

CSE 12 – Basic Data Structures and Object-Oriented Design

Lecture 13

Greg Miranda, Fall 2020

Announcements

- Quiz 13 due Wednesday @ 9am
- Survey 5 due Friday @ 11:59pm
- PA4 due Wednesday @ 11:59pm

• Exam 1 Grades Returned → Syllabus

- Average: 24.11 – 77.7%
- Total Points: 31

Exam 1
60%

F-Part 1
75%

↳ Final Exam

3 parts

↳ 1st part → replace
midterm if >

Topics

- Partition/Sort
- Questions on Lecture 13?

QuickSort – Draw the picture of sort()

```
public class Sort {  
    public static void swap(String[] array, int i1, int i2) {  
        String temp = array[i1];  
        array[i1] = array[i2];  
        array[i2] = temp;  
    }  
    public static int partition(String[] array, int low, int high) {  
        int pivotStartIndex = high - 1;  
        String pivot = array[pivotStartIndex];  
        int smallerBefore = low, largerAfter = high - 2;  
  
        while (smallerBefore <= largerAfter) {  
            if (array[smallerBefore].compareTo(pivot) < 0) {  
                smallerBefore += 1;  
            }  
            else {  
                swap(array, smallerBefore, largerAfter);  
                largerAfter -= 1;  
            }  
        }  
  
        swap(array, smallerBefore, pivotStartIndex);  
        return smallerBefore;  
    }  
}
```

```
public static void qsort(String[] array, int low, int high) {  
    if (high - low <= 1) { return; }  
  
    int splitAt = partition(array, low, high);  
  
    qsort(array, low, splitAt);  
    qsort(array, splitAt + 1, high);  
}  
  
public static void sort(String[] array) {  
    qsort(array, 0, array.length);  
}  
  
main() {  
    String[] str = {"f", "b", "a", "c", "d", "c"};  
  
    int[] result = Sort.sort(str);  
  
    System.out.println(Arrays.deepToString(result));  
}
```

Questions on Lecture 13?