

## Questions

1. Create a pandas Series from the list [10, 20, 30, 40]. Print the Series and its index.
2. Create a pandas DataFrame from the dictionary {'A':[1,2,3], 'B':[4,5,6]}. Display it.
3. Using a DataFrame df, write code to display the first 5 rows.
4. Using a DataFrame df, write code to display the last 3 rows.
5. Given df as a DataFrame, write code to get its column names as a list.
6. Using df, print summary information about columns, data types, and non-null counts.
7. Using df, print summary statistics like mean, std, min, max for numerical columns.
8. Select column 'A' from DataFrame df and store it in a variable s.
9. Select multiple columns 'A' and 'B' from df and store them in df\_subset.
10. Select rows with index positions 0 and 2 from df.
11. Filter rows in df where column 'A' has values greater than 2.
12. Add a new column 'D' to df such that  $D = A + B$ .
13. Drop column 'C' from df and return the new DataFrame.
14. Sort DataFrame df by column 'B' in descending order.
15. Reset the index of df and remove the old index column.
16. Set column 'C' as the index of df.
17. Rename column 'A' to 'Alpha' in df.
18. Check for missing values in df and print a boolean DataFrame.
19. Fill all missing values in df with 0.

20. Drop all rows with NaN values from df.
21. Get unique values present in column 'C' of df.
22. Count the frequency of values in column 'C'.
23. Convert column 'A' in df to string type.
24. Read a CSV file named 'data.csv' into a DataFrame df\_csv.
25. Save df to a CSV file named 'output.csv' without the index.
26. Group df by column 'C' and calculate the mean of columns 'A' and 'B'.
27. Merge two DataFrames df1 and df2 on a common column 'key'.
28. Concatenate two DataFrames df1 and df2 vertically (row-wise).
29. Apply a custom function to column 'A' that squares each value.
30. Pivot df such that values of column 'B' become values, 'A' is index, and 'C' is columns.
31. Given a hierarchical index DataFrame df, unstack its inner level.
32. Create a date range from 2024-01-01 for 10 days and use it as an index in a DataFrame.
33. Resample a time-series DataFrame df by month and calculate mean.
34. Plot column 'A' of df as a line plot using pandas built-in plotting.
35. Create a DataFrame from JSON string '{"A":[1,2],"B":[3,4]}' using pandas.
36. Create a MultiIndex DataFrame using two arrays and perform slicing on level 0.
37. Use pd.cut to bin column 'A' of df into 3 equal-width categories.
38. Use pd.qcut to divide column 'A' of df into 3 quantile-based bins.
39. Write code to group df by column 'C' and aggregate A as sum and B as mean.
40. Create a pivot table from df that shows sum of A and mean of B for each unique value in C.