CS 180 Problem Solving and OO Programming

Fall 2011

Recitation Week 12: November 10-11, 2012
Sorting and searching

Create a GUI titled "Sort and Search". The GUI has two text fields and two buttons labeled SORT and SEARCH. Let us refer to the text fields as `t1` and `t2`. The user may perform any of the following tasks.

Task 1: Enter a sequence of numbers in text field `t1` and click the `SORT` button. The program then open a second window that contains three buttons labeled `Ascending`, `Descending`, and `Cancel`. The user may choose to click any of the three buttons. If the `Ascending` button is clicked, your program must sort the numbers in t1 into ascending order and overwrite the contents of `t1` with the sorted list. If the `Descending` button is clicked, your program must sort the numbers in `t1` in descending order and overwrite the contents of `t1` with the sorted list. If the `Cancel` button is clicked then the program does not sort the data and waits for some user action. In each case, the second window is discarded soon after the user has clicked on any of the three buttons.

Note: A window can be disposed of by using the `dispose()` operation. For example, if f is a `JFrame`, then it can be disposed off by executing the following statement:

```
f.dispose();
```

Task 2: Enter a sequence of numbers in text field t1 and a number in field t2. Now click the Search button. If the number typed in `t2` is found among numbers typed in `t1` then your program creates a new window with the message "Number found" else it displays the message "Number does not exist." The window must have an `OK` button which when clicked destroys the window.

How to structure your program?

`Constructor`**:** Use this to create the GUI. Make sure the frame and other components are declared in the class and not inside the constructor.

`actionPerformed()`**:** Use this method to identify which button is clicked. Then call one of the appropriate methods given below.

`sort()`**:** This method is called when the `Sort` button is clicked. It calls `getOrder()` method to find the order in which the numbers in `t1` are to be sorted. The `getOrder()` method returns 0 if the user requested `Cancel`, 1 if the request is to sort in ascending

order, and 2 if the request is for descending order. The numbers are sorted as requested by the user and the sorted list is displayed in t1.

`search()`: This method is called when the `Search` button is clicked. It gets the number from `t2` and searches for it in the numbers typed in `t1`. The search outcome is displayed in a new window that is disposed when the user clicks the OK button on this new window.

`getOrder()`: This method creates a new window to obtain user preference regarding how to sort the numbers or to cancel the request. It returns a 0 if the request is canceled, a 1 if sorting is to be in ascending order and 2 if in descending order.

<End of Problems for Week 12>