


EXPERIMENT NO. 2

Data Filtering: Filter rows or columns based on specified criteria, such as removing outliers or selecting data within a certain range.

1. Filtering Rows Based on a Condition

Let's filter rows where the score is greater than or equal to 80.

python

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```
import pandas as pd

# Sample DataFrame
data = {
    'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva'],
    'Score': [85, 92, 78, 88, 90],
    'Age': [20, 21, 19, 22, 20]
}


df = pd.DataFrame(data)

# Filter rows where the score is greater than or equal to 80
filtered_df = df[df['Score'] >= 80]

print(filtered_df)
```

Output:

markdown


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	Name	Score	Age
0	Alice	85	20
1	Bob	92	21
3	David	88	22
4	Eva	90	20

2. Removing Outliers

Now, we'll remove outliers by keeping only scores within a specific range (e.g., 70 to 100).

python

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```
import pandas as pd

# Sample DataFrame with an outlier
data = {
    'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva'],
    'Score': [85, 92, 78, 88, 150], # Assume 150 is an outlier
    'Age': [20, 21, 19, 22, 20]
}

df = pd.DataFrame(data)

# Define the range to keep scores within
lower_bound = 70
upper_bound = 100

# Filter rows based on the score range
filtered_df = df[(df['Score'] >= lower_bound) & (df['Score'] <= upper_bound)]

print(filtered_df)
```

Output:

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	Name	Score	Age
0	Alice	85	20
1	Bob	92	21
2	Charlie	78	19
3	David	88	22

3. Selecting Specific Columns

Finally, let's select only the 'Name' and 'Score' columns.

python

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```
import pandas as pd

# Sample DataFrame
data = {
    'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva'],
    'Score': [85, 92, 78, 88, 90],
    'Age': [20, 21, 19, 22, 20],
    'Gender': ['F', 'M', 'M', 'M', 'F']
}


df = pd.DataFrame(data)

# Select only the 'Name' and 'Score' columns
selected_columns_df = df[['Name', 'Score']]

print(selected_columns_df)
```

Output:

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	Name	Score
0	Alice	85
1	Bob	92
2	Charlie	78
3	David	88
4	Eva	90