Data Manipulation with Pandas

```
import pandas as pd

import numpy as np


# Sample CSV data as a string

csv_data = """Date,Product,Sales,Region,Profit

2024-01-01,Product A,150,North,50

2024-01-02,Product B,200,South,60

2024-01-03,Product C,,West,70

2024-01-04,Product A,300,East,90

2024-01-05,Product B,400,North,120

2024-01-06,Product C,500,South,150

2024-01-07,Product A,600,West,200

2024-01-08,Product B,,East,80

2024-01-09,Product C,900,North,250

2024-01-10,Product A,1000,South,300"""


# Load the CSV data into a Pandas DataFrame

df = pd.read_csv(io.StringIO(csv_data))


# 1. Filter data for sales greater than 200

filtered_df = df[df['Sales'] > 200]


# 2. Handle missing values by filling them with the mean of the column

df['Sales'].fillna(df['Sales'].mean(), inplace=True)
```

```
# 3. Calculate summary statistics
summary_stats = {
    'Sales': {
        'mean': df['Sales'].mean(),
        'median': df['Sales'].median(),
        'std': df['Sales'].std()
    },
    'Profit': {
        'mean': df['Profit'].mean(),
        'median': df['Profit'].median(),
        'std': df['Profit'].std()
    }
}

print("Filtered DataFrame:\n", filtered_df)
print("\nSummary Statistics:\n", summary_stats)
```

Filtered DataFrame

	Date	Product	Sales	Region	Profit
3	2024-01-04	Product A	300.0	East	90
4	2024-01-05	Product B	400.0	North	120
5	2024-01-06	Product C	500.0	South	150
6	2024-01-07	Product A	600.0	West	200
8	2024-01-09	Product C	900.0	North	250
9	2024-01-10	Product A	1000.0	South	300

Summary Statistics

{'Sales': {'mean': 506.25, 'median': 503.125, 'std': 275.3154756113632}, 'Profit': {'mean': 137.0, 'median': 105.0, 'std': 86.41630504585218}}