

Search in a Sorted - 2D Array

Approach: Like Binary search: row increase, column decrease

11	12	13	14	
21	22	23	24	$i \rightarrow \text{increase}$
31	32	33	34	$j \rightarrow \text{decrease}$
41	42	43	44	

Diagram illustrating the search process in a 2D array. The array is sorted row-wise and column-wise. The element 42 is circled, and an arrow points from it to the left, indicating the search direction (decreasing column index).

```
int key = Console.WriteLine( );
```

```
int i = 0;
```

```
int j = arr.GetLength(1) - 1;
```

```
while (i < arr.GetLength(0) && j >= 0) {
```

```
    if (key == arr[i, j]) {
```

```
        Console.WriteLine(arr[i, j]);
```

```
        Console.WriteLine(j);
```

```
        return;
```

```
    }
```

```
    else if (key < arr[i, j]) {
```

```
        j--;
```

```
    } else {
```

```
        i++;
```

```
    }
```

```
}
```

```
Console.WriteLine("not found");
```