```python
import pandas as pd
import numpy as np


# Creating a dummy dataset
data = {
    'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eve'],
    'Age': [25, 30, 35, 40, 45],
    'Salary': [50000, 60000, 70000, 80000, 90000],
    'Department': ['HR', 'IT', 'Finance', 'HR', 'IT'],
    'Start_Date': pd.to_datetime(['2020-01-01', '2019-03-15', '2021-05-20', '2018-09-10', '2022-02-28']),
    'Experience': [5, 10, 3, 15, 2],
    'Rating': [4.2, 3.8, 4.5, 4.0, 4.7]
}


df = pd.DataFrame(data)
df
```

Question 1: Selecting a Subset of the DataFrame

Let's select employees who are older than 30:

Question 2: Creating New Columns Derived from Existing Columns

Let's create a new column called "Age_Group" based on the age of the employees:

Question 3: Calculating Summary Statistics

Let's calculate summary statistics for the numerical columns in the DataFrame:

Question 4: Reshaping the Layout of Tables

Let's reshape the DataFrame to have "Name" as the index and "Department" as columns, with "Salary" as values:

Question 5: Combining Data from Multiple Tables

Let's create another DataFrame with bonus information and merge it with the original DataFrame:

Question 6: Manipulating Textual Data

Let's create a new column based on the length of the employee's name:

Question 7: Filtering Data Based on Multiple Conditions

Let's filter the DataFrame to include only employees from the IT department who are older than 30:

Question 8: Creating a New Column Based on Conditions

Let's create a new column called "Performance" based on the employee's rating:

Question 9: Calculating Group-Wise Summary Statistics

Let's calculate the mean salary and experience for each department:

Question 10: Sorting Data

Let's sort the DataFrame by age in descending order:

Question 11: Concatenating DataFrames

Let's create a new DataFrame with additional employee information and concatenate it with the original DataFrame:

Question 12: Handling Missing Data

Let's introduce some missing data and fill it with the mean salary: