

Lesson 5: Multidimensional Arrays

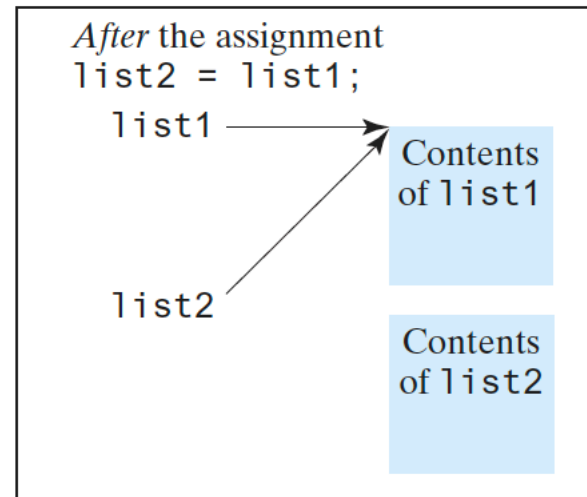
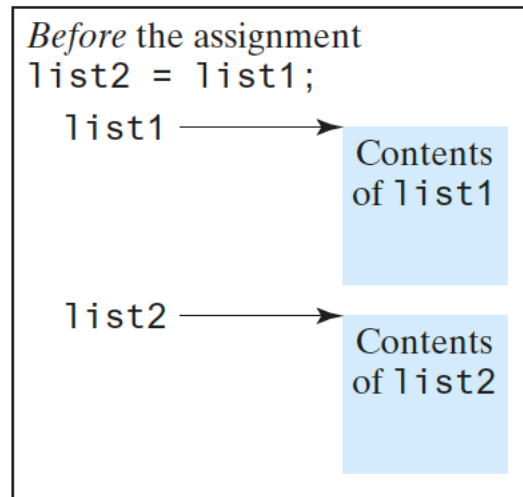
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- Practice:
 - Initialize Arrays with console input
 - Initialize arrays with random input
 - Sum all the elements of the array
 - Finding largest element in the array
 - Finding smallest index of largest element
 - Random Shuffling
 - Shifting elements
 - Obtain month name based on the user input

Demonstration3: Copying Array

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- ArrayCopy
- Practice:
 - Write a for loop to copy one array to another

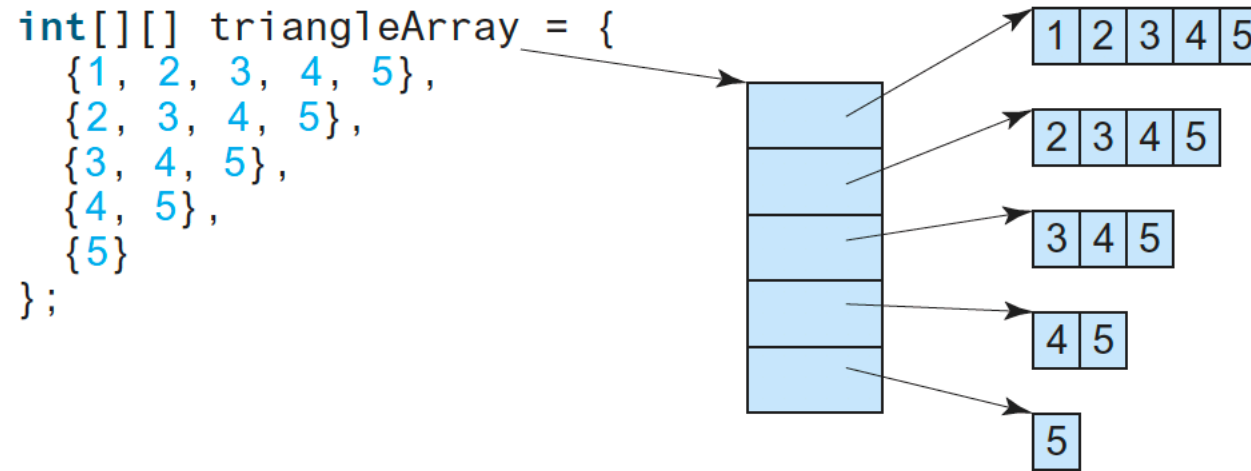


Distance Table (in miles)

	Chicago	Boston	New York	Atlanta	Miami	Dallas	Houston
Chicago	0	983	787	714	1375	967	1087
Boston	983	0	214	1102	1763	1723	1842
New York	787	214	0	888	1549	1548	1627
Atlanta	714	1102	888	0	661	781	810
Miami	1375	1763	1549	661	0	1426	1187
Dallas	967	1723	1548	781	1426	0	239
Houston	1087	1842	1627	810	1187	239	0

```
double[][] distances = {  
    {0, 983, 787, 714, 1375, 967, 1087},  
    {983, 0, 214, 1102, 1763, 1723, 1842},  
    {787, 214, 0, 888, 1549, 1548, 1627},  
    {714, 1102, 888, 0, 661, 781, 810},  
    {1375, 1763, 1549, 661, 0, 1426, 1187},  
    {967, 1723, 1548, 781, 1426, 0, 239},  
    {1087, 1842, 1627, 810, 1187, 239, 0},  
};
```

```
elementType[][] arrayRefVar;
```



```
int[][] triangleArray = new int[5][];  
triangleArray[0] = new int[5];  
triangleArray[1] = new int[4];  
triangleArray[2] = new int[3];  
triangleArray[3] = new int[2];  
triangleArray[4] = new int[1];
```

```
triangleArray[0][3] = 4;  
triangleArray[4][0] = 5;
```

- Nested for loops are often used to process a two-dimensional array.

How do you think following would be done a=in a 2D array?

1. **Initializaiton**
2. Random Initialization
3. **Printing Arrays**
4. Summing elements
5. Summing elements of columns or rows
6. Which row has largest sum?
7. Random Shuffling

- [Link1](#)
- [Official Documentation](#)

- [Link](#)
- Take a look at the example in `assignement/lesson3-4/multiplyDigits.java`