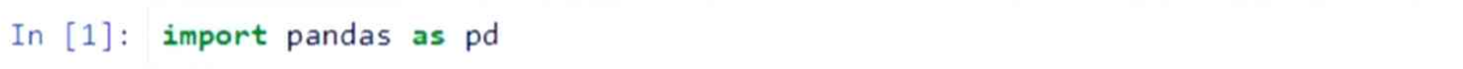
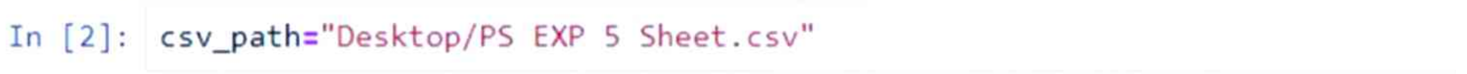
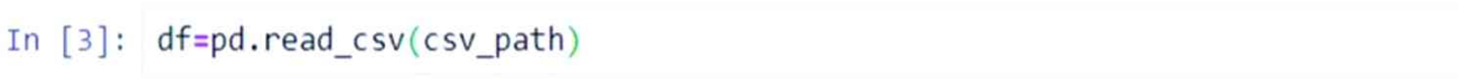


```
In [1]: import pandas as pd
```

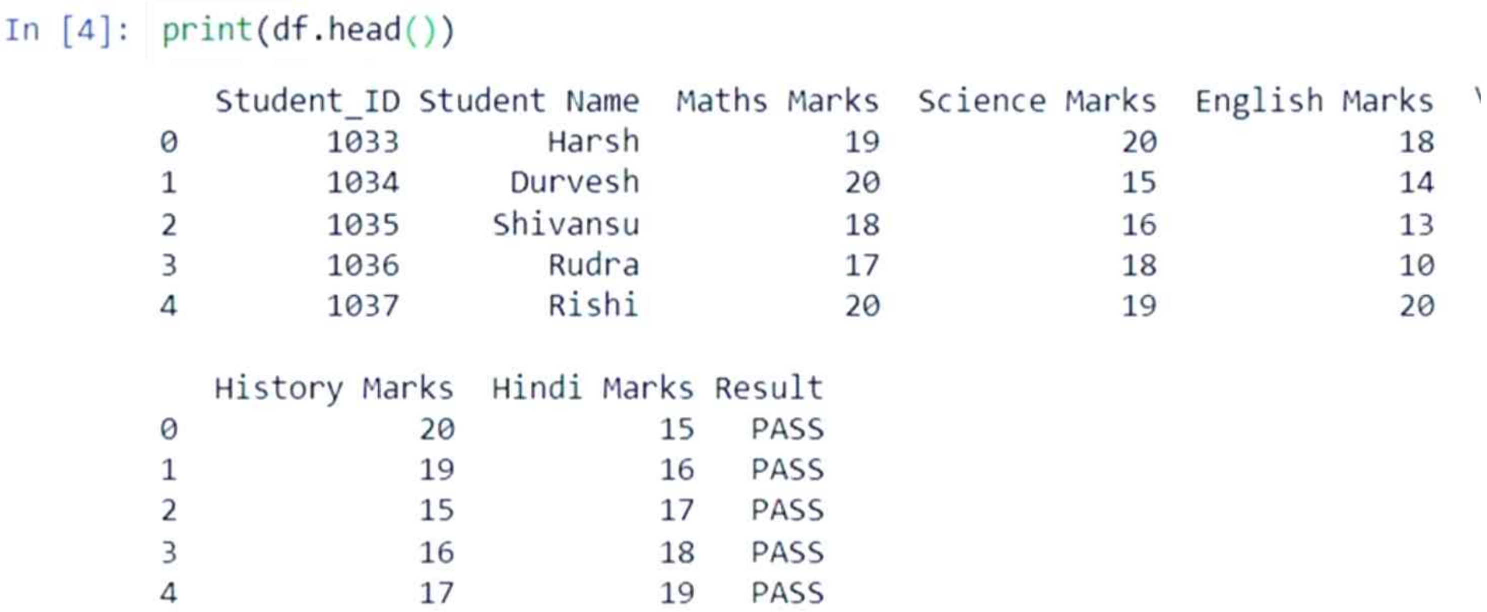
2. Import data from a CSV file:



