

Question Number 1: Data Exploration of tandem data

About Dataset: Trip Duration (seconds) , Start Time and Date , End Time and Date , Start Station ID , Start Station Name , Start Station Latitude , Start Station Longitude , End Station ID , End Station Name, End Station Latitude , End Station Longitude , Bike ID , User Type (Subscriber or Customer – “Subscriber” = Member or “Customer” = Casual) , Member Year of Birth, Member Gender

- Read the entire dataset using pandas dataframe and build the file by appending each file in an optimized manner
- What was the time duration for the average trip taken? (Use plotting techniques and write your observations for the same.)
- Is there any correlation between the months and the trip duration? Use scatter plot and comment your observations from the plot
- Do seasons affect the duration of a trip ? Comment your observations.
- Using multivariate exploration, explain whether there is any relation between short trips and the users.

Question Number 2:

- Create a Matrix between 0 and 1, with each value difference of 0.01.
- Create an array of 20 linearly spaced points between 0 and 1.
- Create a 5*5 matrix using range 1 to 26, and return sum of the matrix, standard deviation and sum of all the columns of the matrix.

Question Number 3:

```
import numpy as np
x = np.arange(0,100)
y = x*2
z = x**2
```

- Create a figure object and axis of the figure canvas at axis1 = [0,0,1,1]. Provide necessary labels and title to the plot.
- Create another plot at axis1 = [0,0,1,1] and axis2 = [0.2,0.5,0.2,0.2]
- Create a plot by adding two axis object at [0,0,1,1] & [0.2,0.5,0.4,0.4]
- Use x, y, z array to create the plots
 - Between x and z arrays
 - Between x & y arrays by setting the x-limit in range 20-22 and y-limit range in 30-50

Question Number 4: The purchase analysis of walmart.

- What is the average Purchase Price?
 - What were the highest and lowest purchase prices?
 - How many people have English 'en' as their Language of choice on the website?
 - What is the email of the person with the following Credit Card Number: 4926535242672853
 - Someone made a purchase that came from Lot: "90 WT" , what was the Purchase Price for this transaction?
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- f. How many people have American Express as their Credit Card Provider and made a purchase above \$95 ?
 - g. How many people have a credit card that expires in 2025?
 - h. What are the top 5 most popular email providers/hosts (e.g. gmail.com, yahoo.com, etc...) ?
 - i. What are the 5 most common Job Titles?
 - j. How many people made the purchase during morning and evening time?
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