Exercise 1: Import Pandas
Q1: How do you import the Pandas library in Python?

Exercise 2: Create a DataFrame
Q2: Once you've imported Pandas, how can you create a DataFrame from a Python dictionary?

Exercise 3: Read Data from a CSV
Q3: How can you use Pandas to read data from a CSV file into a DataFrame?

Exercise 4: Selecting Data
Let's assume you have a DataFrame named df with columns 'Name', 'Age', and 'City'. Here are some tasks:

Select the 'Name' column.
Select the first 5 rows of the DataFrame.
Select all rows where 'Age' is greater than 25.
Select rows where 'City' is 'Gothenburg'.

Exercise 5: Data Filtering and Manipulation
Q1: How can you filter the DataFrame to show only rows where 'Age' is less than 30?

Q2: How can you sort the DataFrame by the 'Age' column in ascending order?

Q3: How do you add a new column 'Salary' with some sample values to the DataFrame?

Exercise 6: Data Aggregation
Assume you have a DataFrame with a 'Sales' column. Here are some tasks:

Calculate the total sales.
Find the average sales.
Determine the maximum and minimum sales values.
Group the data by a categorical column (e.g., 'Region') and calculate the total sales in each group.

Q1: How can you group data by a specific column and calculate summary statistics for each group?

Exercise 7: Data Cleaning
Assume your DataFrame has missing values. Here are some tasks:

Identify and count the missing values in each column.
Remove rows with missing values.
Fill in missing values with a specific value or the mean of that column.

Q2: How can you handle missing data effectively in Pandas?

Exercise 8: Merging DataFrames

If you have two DataFrames, say df1 and df2, with common columns, perform the following tasks:

Merge them based on a common column (e.g., 'ID').
Perform inner, outer, left, and right joins.

Q3: What are the different types of DataFrame merges, and when would you use each?

Exercise 9: Time Series Data
If you're working with time series data, here are some tasks:

Resample the data to a different frequency (e.g., daily to monthly).
Calculate moving averages or rolling statistics.
Plot a time series.

Q1: How can you effectively work with time series data in Pandas?

Exercise 10: Advanced Indexing
Explore advanced indexing techniques:

Set a column as the DataFrame's index.
Use MultiIndex for more complex data structures.
Slice and select data using loc and iloc.