Java Array Exercises

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1. 1D Array – Exercise Questions

1. Write a Java program to store 5 numbers in a 1D array and print them in reverse order.
2. Write a program to find the sum and average of elements in a 1D array of size 10.
3. Given an array of integers, write code to find the maximum and minimum element.
4. Given int[] arr = {2, 4, 6, 8, 10}; print the square of each element.
5. Trace and write the output:

```
int[] nums = {1, 2, 3, 4};
for (int i = nums.length - 1; i >= 0; i--) {
   System.out.print(nums[i] + " ");
}
```

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2. 2D Array – Exercise Questions

6. Write a Java program to create a 3×3 matrix and print it.
7. Modify the program to print the sum of each row and sum of each column.
8. Create a 2×2 matrix and find its transpose (swap rows and columns).
9. Given:

```
int[][] mat = {
   {1, 2},
   {3, 4},
   {5, 6}
};
```

Write code to print elements in matrix form.

10. Trace and write the output:

```
int[][] m = {
   {10, 20},
   {30, 40}
};
System.out.println(m[0][1] + m[1][0]);
```

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3. Jagged Array – Exercise Questions

11. Create a jagged array with:

- first row: 2 elements
- second row: 4 elements

- third row: 3 elements
  Initialize with any numbers and print all elements.

12. Write a program to find the total number of elements in a jagged array.
13. Given:

```
int[][] jagged = new int[2][];
jagged[0] = new int[]{1, 2};
jagged[1] = new int[]{3, 4, 5};
```

Print the sum of all elements.

14. Write code to create a jagged array of 4 rows, where row i has i+1 elements (row 0 → 1 element, row 1 → 2 elements, etc.).
15. Write a Java program to create a 3×3 integer matrix (two-dimensional array) by reading its elements from the user, then ask the user to enter a number to search for in the matrix. The program should check whether the number exists in the matrix, and if it does, print its position or positions (row and column indices). If the number does not exist in the matrix, the program should print “Number not found.”.