

### Problem : Optimisation for faster execution

Please refer Excel file “Problem\_Data.xlsx”

“Source” sheet has 5,175 location coordinates (Latitude, Longitude) and “Destination” sheet has 4,817 location coordinates.

- Find how to calculate straight line distance (or Euclidean distance) between 2 coordinates in Kilometres
- Calculate straight line distance (in Km) between each combination ( $5175 * 4817 = 2.49$  Crore combinations)

SOURCE_ID	SOURCE_Latitude	SOURCE_Longitude	DESTINATION_ID	DESTINATION_Latitude	DESTINATION_Longitude	DISTANCE_KM
18	20.9056355	78.9583741	12	30.5607812	76.9095647	1,092.96
18	20.9056355	78.9583741	37	30.5766540	76.8991764	1,094.89
18	20.9056355	78.9583741	43	30.5785290	76.8824780	1,095.41
18	20.9056355	78.9583741	130	30.6056747	76.7078732	1,101.80
18	20.9056355	78.9583741	210	30.6257578	76.6901808	1,104.34

- Optimise your code to reduce execution time and memory consumption

Output table might look something like this with 2.49 crore rows