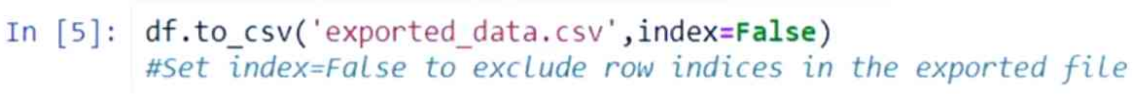
```
In [2]: csv_path="Desktop/PS EXP 5 Sheet.csv"
```



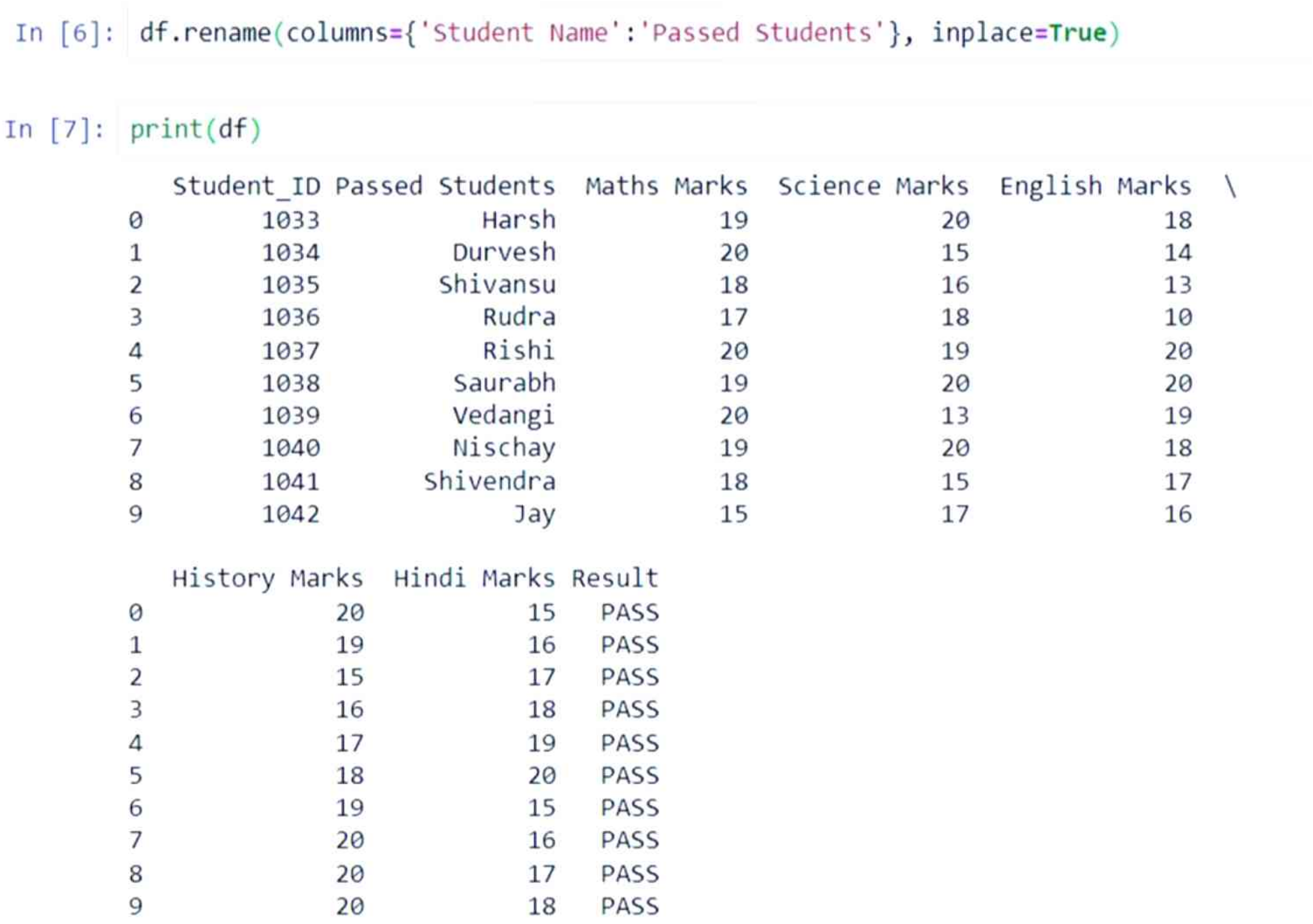
```
In [3]: df=pd.read_csv(csv_path)
```



```
In [4]: print(df.head())

   Student_ID Student Name  Maths Marks  Science Marks  English Marks
0        1033        Harsh           19             20             18
1        1034      Durvesh           20             15             14
2        1035     Shivansu           18             16             13
3        1036        Rudra           17             18             10
4        1037        Rishi           20             19             20

   History Marks  Hindi Marks Result
0             20           15   PASS
1             19           16   PASS
2             15           17   PASS
3             16           18   PASS
4             17           19   PASS
```



