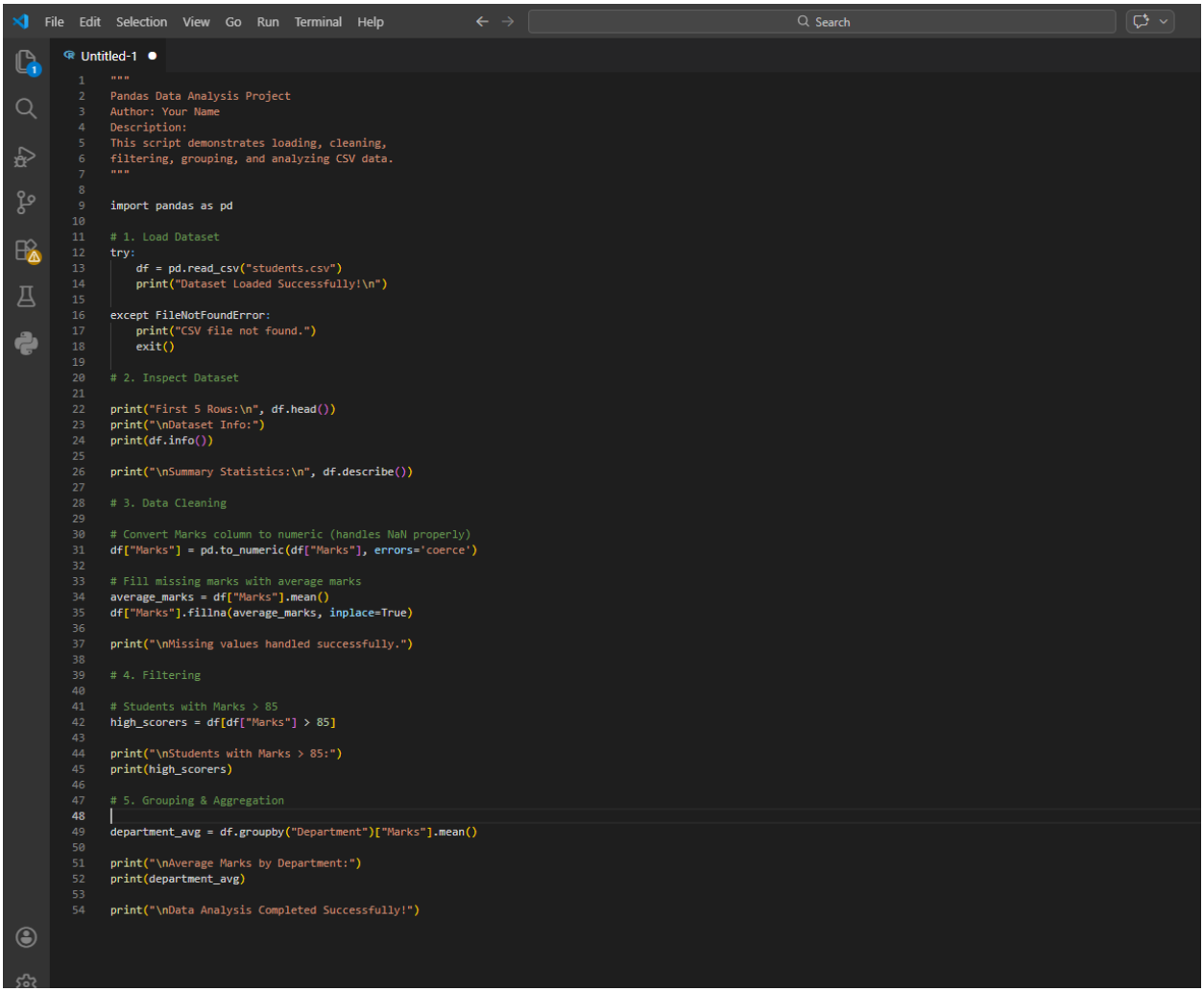
```
"""
Pandas Data Analysis Project
Author: Your Name
Description:
This script demonstrates loading, cleaning,
filtering, grouping, and analyzing CSV data.
"""

import pandas as pd

# 1. Load Dataset
try:
    df = pd.read_csv("students.csv")
    print("Dataset Loaded Successfully!\n")

except FileNotFoundError:
    print("CSV file not found.")
    exit()

# 2. Inspect Dataset
print("First 5 Rows:\n", df.head())
print("\nDataset Info:")
print(df.info())

print("\nSummary Statistics:\n", df.describe())
```

```
# 3. Data Cleaning

# Convert Marks column to numeric (handles NaN properly)
df["Marks"] = pd.to_numeric(df["Marks"], errors='coerce')

# Fill missing marks with average marks
average_marks = df["Marks"].mean()
df["Marks"].fillna(average_marks, inplace=True)

print("\nMissing values handled successfully.")

# 4. Filtering

# Students with Marks > 85
high_scorers = df[df["Marks"] > 85]

print("\nStudents with Marks > 85:")
print(high_scorers)

# 5. Grouping & Aggregation

department_avg = df.groupby("Department")["Marks"].mean()

print("\nAverage Marks by Department:")
print(department_avg)
```

```
print("\nData Analysis Completed Successfully!")
```

