**Assignment 3: Array Handling**

1. Write a Java program to find the sum and average of elements in a one-dimensional

array. Your program should prompt the user to input the size of the array and

then the elements of the array. After calculating the sum and average, display

the results along with the original array elements.

2. Implement a Java program to find the maximum and minimum elements in a one dimensional array. Your program should generate a random array of integers and then find the maximum and minimum values. Display the original array and the found maximum and minimum elements.

3. Create a Java program to sort elements in a one-dimensional array in ascending

order using the bubble sort algorithm. Allow the user to input the size of the

array and the elements. Display the original array and the sorted array after

applying the bubble sort.

4. Write a Java program to check if a given element exists in a one-dimensional

array. Prompt the user to input the element to search for and display whether it

exists in the array or not. Also, display the index(es) where the element is found

if it exists.

5. Implement a Java program to reverse the elements of a one-dimensional array.

Allow the user to input the size of the array and the elements. Display the original

array and the array after reversing its elements.

6. Develop a Java program to multiply two matrices represented as two-dimensional

arrays. Prompt the user to input the dimensions and elements of the matrices.

Perform matrix multiplication and display the resulting matrix.

7. Write a Java program to find the transpose of a matrix represented as a two-dimensional array. Allow the user to input the dimensions and elements of the

matrix. Calculate the transpose and display the original matrix along with its

transpose.

8. Create a Java program to add two matrices represented as two-dimensional arrays.

Prompt the user to input the dimensions and elements of the matrices.

Perform matrix addition and display the resulting matrix.

9. Implement a Java program to find the sum of elements in each row and column

of a matrix represented as a two-dimensional array. Allow the user to input

the dimensions and elements of the matrix. Calculate the sum of each row and

column and display the results.

10. Write a Java program to check if a matrix represented as a two-dimensional array

is symmetric. Allow the user to input the dimensions and elements of the matrix.

Check if the matrix is symmetric and display the result along with the original

matrix.