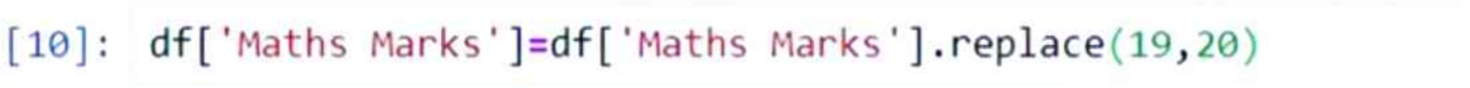
```
In [5]: df.to_csv('exported_data.csv',index=False)
        #Set index=False to exclude row indices in the exported file
```



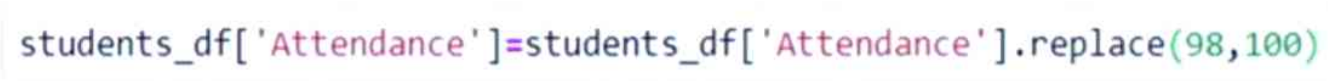
```
In [6]: df.rename(columns={'Student Name':'Passed Students'}, inplace=True)
```

```
In [7]: print(df)
```

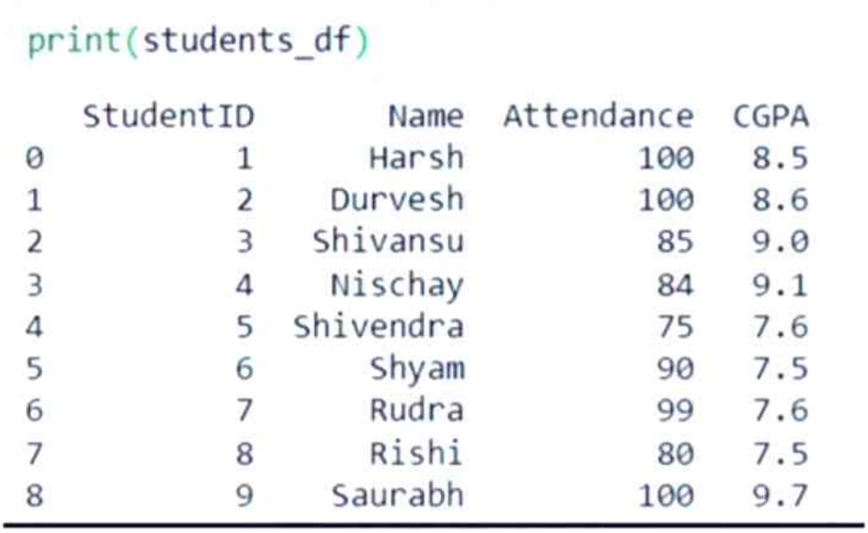
```
   Student_ID Passed Students  Maths Marks  Science Marks  English Marks  \
0        1033           Harsh           19             20             18
1        1034         Durvesh           20             15             14
2        1035        Shivansu           18             16             13
3        1036           Rudra           17             18             10
4        1037           Rishi           20             19             20
5        1038         Saurabh           19             20             20
6        1039         Vedangi           20             13             19
7        1040         Nischay           19             20             18
8        1041       Shivendra           18             15             17
9        1042             Jay           15             17             16

   History Marks  Hindi Marks Result
0             20           15   PASS
1             19           16   PASS
2             15           17   PASS
3             16           18   PASS
4             17           19   PASS
5             18           20   PASS
6             19           15   PASS
7             20           16   PASS
8             20           17   PASS
9             20           18   PASS
```



```
[10]:  df['Maths Marks']=df['Maths Marks'].replace(19,20)
```

