```java
import java.util.Arrays;
import java.util.Comparator;

public class SortTheArrayInDecreasingOrder {

    // Sort on basis of factors

    public static void main(String[] args) {
        int[] arr = {1, 6, 100, 9, 5};
        sortUsingFactors(arr);
        System.out.println(Arrays.toString(arr));
    }

    /*
    1. Compare function -> Comparator interface
    2. Comparator -> Objects, does not work on primitive data type
     */
    public static void sortUsingFactors(int[] arr) {
        Integer[] newArray = new Integer[arr.length];
        for (int i = 0; i < arr.length; i++) {
            newArray[i] = Integer.valueOf(arr[i]);
        }

        // O(nlogn * O(sqrt(n)))
        Arrays.sort(newArray, new Comparator<Integer>() {
            @Override
            public int compare(Integer o1, Integer o2) {
                int factorsA = countFactors(o1);
                int factorsB = countFactors(o2);
                if (factorsA > factorsB) {
                    return 1;
                } else if (factorsA < factorsB) {
                    return -1;
                }
                return 0;
            }
        });

        for (int i = 0; i < arr.length; i++) {
            arr[i] = newArray[i];
        }
    }

    public static int countFactors(int n) {
        int cnt = 0;
        for (int i = 1; i <= n; i++) {
            if (n % i == 0) {
                cnt++;
            }
```

```
        }
        return cnt;
    }



}
```