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PS C:\Users\Ritu> & "C:/Program Files/Python312/python.exe" "c:/Users/Ritu/Desktop/DATA_ANAYLIST/PYTHON
S PROJECTS/Project - 8.py"
-------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 1
Array Creation:
1. 1D array
2. 2D array
3. 3D array
4. Go back
Select the type of array:1
Enter elements separated by space:1 2 3 4 5 6 7

Array created successfully:
 [1 2 3 4 5 6 7]

Shape: (7,)
-------------------------
Array Creation:
1. 1D array
2. 2D array
3. 3D array
4. Go back
Select the type of array:2
Rows:3
columns:4
Enter 12 elements separated by space:2 3 4 5 1 7 8 9 2 4 3 4

Array created successfully:
 [[2 3 4 5]
```

```
Array created successfully:
 [[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]

Shape: (3, 4)
------------------------
Array Creation:
1. 1D array
2. 2D array
3. 3D array
4. Go back
Select the type of array:3
Layer:3
Rows:3
columns:3
Enter 27 elements separated by space: 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9

Array created successfully:
 [[[1 2 3]
  [4 5 6]
  [7 8 9]]

 [[1 2 3]
  [4 5 6]
  [7 8 9]]

 [[1 2 3]
  [4 5 6]
  [7 8 9]]]