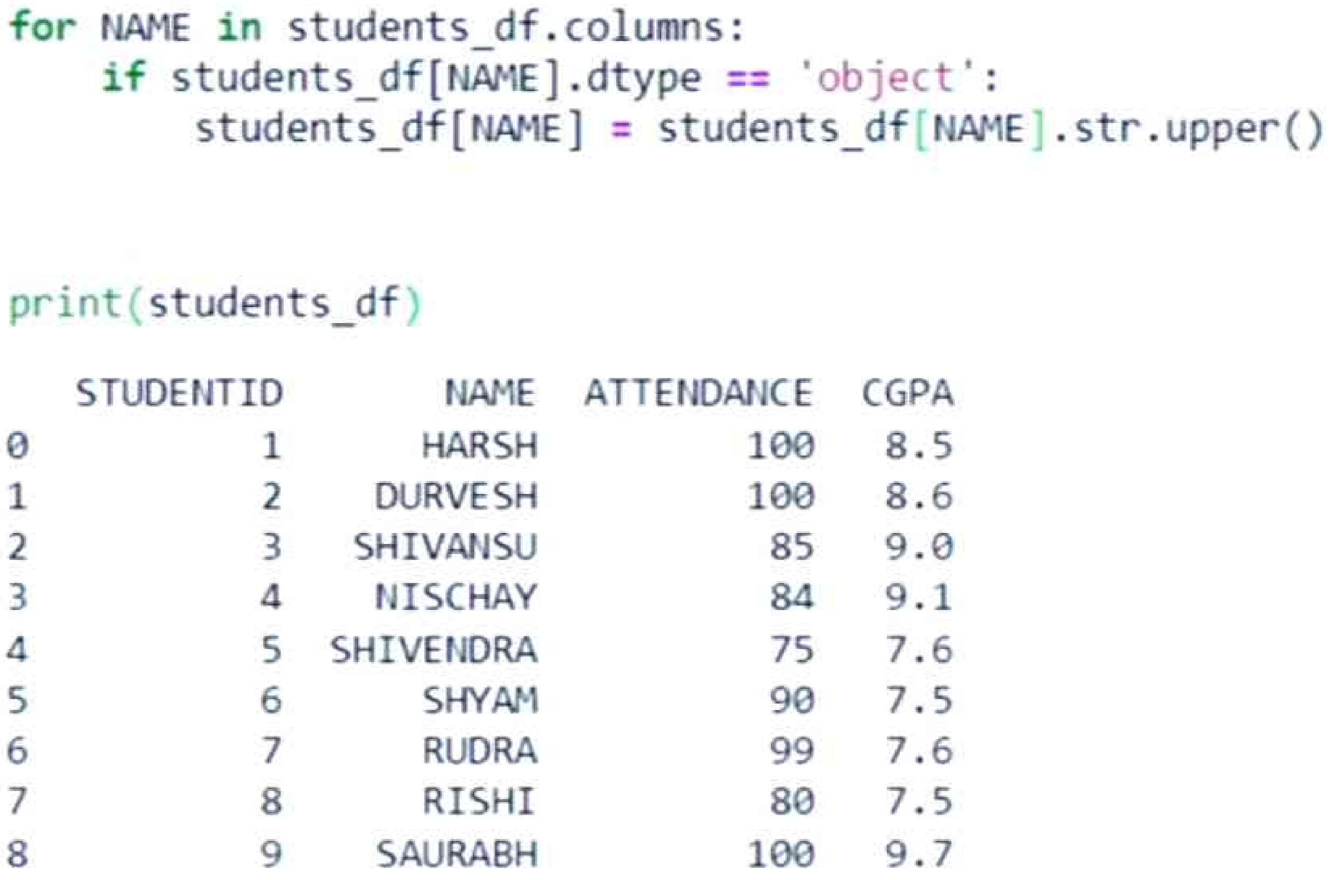


```
students_df['Attendance']=students_df['Attendance'].replace(98,100)
```



```
print(students_df)
```

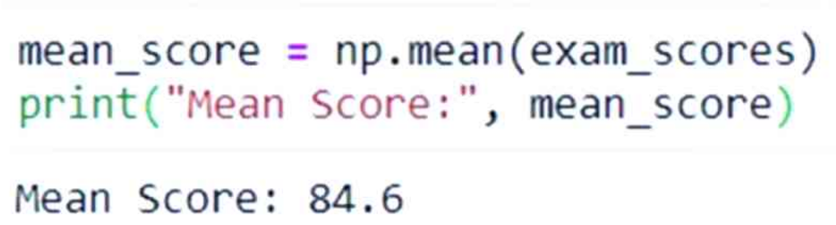
```
   StudentID       Name  Attendance  CGPA
0          1      Harsh         100   8.5
1          2    Durvesh         100   8.6
2          3   Shivansu          85   9.0
3          4    Nischay          84   9.1
4          5  Shivendra          75   7.6
5          6      Shyam          90   7.5
6          7      Rudra          99   7.6
7          8      Rishi          80   7.5
8          9    Saurabh         100   9.7
```



```
for NAME in students_df.columns:
    if students_df[NAME].dtype == 'object':
        students_df[NAME] = students_df[NAME].str.upper()
```

