1) Read the file Q1.xlsx

Input columns:

Start Time
End Time
Start Latitude
Start Longitude
End Latitude
End Longitude

Expected Output:

Duration(s) – time between start and end time in seconds
is_weekend – based on start time
hour_of_the_day – based on start time
distance(km) – distance between start and end coordinates (latitude and longitude)

Start Time	End Time	Start Latitude	Start Longitude	End Latitude	End Longitude	Duration(s)	is_weekend	hour_of_the_day	distance(km)
15-04-2015 13:12	15-04-2015 13:26	-74.003939	40.742894	-73.993369	40.734247	840	0	13	1.209353452
23-04-2015 22:04	23-04-2015 22:16	-73.973864	40.752194	-73.958701	40.772533	720	0	22	1.804832839
18-04-2015 03:19	18-04-2015 03:54	-73.954406	40.76442	-73.97078	40.75835	2100	1	3	1.837035667
18-04-2015 21:49	18-04-2015 22:11	-73.962345	40.767215	-73.975512	40.756867	1320	1	21	1.503788566
14-04-2015 07:57	14-04-2015 08:14	-74.004657	40.707434	-73.999369	40.721517	1020	0	7	0.73223068
26-04-2015 17:49	26-04-2015 18:14	-73.995571	40.716019	-73.999968	40.743319	1500	1	17	0.973177209
30-04-2015 22:14	30-04-2015 22:17	-74.008049	40.740404	-73.931014	40.765785	180	0	22	8.633265725
13-04-2015 20:32	13-04-2015 20:43	-73.942793	40.811667	-74.00269	40.733645	660	0	20	7.104581208
23-04-2015 23:22	23-04-2015 23:28	-73.972762	40.75285	-73.956535	40.805865	360	0	23	2.440089265
23-04-2015 15:07	23-04-2015 15:28	-73.98135	40.740912	-73.975187	40.751382	1260	0	15	0.759769033

Load the output as a SQL table.

2) Read the file Q2.xml

- Remove all the '-' in contact and change the column type to numeric
- Add 'Mr. ' in the beginning of all names
- Replace null with 'UNK' for strings and '-1' for numerics

Get the output as a CSV file

3) Read from SQL Server

Database: Northwind

Tables: Orders, Order_details

Read the two tables and join them in python using proper joining conditions

4) Input list: [9,4,4,7,1,8,4,7,3,0,2,5,7,3,7,2,6,8,4,6,7,1,3,2]

- Expected Output: [0,1,2,3,4,5,6,7,8,9,1,2,3,4,6,7,8,2,3,4,7,4,7,7]
  Hint: Sorted format of the list
- Convert the output list to a 6x4 numpy array
- Convert the array to a pandas dataframe with index names from 'a' to 'f' and column names from 'A' to 'D'