Shape: (3, 3, 3)
------------------------
Array Creation:
1. 1D array
2. 2D array
3. 3D array
4. Go back
Select the type of array:4
```

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------------------------
1. Create Array
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8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 2

Array Indexing/Slicing:
1.Indexing
2.Slicing
3.Go back
Enter your choice: 1

Indexing Menu:
1. 1D Indexing
2. 2D Indexing
3. 3D Indexing
4.Go Back
Enter choice: 1
[1 2 3 4 5 6 7]
Enter index: 4
Value: 5

Indexing Menu:
1. 1D Indexing
2. 2D Indexing
3. 3D Indexing
4.Go Back
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter row index: 2
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```
Enter row index: 2
Enter column index: 3
Value: 4

Indexing Menu:
1. 1D Indexing
2. 2D Indexing
3. 3D Indexing
4.Go Back
Enter choice: 3
[[[1 2 3]
  [4 5 6]
  [7 8 9]]

 [[1 2 3]
  [4 5 6]
  [7 8 9]]

 [[1 2 3]
  [4 5 6]
  [7 8 9]]]
Enter layer index: 1
Enter row index: 1
Enter column index: 2
Value: 6

Indexing Menu:
1. 1D Indexing
2. 2D Indexing
3. 3D Indexing
4.Go Back
Enter choice: 4

Array Indexing/Slicing:
1.Indexing
2.Slicing
3.Go back
Enter your choice: 2
```

```
Slicing Menu:
1. 1D slicing
2. 2D slicing
3. 3D slicing
4. Go Back
Enter choice: 1
[1 2 3 4 5 6 7]
start: 2
stop :4
step :2
Result: [2 4]

Slicing Menu:
1. 1D slicing
2. 2D slicing
3. 3D slicing
4. Go Back
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Row start: 2
Row end: 3
step :1
Col start: 2
Col end: 3
step :1
Result:
 [[3]]

Slicing Menu:
1. 1D slicing
2. 2D slicing
3. 3D slicing
4. Go Back
Enter choice: 3
[[[1 2 3]
  [4 5 6]
  [7 8 9]]
```

```
 [[1 2 3]
  [4 5 6]
  [7 8 9]]

 [[1 2 3]
  [4 5 6]
  [7 8 9]]]
Layer start: 1
Layer end: 3
step :1
Row start: 1
Row end: 2
step :1
Col start: 1
Col end: 2
step :1
Result:
 [[[5]]

 [[5]]]

Slicing Menu:
1. 1D slicing
2. 2D slicing
3. 3D slicing
4. Go Back
Enter choice: 4

Array Indexing/Slicing:
1.Indexing
2.Slicing
3.Go back
Enter your choice: 3
-------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
```

```
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 3

Combine or Split Arrays on 2D:
1.Combine Array
2.Split Array
3.Go Back
Enter choice: 1
Enter 12 elements1 2 4 3 6 5 8 7 9 2 9 3
Combine Array: [[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]
 [1 2 4 3]
 [6 5 8 7]
 [9 2 9 3]]

Combine or Split Arrays on 2D:
1.Combine Array
2.Split Array
3.Go Back
Enter choice: 2
Enter num you want to split: 3

Split Array:
[[2 3 4 5]]
[[1 7 8 9]]
[[2 4 3 4]]

Combine or Split Arrays on 2D:
1.Combine Array
2.Split Array
3.Go Back
Enter choice: 3
------------------------
```

```
------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 4
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]

Search, Sort, and Filter:
1.Search Array
2.Sort Array
3.Filter Array
4.Go Back
Enter choice: 6

Search, Sort, and Filter:
1.Search Array
2.Sort Array
3.Filter Array
4.Go Back
Enter choice: 1
Enter value to search: 3
(array([0, 2]), array([1, 2]))

Search, Sort, and Filter:
1.Search Array
2.Sort Array
3.Filter Array
4.Go Back
Enter choice: 2
[[2 3 4 5]
```

```
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 3 4 4]]

Search, Sort, and Filter:
1.Search Array
2.Sort Array
3.Filter Array
4.Go Back
Enter choice: 3
Enter value and show gt value:5
[7 8 9]

Search, Sort, and Filter:
1.Search Array
2.Sort Array
3.Filter Array
4.Go Back
Enter choice: 4
------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 5
 Mathematical Operations:
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Go Back
Enter choice: 1
```

```
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter New 12 Element: 2 1 3 4 5 6 7 8 9 3 4 5
[[2 1 3 4]
 [5 6 7 8]
 [9 3 4 5]]

Addition
 [[ 4  4  7  9]
 [ 6 13 15 17]
 [11  7  7  9]]
------------------------
 Mathematical Operations:
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Go Back
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter New 12 Element: 1 2 3 4 5 6 7 8 9 2 3 1
[[1 2 3 4]
 [5 6 7 8]
 [9 2 3 1]]

Subtraction
 [[ 1  1  1  1]
 [-4  1  1  1]
 [-7  2  0  3]]
------------------------
 Mathematical Operations:
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Go Back
```

```
Enter choice: 3
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter New 12 Element: 1 2 1 2 1 2 1 2 1 2 1 2
[[1 2 1 2]
 [1 2 1 2]
 [1 2 1 2]]

Multiplication
 [[ 2  6  4 10]
 [ 1 14  8 18]
 [ 2  8  3  8]]
------------------------
 Mathematical Operations:
1.Addition
2.Subtraction
3.Multiplication
4.Division
5.Go Back
Enter choice: 4
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter New 12 Element: 3 4 5 6 7 8 9 1 2 3 4 6
[[3 4 5 6]
 [7 8 9 1]
 [2 3 4 6]]

Division
 [[0.66666667 0.75       0.8        0.83333333]
 [0.14285714 0.875      0.88888889 9.        ]
 [1.         1.33333333 0.75       0.66666667]]
------------------------
 Mathematical Operations:
1.Addition
2.Subtraction
3.Multiplication
4.Division
```

```
4.Division
5.Go Back
Enter choice: 5
-------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 6

Aggregates and Statistics:
1.sum
2.Mean
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 1
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Sum is:  52
------------------------

Aggregates and Statistics:
1.sum
2.Mean
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 2
```

```
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Mean is:  4.333333333333333
-------------------------

Aggregates and Statistics:
1.sum
2.Mean
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 3
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Median is:  4.0
-------------------------

Aggregates and Statistics:
1.sum
2.Mean
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 4
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Standard Deviation is:  2.3921166824012206
-------------------------

Aggregates and Statistics:
1.sum
2.Mean
3.Median
```

```
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 5
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Variance is:  5.722222222222222
------------------------

Aggregates and Statistics:
1.sum
2.Mean
3.Median
4.Standard Deviation
5.Variance
6.Go back
Enter choice: 6
------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 7

Min,Max,Percentiles:
1.Min
2.Max
3.Percentiles
4.Go back
Enter choice: 1
[[2 3 4 5]
```

```
Enter choice: 1
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Minimum:  1

Min,Max,Percentiles:
1.Min
2.Max
3.Percentiles
4.Go back
Enter choice: 2
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Minimum:  9

Min,Max,Percentiles:
1.Min
2.Max
3.Percentiles
4.Go back
Enter choice: 3
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Enter percentile (0-100): 45
45th Percentile: 3.95

Min,Max,Percentiles:
1.Min
2.Max
3.Percentiles
4.Go back
Enter choice: 4
-------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
```

```
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 8
[[ 1.         -0.97072534 -0.98198051 -0.98198051]
 [-0.97072534  1.          0.9078413   0.9078413 ]
 [-0.98198051  0.9078413   1.          1.        ]
 [-0.98198051  0.9078413   1.          1.        ]]
------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 9
1. Dot Product
2. Matrix Multiplication
3.Go back
Enter choice: 1
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]

Dot Product
Enter 12 elements): 1 4 2 7 8 4 5 6 2 9 2 3
Dot Product: 245
1. Dot Product
2. Matrix Multiplication
3.Go back
```

```
3.Go back
Enter choice: 2

Matrix A:
[[2 3 4 5]
 [1 7 8 9]
 [2 4 3 4]]
Matrix A shape: 3 x 4
Matrix B must have 4 rows.
Enter number of columns for Matrix B: 2
Enter 8 elements separated by space: 2 4 6 8 1 3 5 7

Matrix B:
[[2 4]
 [6 8]
 [1 3]
 [5 7]]

Result:
[[ 51  79]
 [ 97 147]
 [ 51  77]]
1. Dot Product
2. Matrix Multiplication
3.Go back
Enter choice: 3
-------------------------
1. Create Array
2. Index/Slice Array
3. Combine Arrays/Split Array
4. Search, Sort, or Filter Arrays
5. Mathematical Operations
6. Compute Aggregates and Statistics
7. Min,Max,Percentiles
8. Correlation
9. Dot/Matrix Operations
10. Exit
Enter your Choice: 10
PS C:\Users\Ritu>
```