Github repository

https://github.com/Karan6165/Alfido-Tech-Internship.git

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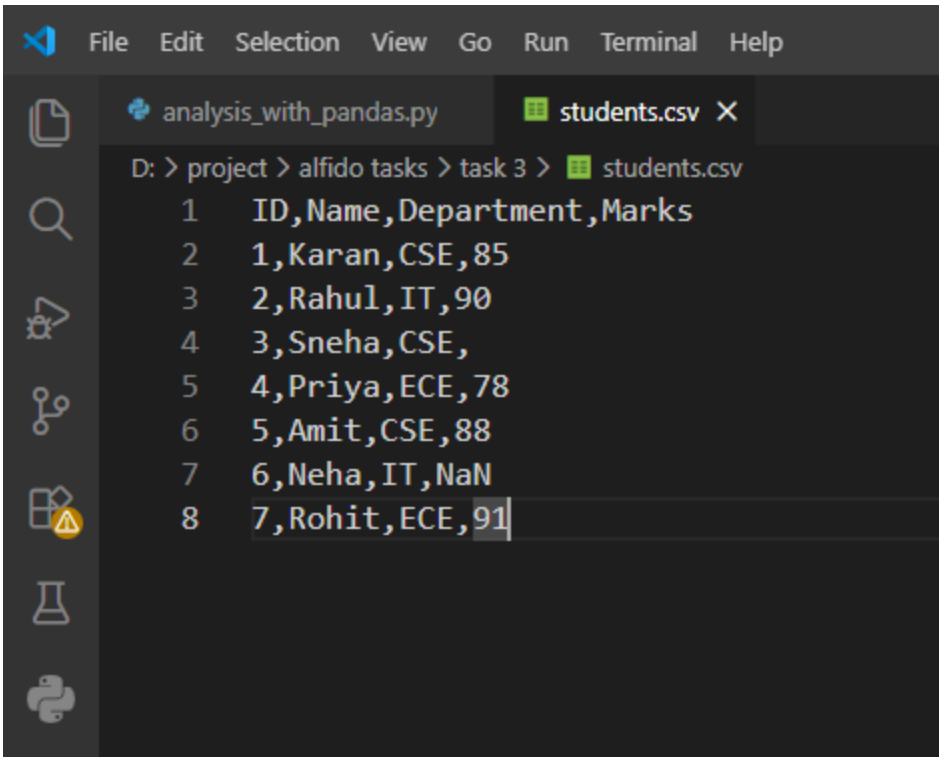
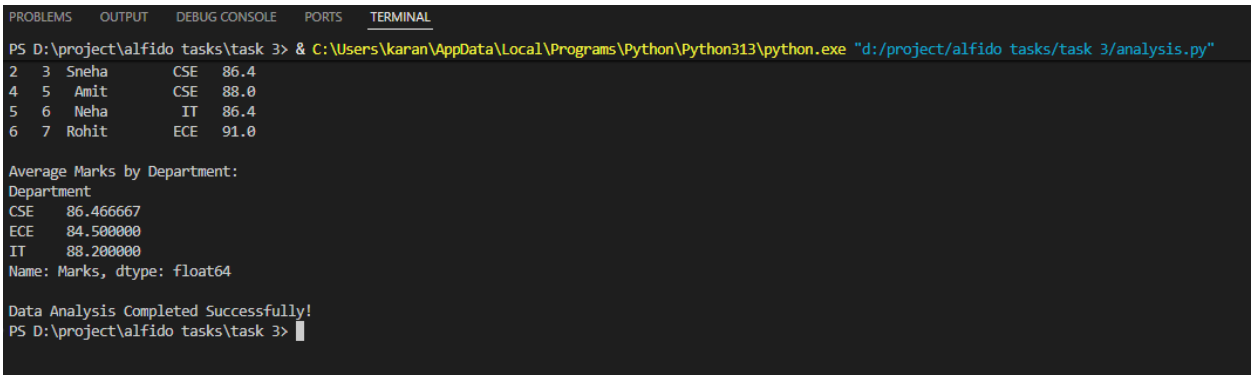



