CS419 : ASSIGNMENT 1

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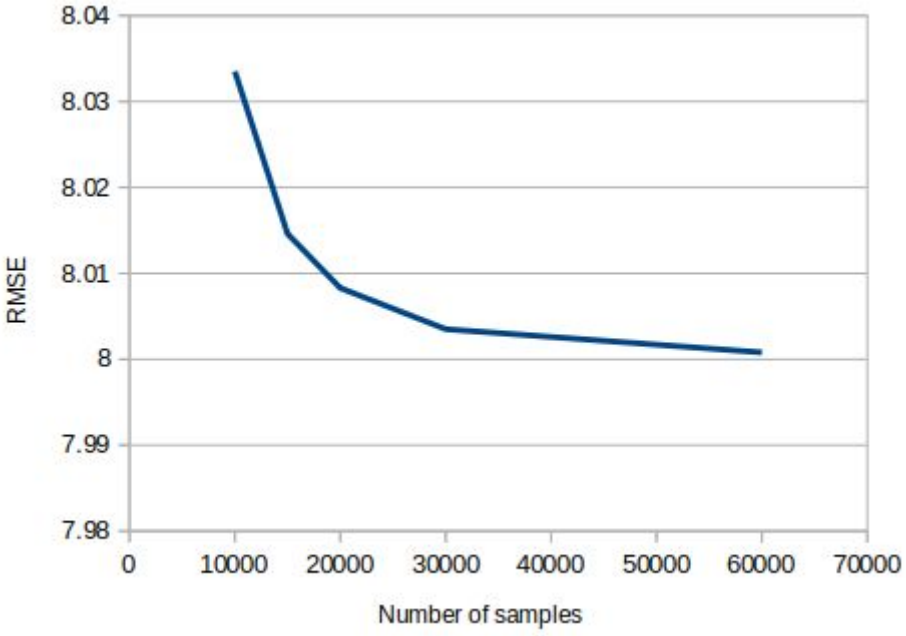
1. **A.** 1.9539×10^{-14}
   B. The learning rate and the number of iterations have been assigned values such that cost function converges properly.
   C. 0.05475

2. Using p=2, RMSE = 8.00357
   Using p=4, RMSE = 8.00358

3. **Basis 1** : Consists of distance between latitudes and longitudes and it's powers along with given features.
   Basis 1 RMSE : 5.4205

   Basis 2 : Consists of higher powers of distance between latitudes and longitudes along with given features
   Basis 2 RMSE : 5.2551

4. 

5. Date and time are the least useful features. This has been found by removing each feature and calculating the change in RMSE. Removing date and time causes the least increase in RMSE.

6. To obtain the best RMSE, various combinations of features were tried. The best was found when distance between latitudes and longitudes and its higher powers was used. The function generate_output has been included in the main() of lr.py.