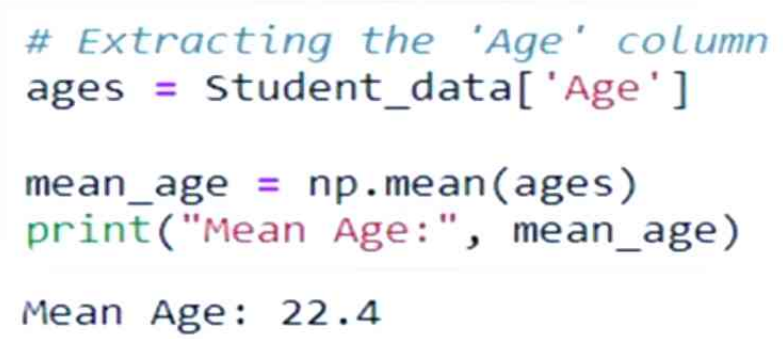
```
print(students_df)
```

```
   STUDENTID       NAME  ATTENDANCE  CGPA
0          1      HARSH         100   8.5
1          2    DURVESH         100   8.6
2          3   SHIVANSU          85   9.0
3          4    NISCHAY          84   9.1
4          5  SHIVENDRA          75   7.6
5          6      SHYAM          90   7.5
6          7      RUDRA          99   7.6
7          8      RISHI          80   7.5
8          9    SAURABH         100   9.7
```



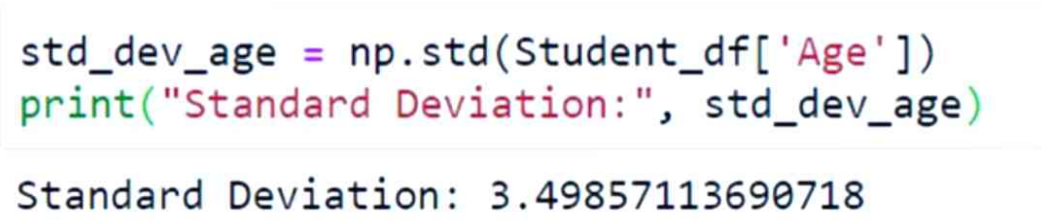
```
mean_score = np.mean(exam_scores)
print("Mean Score:", mean_score)
```

```
Mean Score: 84.6
```



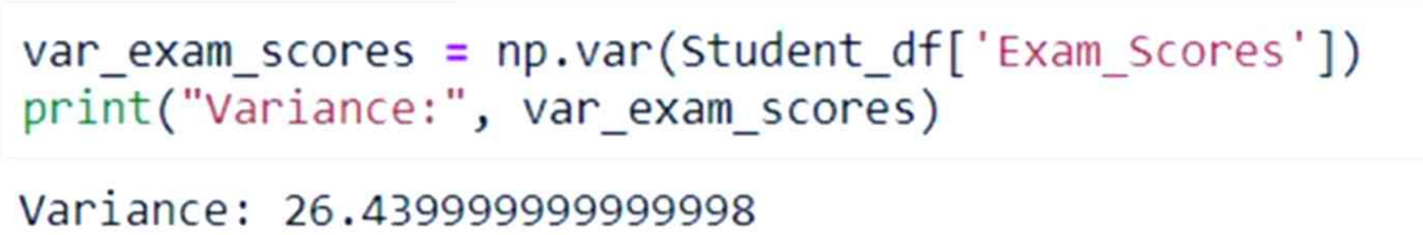
```
# Extracting the 'Age' column
ages = Student_data['Age']

mean_age = np.mean(ages)
print("Mean Age:", mean_age)
```

```
Mean Age: 22.4
```



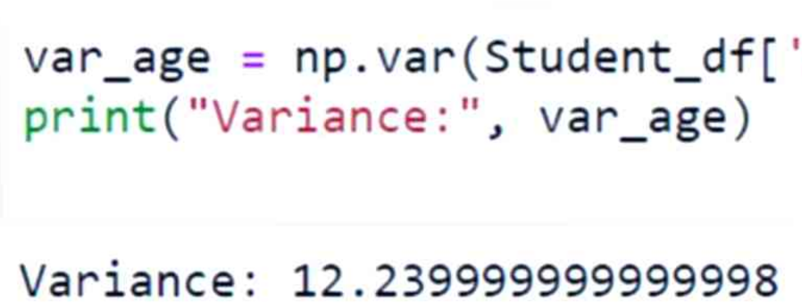
```
std_dev_age = np.std(Student_df['Age'])
print("Standard Deviation:", std_dev_age)
```

```
Standard Deviation: 3.49857113690718
```



