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# HandsOn 30 Aug
# https://codeshare.io/J7Aewr
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Exercise 5: Handling Missing Values
1. Create a DataFrame with missing values:
   data = {
       "Name": ["Amit", "Neha", "Raj", "Priya"],
       "Age": [28, None, 35, 29],
       "City": ["Delhi", "Mumbai", None, "Chennai"]
   }

2. Fill missing values in the `"Age"` column with the average age.
3. Drop rows where any column has missing data.

import pandas as pd

data = {
    "Name": ["Amit", "Neha", "Raj", "Priya"],
    "Age": [28, None, 35, 29],
    "City": ["Delhi", "Mumbai", None, "Chennai"]
}
df = pd.DataFrame(data)
print(df)

df["Age"] = df["Age"].fillna(df["Age"].mean())
print(df)

df_cleaned = df.dropna()
print(df_cleaned)


Exercise 6: Adding and Removing Columns
1. Add a new column `"Salary"` with the following values: `[50000, 60000, 70000, 65000]`.
2. Remove the `"City"` column from the DataFrame.

df["Salary"] = [50000, 60000, 70000, 65000]
print(df)

df = df.drop(columns=["City"])
print(df)
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Exercise 7: Sorting Data
1. Sort the DataFrame by `"Age"` in ascending order.
2. Sort the DataFrame first by `"City"` and then by `"Age"` in descending order.


df_sorted_by_age = df.sort_values(by="Age", ascending=True)
print(df_sorted_by_age)


df_sorted_by_city_age = df.sort_values(by=["City", "Age"], ascending=[True, False])
print(df_sorted_by_city_age)



Exercise 8: Grouping and Aggregation
1. Group the DataFrame by `"City"` and calculate the average `"Age"` for each city.
2. Group the DataFrame by `"City"` and `"Age"`, and count the number of occurrences for each group.


avg_age_by_city = df.groupby("City")["Age"].mean()
print(avg_age_by_city)

count_by_city_age = df.groupby(["City", "Age"]).size()
print(count_by_city_age)



Exercise 9: Merging DataFrames**
1. Create two DataFrames:A
   df1 = pd.DataFrame({
       "Name": ["Amit", "Neha", "Raj"],
       "Department": ["HR", "IT", "Finance"]
   })

   df2 = pd.DataFrame({
       "Name": ["Neha", "Raj", "Priya"],
       "Salary": [60000, 70000, 65000]
   })
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2. Merge `df1` and `df2` on the `"Name"` column using an inner join.
3. Merge the same DataFrames using a left join.


df1 = pd.DataFrame({
    "Name": ["Amit", "Neha", "Raj"],
    "Department": ["HR", "IT", "Finance"]
})

df2 = pd.DataFrame({
    "Name": ["Neha", "Raj", "Priya"],
    "Salary": [60000, 70000, 65000]
})

merged_inner = pd.merge(df1, df2, on="Name", how="inner")
print(merged_inner)

merged_left = pd.merge(df1, df2, on="Name", how="left")
print(merged_left)
```