

```
In [1]: #2 pandas
#1 declare empty dataframe
import pandas as pd
df = pd.DataFrame()
print(df)
```

```
Empty DataFrame
Columns: []
Index: []
```

```
In [2]: #2 declare and print the dataframe series
import pandas as pd
series = pd.Series([10, 20, 30, 40, 50])
print(series)
```

```
0    10
1    20
2    30
3    40
4    50
dtype: int64
```

```
In [3]: #3 add one column and row
import pandas as pd
df = pd.DataFrame()
df['A'] = [1, 2, 3]
df.loc[3] = [4]
print(df)
```

```
   A
0  1
1  2
2  3
3  4
```

```
In [4]: #4 extract any one column and row based on condition
import pandas as pd
data = {'A': [1, 2, 3, 4, 5], 'B': [10, 20, 30, 40, 50]}
df = pd.DataFrame(data)

column_A = df['A']

filtered_row = df[df['A'] > 3]

print("Extracted Column 'A':")
print(column_A)

print("\nFiltered Rows (where 'A' > 3):")
print(filtered_row)
```

Extracted Column 'A':

```
0    1
1    2
2    3
3    4
4    5
```

Name: A, dtype: int64

Filtered Rows (where 'A' > 3):

```
   A  B
3  4 40
4  5 50
```

```
In [6]: #5 do the functions like sum, square root,
#min, max functions, sort and merge of values
import pandas as pd
import numpy as np

data = {'A': [1, 2, 3, 4, 5], 'B': [10, 20, 30, 40, 50]}
df = pd.DataFrame(data)
print(df)
```

```
   A  B
0  1 10
1  2 20
2  3 30
3  4 40
4  5 50
```

```
In [7]: # Sum of column 'A'
sum_A = df['A'].sum()
print("Sum of column 'A':", sum_A)
```

Sum of column 'A': 15

```
In [8]: # Square root of column 'A'
sqrt_A = np.sqrt(df['A'])
print("Square root of column 'A':")
print(sqrt_A)
```

```
Square root of column 'A':
0    1.000000
1    1.414214
2    1.732051
3    2.000000
4    2.236068
Name: A, dtype: float64
```

```
In [9]: # Minimum value in column 'A'
min_A = df['A'].min()
print("Minimum of column 'A':", min_A)

# Maximum value in column 'A'
max_A = df['A'].max()
print("Maximum of column 'A':", max_A)
```

```
Minimum of column 'A': 1
Maximum of column 'A': 5
```

```
In [10]: # Sort values in column 'A'
sorted_A = df['A'].sort_values()
print("Sorted values in column 'A':")
print(sorted_A)
```

```
Sorted values in column 'A':
0    1
1    2
2    3
3    4
4    5
Name: A, dtype: int64
```

```
In [11]: # Create another DataFrame
data2 = {'A': [3, 4, 5], 'C': [300, 400, 500]}
df2 = pd.DataFrame(data2)

# Merge the two DataFrames on column 'A'
merged_df = pd.merge(df, df2, on='A')
print("Merged DataFrame:")
print(merged_df)
```

```
Merged DataFrame:
   A  B    C
0  3  30  300
1  4  40  400
2  5  50  500
```

In [12]: *#6 create series from array, dictionary*

```
import pandas as pd
import numpy as np

# Create a numpy array
array = np.array([10, 20, 30, 40, 50])

# Create a Series from the array
series_from_array = pd.Series(array)

# Print the Series
print("Series from Array:")
print(series_from_array)
```

Series from Array:

```
0    10
1    20
2    30
3    40
4    50
dtype: int32
```

In [13]: *# Create a dictionary*

```
dictionary = {'a': 100, 'b': 200, 'c': 300, 'd': 400, 'e': 500}

# Create a Series from the dictionary
series_from_dict = pd.Series(dictionary)

# Print the Series
print("\nSeries from Dictionary:")
print(series_from_dict)
```

Series from Dictionary:

```
a    100
b    200
c    300
d    400
e    500
dtype: int64
```

```
In [14]: #7 Create Series using Scalar value,index
import pandas as pd

# Define a scalar value
scalar_value = 10

# Define an index
index = ['a', 'b', 'c', 'd', 'e']

# Create a Series using the scalar value and the index
series = pd.Series(scalar_value, index=index)

# Print the Series
print("Series using Scalar Value and Index:")
print(series)
```

Series using Scalar Value and Index:

```
a    10
b    10
c    10
d    10
e    10
dtype: int64
```

In [ ]: