

# CSE 12 – Basic Data Structures and Object-Oriented Design

## Lecture 12

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# Announcements

- Quiz 12 due Wednesday @ 12pm
- PA4 due Wednesday @ 11:59pm
- Survey 5 due Friday @ 11:59pm

# Topics

- Questions on Lecture 12?
- Combine/Sort

Questions on Lecture 12?

# SortFast – Draw the picture of sortC()

```
public class SortFast {  
  
    public static String s(int[] arr) { return Arrays.toString(arr); }  
  
    public static int[] combine(int[] part1, int[] part2) {  
        int index1 = 0, index2 = 0;  
        int[] combined = new int[part1.length + part2.length];  
        while(index1 < part1.length && index2 < part2.length) {  
            if(part1[index1] < part2[index2]) {  
                combined[index1 + index2] = part1[index1];  
                index1 += 1;  
            }  
            else {  
                combined[index1 + index2] = part2[index2];  
                index2 += 1;  
            }  
        }  
        while(index1 < part1.length) {  
            combined[index1 + index2] = part1[index1]; index1 += 1;  
        }  
        while(index2 < part2.length) {  
            combined[index1 + index2] = part2[index2]; index2 += 1;  
        }  
        System.out.println(s(part1) + " + " + s(part2) + " -> " + s(combined));  
        return combined;  
    }  
}
```

```
    public static int[] sortC(int[] arr) {  
        if(arr.length <= 1) { return arr; }  
        else {  
            int[] part1 = Arrays.copyOfRange(arr, 0, arr.length / 2);  
            int[] part2 = Arrays.copyOfRange(arr, arr.length / 2, arr.length);  
            System.out.println(s(arr) + " -> " + s(part1) + " + " + s(part2));  
            int[] sortedPart1 = sortC(part1);  
            int[] sortedPart2 = sortC(part2);  
            int[] sorted = combine(sortedPart1, sortedPart2);  
            return sorted;  
        }  
    }  
}  
  
main() {  
    int[] result = SortFast.sortC(new int[]{34, 93, 12, 49, 69, 25, 39 });  
    System.out.println(SortFast.s(result));  
}
```