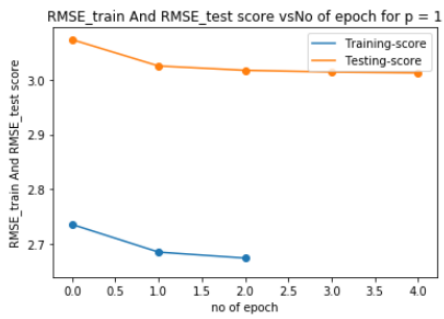
Performance and convergence of distributed coordinate descent

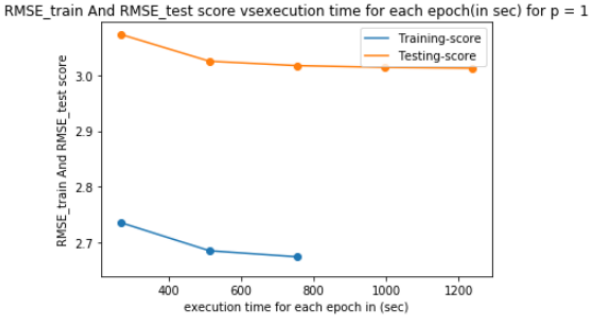
a) No of epochs vs RMSE train and RMSE test score for different workers
b) Execution time for each epoch vs training score/ Testing score for different workers.

Dataset 1 Results:

P=1 for Dataset1:

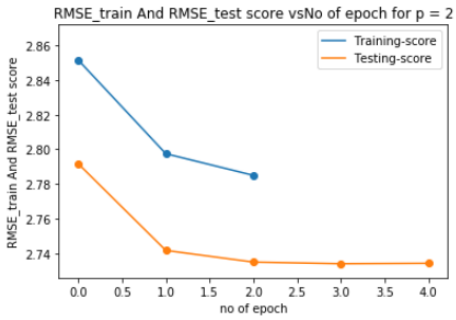
Serial Process Execution(Ts): In (sec)	Total parallel execution time(Tp) for epochs	Total No: epochs	Training Converged at:	Initial RMSEtrain value	Converged RMSE train value	Initial RMSE test value	Converged RMSE value
1238.09	1238.09	5	3	2.735	2.674	3.073	3.0126

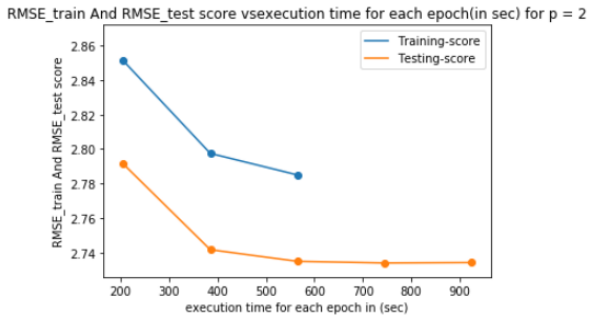




P=2 for Dataset1:

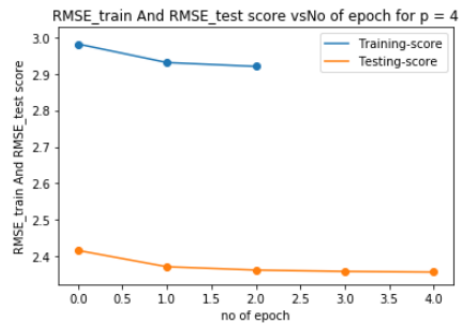
Serial Process Execution(Ts): In (sec)	Total parallel execution time(Tp) for epochs	Total No: epochs	Training Converged at:	Initial RMSE train value	Converged RMSE train value	Initial RMSE test value	Converged RMSE value
20.066	924.66	5	3	2.851	2.785	2.791	2.734

