

53. intersection of Three Sorted Arrays Given three integer arrays arr1, arr2 and arr3 sorted in strictly increasing order, return a sorted array of only the integers that appeared in all three arrays. Example 1: Input: arr1 = [1,2,3,4,5], arr2 = [1,2,5,7,9], arr3 = [1,3,4,5,8] Output: [1,5] Explanation: Only 1 and 5 appeared in the three arrays  
**Program:**

```
def arrays_intersection(arr1, arr2, arr3):
    i = j = k = 0
    result = []

    while i < len(arr1) and j < len(arr2) and k < len(arr3):
        if arr1[i] == arr2[j] == arr3[k]:
            result.append(arr1[i])
            i += 1
            j += 1
            k += 1
        elif arr1[i] < arr2[j]:
            i += 1
        elif arr2[j] < arr3[k]:
            j += 1
        else:
            k += 1

    return result
```

# Example usage:

```
arr1 = [1, 2, 3, 4, 5]
```

```
arr2 = [1, 2, 5, 7, 9]
```

```
arr3 = [1, 3, 4, 5, 8]
```

```
print(arrays_intersection(arr1, arr2, arr3)) # Output: [1, 5]
```

**Output:**

```
"C:\Program Files\Python312\python.exe" "C:\Work Space\DAA COADS.PYTHON\PROGRAM 53.py"
[1, 5]

Process finished with exit code 0
```

**TIME COMPLEXITY:**

**O(n)**