here we have list of all users and their corresponding vectors of ratings to all the restaurants available in the dataset.means Users vs Restaurant Ratings table

if we want to recommend a restaurant to a user(x) on the basis of user to user recommendation then what we have to do is that we will find similarity matrix of that user(x) to rest of the users available in the dataset means we will find how much a user is similar to the other user on the basis of ratings that they have already given .this similarities we can find by the pearson correlation ,(let we want to find pearson correlation between user(P) and user (Q):which is simply calculated on the basis of ratings given by a user(P) to all the restaurants and ratings given by a user(Q) to all the restaurants we have to pass the vector of ratings by the user(P) and the user(Q) which will be given in our dataset.)

note:- pearson correlation substracts all the ratings by a user from the average rating of a particular user and then work from it and it will consider 0 ratings to restaurants that was not rated by any user

now once we find the row matrix of similarity for the user(X) .now we come to the all restaurants. All restaurants will be arranged in column wise and each column will have the ratings by all the users available in the dataset to that restaurant which is in column. now take average of every row and subtract the avg value from corresponding rows ,in this way we can handle the easy and tough raters.

now we will multiply the row matrix of similarity of user X to every column of a particular restaurant ratings by all users.and then divide by the sum of similarities of user (X) with the other users that have co-rated that particular restaurant for which weight has to be find. in this way we will get the weights by the user(X) to all restaurants and then add previous average rating by user(X) to all weights by the user(X) to the restaurants.

after finding all weights to the all restaurants for a user(X) we will recommend them in decreasing order of the weights. in this way user(X) can select restaurants from the recommended resataurants. :)

weight of restaurant k by user(X) =

avg rating by user(x) + [ summation(similarity matrix of user(X) \*average subtracted ratings by all users to k restaurant)]/ summation(similaritity of user(X) with all users that has that has rated restaurant k)