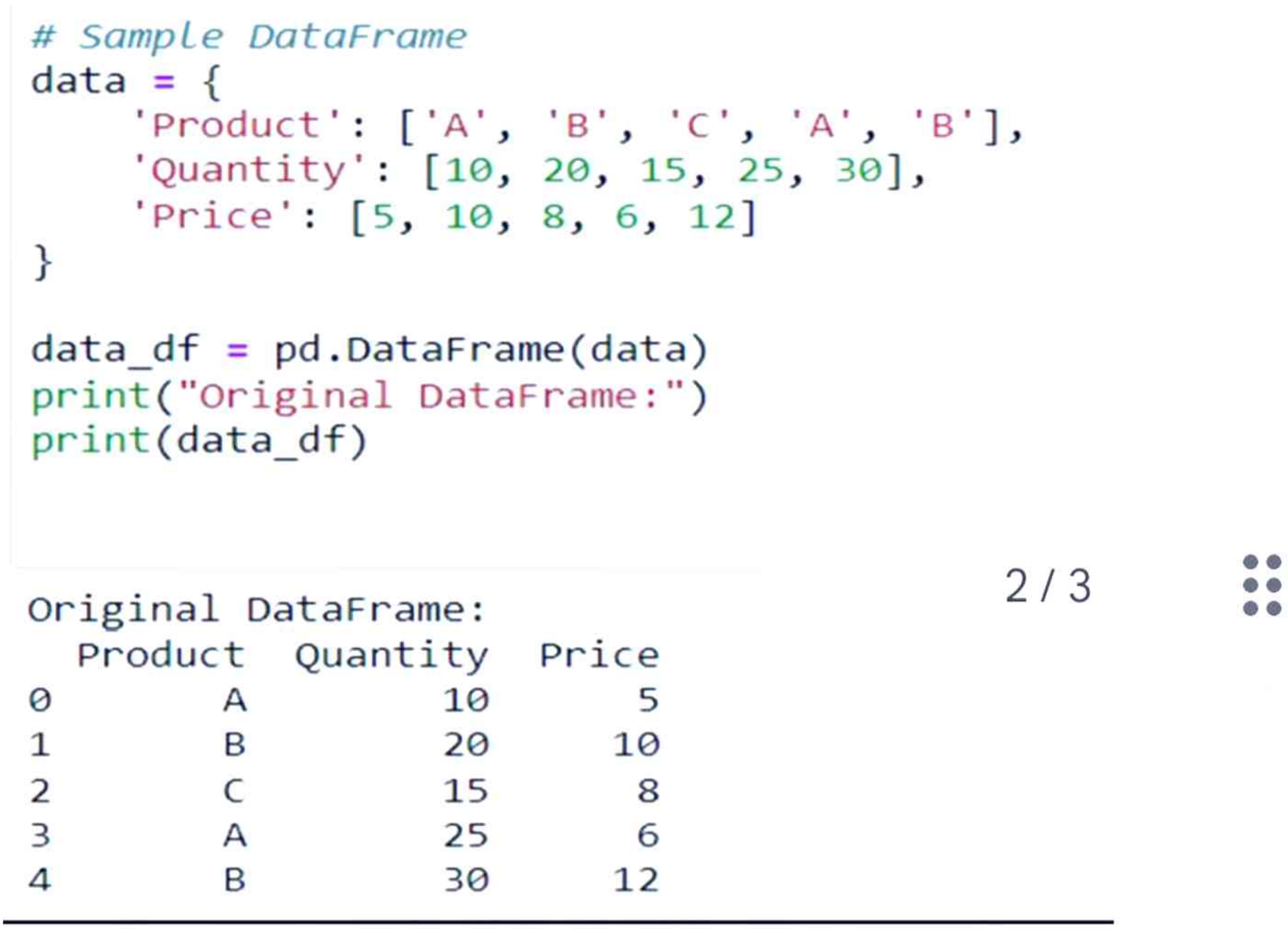
```
var_exam_scores = np.var(Student_df['Exam_Scores'])
print("Variance:", var_exam_scores)
```

```
Variance: 26.439999999999998
```



