Opening Discussion

- Minute essay comments:
  - Sending me IcP code.
Inner loop:
- Compare adjacent elements and swap them if they are out of order.

Outer loop:
- Repeat n-1 times or until no swaps are done.
- The latter option is called a flagged bubble sort.
Selection Sort

- This is often called a min-sort or a max-sort depending on how you write it. I'll describe a min-sort here.

- **Inner loop:**
  - Find the smallest element and SWAP it into position if not already there.

- **Outer loop:**
  - Repeat n-1 times so all elements are in the right place.
  
- Does only $O(n)$ swaps, but still $O(n^2)$ comparisons.
Insertion Sort

- **Inner loop:**
  - Take the next element and shift it down to the right spot.

- **Outer loop:**
  - Run through all the elements starting with the second.

- This sort is actually a bit faster (factor of 2) on random data. It is really efficient on nearly sorted data.
One advantage of doing graphics before sorting is that we can write code to visualize what is happening when we sort numbers with these sorts.
Show me what would happen after each iteration of the inner loop if we min-sort these values.

- 4, 7, 1, 3, 8, 2

Quiz #4 is next class.

Registration info:

- CS Major/Minor:
  - CSCI 1321, 1323, 1120, (consider 2094 if you weren't in it this semester)
  - Watch for e-mail about CSCI 3194

- Others:
  - CSCI 1321, PHED 1137