NUMPY ARRAY OPERATIONS

```
import numpy as np
array = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
multiplied_by_2 = array * 2
added_5 = array + 5
squared = np.square(array)
print("Original Array:\n", array)
print("Array multiplied by 2:\n", multiplied_by_2)
print("Array with 5 added:\n", added_5)
print("Array squared:\n", squared)
```

NUMPY ARRAY SLICING

```
import numpy as np
array = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
first_row = array[0, :]
last_column = array[:, 2]
center_subarray = array[1:3, 1:3]
print("First Row:", first_row)
print("Last Column:", last_column)
print("2x2 Center Subarray:\n", center_subarray)
```

DATA FRAMES OF STUDENTS AND MARKS

```
import pandas as pd
data = {'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eve', 'Frank', 'Grace', 'Helen', 'Ivy', 'Jack'],
        'Marks': [85, 92, 78, 88, 90, 82, 91, 79, 95, 87]}
df = pd.DataFrame(data)
print(df)
```

DATA FRAMES OF EMPLOYEE AND INCOMES

```
import pandas as pd
data = {'Employee_name': ['John', 'Emma', 'Liam', 'Sophia', 'James'],
```

```
    'Income': [50000, 62000, 48000, 75000, 58000]}
df = pd.DataFrame(data, index=['a', 'b', 'c', 'd', 'e'])
print(df)
```

BAR PLOT VISUALIZATIONS

```
import matplotlib.pyplot as plt
x = ['A', 'B', 'C', 'D', 'E']
y = [10, 20, 15, 25, 30]
plt.bar(x, y)
plt.xlabel('Categories')
plt.ylabel('Frequency')
plt.title('Bar Plot of Categories and Frequency')
plt.show()
```