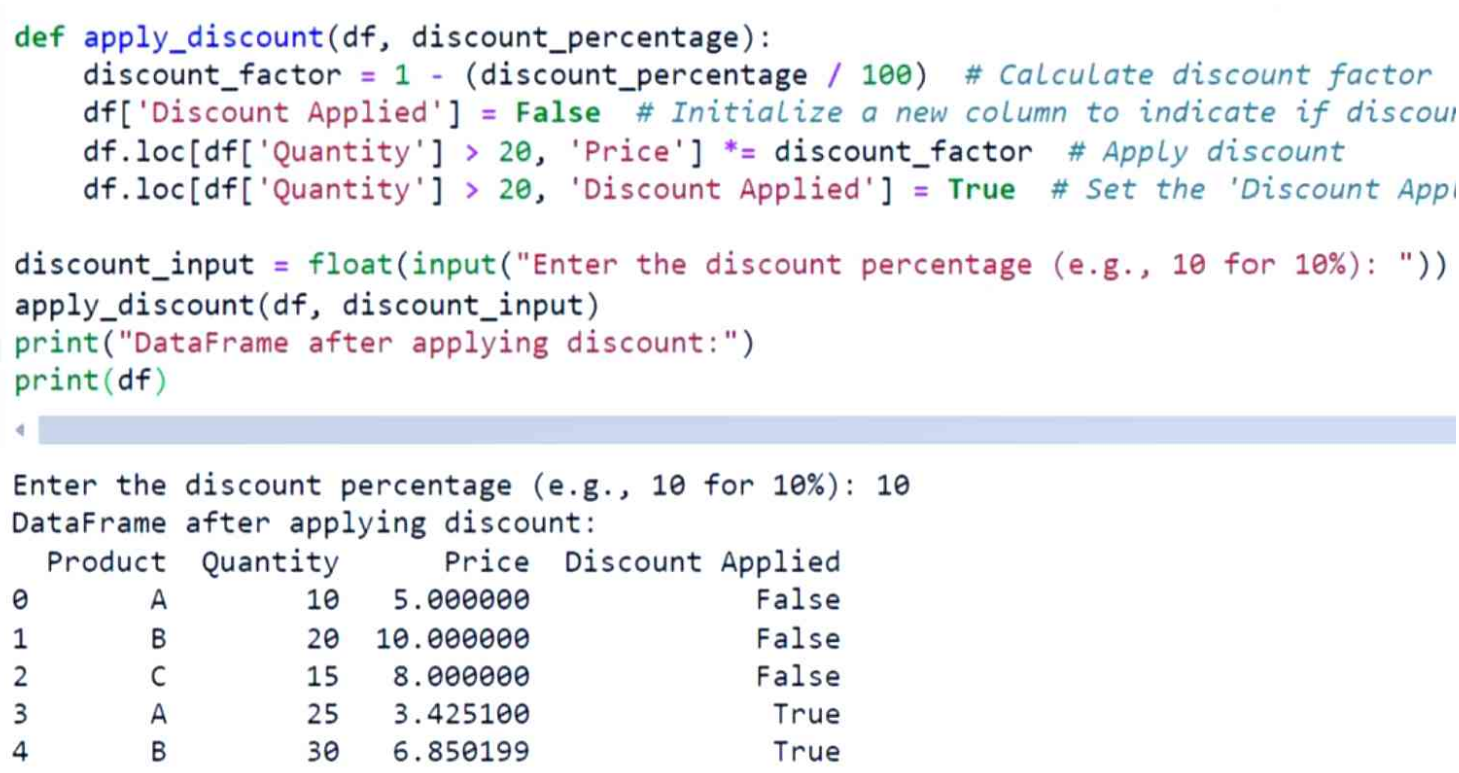
```
var_age = np.var(Student_df['Age'])
print("Variance:", var_age)
```

```
Variance: 12.239999999999998
```



