

Addendum to Hand-in HW #4

In addition to the two comments I made in class, there are two more comments: a hint on #3 and a remark about #4. So please be sure to read this whole note.

1. As with HW #3, you may work with a single teammate if you wish, and if you'd like to but don't have one, please don't hesitate to let me know as soon as possible. As discussed in class, I do want to amend the teamwork rules to try to encourage roughly equal contributions from each partner. First, you are on your honor to share the write-up of problems equally – there are 4 problems, so each teammate should write up two of them. I would also like you to include a statement attesting to the fact that your work on this assignment was shared roughly equally between the two of you.
2. In problem #2, p. 165 #32, please change the set X to $X = \{1, 2, 3, 4, 5\}$ instead of $\{1, 2, \dots, 10\}$.
3. This is a minor hint on #3, to “level the playing field” for those of you who have not had a programming course. As discussed in class, you will need to initialize and then update two variables that keep track of the largest and second largest value. The hint is this: *when you update both of them, be careful of the order in which you do it*. For example, suppose I call the biggest value *big1*, and the second biggest value *big2*, and suppose at some point in the course of traversing the list, $big1 = 17$ and $big2 = 9$. Now suppose I come to list element s_i , and $s_i = 25$. I want to write my code so that, after updating, $big1 = 25$ and $big2 = 17$. You might be tempted to write the following in your pseudocode:

- 1) $big1 = s_i$
- 2) $big2 = big1$

But this doesn't work correctly, because in line 1, $big1$ becomes 25, so in line 2, $big2$ also becomes 25, when what you really wanted was $big2 = 17$. The problem is you wiped out the old value of $big1$ in line 1, before you used it to update $big2$. Here's the correct way:

- 1) $big2 = big1$
- 2) $big1 = s_i$

In other words, the order of these two lines really makes a difference.

4. On problem #4, you should feel free to use the “swap” function, as in “ $swap(s_i, s_{i+1})$ ”, as we did when we wrote Selection Sort.