**Jagged Arrays in C#**

**Explanation**

A **Jagged Array** is an array of arrays, where each element is a one-dimensional array that can have different sizes. It is essentially an array whose elements are arrays, making it flexible for storing data with varying lengths.

**Declaration and Initialization**

// Declare a jagged array

int[][] jaggedArray = new int[3][];

// Initialize each inner array

jaggedArray[0] = new int[] { 1, 2, 3 };

jaggedArray[1] = new int[] { 4, 5 };

jaggedArray[2] = new int[] { 6, 7, 8, 9 };

**Use Cases**

1. **Irregular Data Storage**: Representing data with rows of varying lengths, such as a calendar or a grading system.
2. **Performance Optimization**: Useful when memory usage needs to be efficient for datasets of varying sizes.
3. **Matrix-like Operations**: Handling sparse or irregular matrices.

**Common Operations**

* **Accessing Elements**:

Console.WriteLine(jaggedArray[0][1]); // Output: 2

* **Iterating through Elements**:

foreach (var row in jaggedArray)

{

foreach (var element in row)

{

Console.Write(element + " ");

}

Console.WriteLine();

}