**Problem Statement**

A retail company “ABC Private Limited” wants to understand the customer purchase behaviour (specifically, purchase amount) against various products of different categories. They have shared purchase summary of various customers for selected high volume products from last month.  
The data set also contains customer demographics (age, gender, marital status, city\_type, stay\_in\_current\_city), product details (product\_id and product category) and Total purchase\_amount from last month.

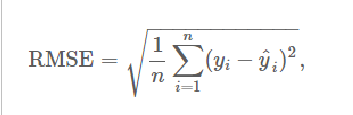
Now, they want to build a model to predict the purchase amount of customer against various products which will help them to create personalized offer for customers against different products.

Data

|  |  |
| --- | --- |
| **Variable** | **Definition** |
| **User\_ID** | User ID |
| **Product\_ID** | Product ID |
| **Gender** | Sex of User |
| **Age** | Age in bins |
| **Occupation** | Occupation (Masked) |
| **City\_Category** | Category of the City (A,B,C) |
| **Stay\_In\_Current\_City\_Years** | Number of years stay in current city |
| **Marital\_Status** | Marital Status |
| **Product\_Category\_1** | Product Category (Masked) |
| **Product\_Category\_2** | Product may belongs to other category also (Masked) |
| **Product\_Category\_3** | Product may belongs to other category also (Masked) |
| **Purchase** | Purchase Amount (Target Variable) |

Your model performance will be evaluated on the basis of your prediction of the purchase amount for the test data (test.csv), which contains similar data-points as train except for their purchase amount. Your submission needs to be in the format as shown in "SampleSubmission.csv".

Submissions are scored on the root mean squared error (RMSE). RMSE is very common and is a suitable general-purpose error metric. Compared to the Mean Absolute Error, RMSE punishes large errors:



Where y hat is the predicted value and y is the original value.