DAY 4 (QUESTION)

1. What is the default value assigned to array elements in C#?
   - Defauilt Value Of int >> 0
   - Defauilt Value Of String>> Null (searched for this point)
   - Defauilt Value Of bool>> false (searched for this point)

2. Question: What is the difference between Array.Clone() and Array.Copy()?
   - Array.Clone()>> use when want to copy all elements in an array.
     Syntax >> int[] arr2 = (int[])arr1.Clone();
   - Array.Copy()>> Use when wants to copy part in elements in an array. >> More Control.
     Syntax >> Array.Copy(arr1 , arr2 , length);

3. Question: What is the difference between GetLength() and Length for multi dimensional arrays?
   - Length >> Total number of elements in the array >>(row * col)
   - GetLength >> Number of elements in the each dimension
     >> GetLength(0) = Num of rows , GetLength(1) = Num of Columns.

4. Question: What is the difference between Array.Copy( ) and Array.ConstrainedCopy( )?
   - Array.Copy( )>> partially copied data remains if an exception occurs.
   - Array.ConstrainedCopy( )>> destination array remains unchanged if an exception occurs.

5. Question: Why is foreach preferred for read-only operations on arrays?
    - Can’t directly access the **index** of the elements.
    - Can't create **conditions** in foreach body

6. Question: Why is input validation important when working with user inputs?
    - Preventing Exception Errors.
7. Question: How can you format the output of a 2D array for better readability?
    - add row and column headers.
    - Space Between Columns.
    - Line Breaks
8. Question: When should you prefer a switch statement over if-else?
    - Multiple Conditions Based on a Single Variable.

9. Question: What is the time complexity of Array.Sort()?
    - depends on the sorting algorithm used and the nature of the input
    - Average Case: O(n log n)
    - Worst Case: O(n^2) (for QuickSort in the worst case)
    - Best Case: O(n log n) (for QuickSort with optimal pivots)

10. Question: Which loop (for or foreach) is more efficient for calculating the sum of an array, and why?
    - For is more efficient