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  PORTS  TERMINAL                                                    Python

PS D:\project\alfido tasks\task 3> & C:\Users\karan\AppData\Local\Programs\Python\Python313\python.exe "d:/project/alfido tasks/task 3/analysis.py"
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7 entries, 0 to 6
Data columns (total 4 columns):
 #   Column      Non-Null Count  Dtype
---  ------      --------------  -----
 0   ID          7 non-null      int64
 1   Name        7 non-null      object
 2   Department  7 non-null      object
 3   Marks       5 non-null      float64
dtypes: float64(1), int64(1), object(2)
memory usage: 356.0+ bytes
None

Summary Statistics:
             ID     Marks
count  7.000000   5.00000
mean   4.000000  86.40000
std    2.160247   5.22494
min    1.000000  78.00000
25%    2.500000  85.00000
50%    4.000000  88.00000
75%    5.500000  90.00000
max    7.000000  91.00000
d:\project\alfido tasks\task 3\analysis.py:40: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained assignment using an inplace method.
The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting values always behaves as a copy.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to perform the operation inplace on the origina
l object.


  df["Marks"].fillna(average_marks, inplace=True)

Missing values handled successfully.

Students with Marks > 85:
   ID   Name Department  Marks
1   2  Rahul         IT   90.0
2   3  Sneha        CSE   86.4
4   5   Amit        CSE   88.0
5   6   Neha         IT   86.4
6   7  Rohit        ECE   91.0

Average Marks by Department:
Department
CSE    86.466667
ECE    84.500000
IT     88.200000
Name: Marks, dtype: float64

Data Analysis Completed Successfully!
PS D:\project\alfido tasks\task 3>

Do you want to install the recommended 'Rainbow CSV' extension from mechatroner for students.csv?
Install  Show Recommendations
```


PROBLEMS OUTPUT DEBUG CONSOLE PORTS TERMINAL
PS D:\project\alfido tasks\task 3> & C:\Users\karan\AppData\Local\Programs\Python\Python313\python.exe "d:/project/alfido tasks/task 3/analysis.py"
2 3 Sneha CSE 86.4
4 5 Amit CSE 88.0
5 6 Neha IT 86.4
6 7 Rohit ECE 91.0
Average Marks by Department:
Department
CSE 86.466667
ECE 84.500000
IT 88.200000
Name: Marks, dtype: float64
Data Analysis Completed Successfully!
PS D:\project\alfido tasks\task 3>