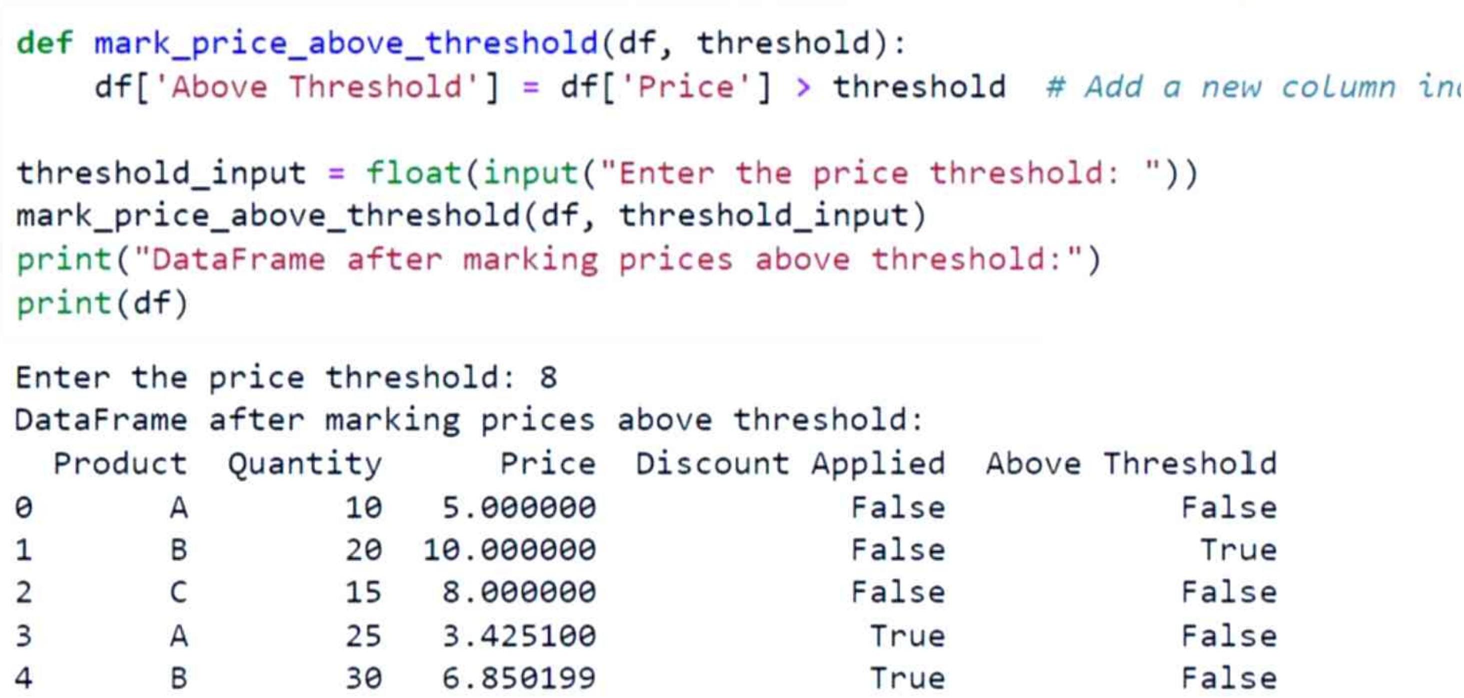
```python
# Sample DataFrame
data = {
    'Product': ['A', 'B', 'C', 'A', 'B'],
    'Quantity': [10, 20, 15, 25, 30],
    'Price': [5, 10, 8, 6, 12]
}

data_df = pd.DataFrame(data)
print("Original DataFrame:")
print(data_df)
```

```
Original DataFrame:
  Product  Quantity  Price
0       A        10      5
1       B        20     10
2       C        15      8
3       A        25      6
4       B        30     12
```



```
def apply_discount(df, discount_percentage):
    discount_factor = 1 - (discount_percentage / 100)  # Calculate discount factor
    df['Discount Applied'] = False  # Initialize a new column to indicate if discou
    df.loc[df['Quantity'] > 20, 'Price'] *= discount_factor  # Apply discount
    df.loc[df['Quantity'] > 20, 'Discount Applied'] = True  # Set the 'Discount App

discount_input = float(input("Enter the discount percentage (e.g., 10 for 10%): "))
apply_discount(df, discount_input)
print("DataFrame after applying discount:")
print(df)
```

```
Enter the discount percentage (e.g., 10 for 10%): 10
DataFrame after applying discount:
  Product  Quantity      Price  Discount Applied
0       A        10   5.000000             False
1       B        20  10.000000             False
2       C        15   8.000000             False
3       A        25   3.425100              True
4       B        30   6.850199              True
```



```
def mark_price_above_threshold(df, threshold):
    df['Above Threshold'] = df['Price'] > threshold  # Add a new column in

threshold_input = float(input("Enter the price threshold: "))
mark_price_above_threshold(df, threshold_input)
print("DataFrame after marking prices above threshold:")
print(df)
```

```
Enter the price threshold: 8
DataFrame after marking prices above threshold:
  Product  Quantity      Price  Discount Applied  Above Threshold
0       A        10   5.000000             False            False
1       B        20  10.000000             False             True
2       C        15   8.000000             False            False
3       A        25   3.425100              True            False
4       B        30   6.850199              True            False
```