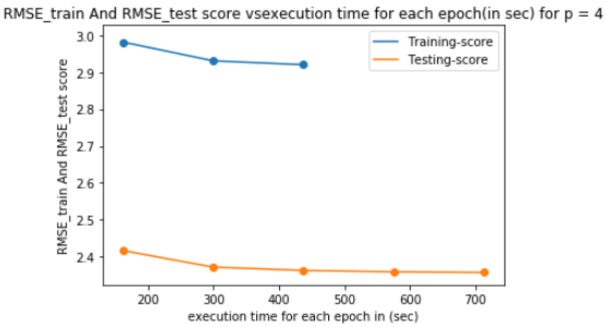




P=4 for Dataset1:

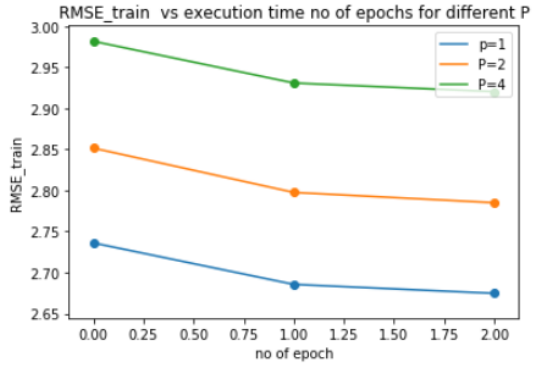
Serial Process Execution(Ts): In (sec)	Total parallel execution time(Tp) for epochs	Total No: epochs	Training Converged at:	Initial RMSE train value	Converged RMSE train value	Initial RMSE test value	Converged RMSE value
20.066	714.58	5	3	2.981	2.920	2.416	2.357

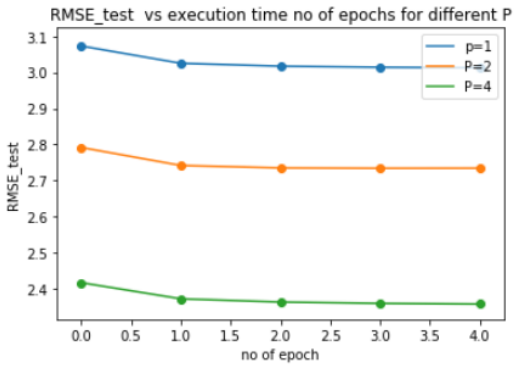




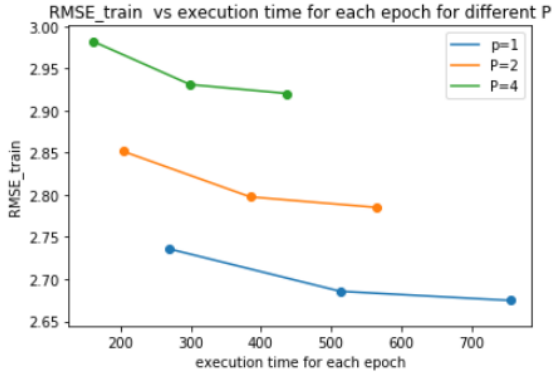
Performance comparison among workers:

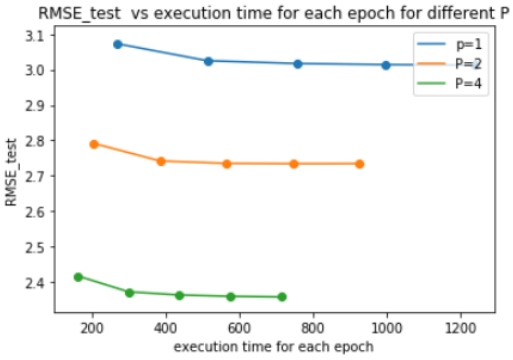
a)No:of epochs vs training and testing error among different workers for dataset1





b) Execution time in each epoch vs rmse train and rmse test among different workers for dataset 1





To show convergence in my graph I have shown my convergence condition difference values to be 0.01. If I put my convergence condition to be so small then it takes more epochs to converge. My algorithm is so time consuming. So in order to show the convergence I have made my convergence condition as 0.01