Outline

Announcement: out of town Thu 11/8, Tue 11/13, Tue 11/20
There will be guest lectures: John Umbaugh and Chris Kiekentveld

No office hours Thu 11/8, Fri 11/9, Tue 11/13, Tue 11/20

Last time: Sorting

- Selection sort
- Heap sort
- Insertion sort

Today: More sorting

- Insertion sort optimizations
- Merge sort

Insertion Sort

Algorithm (see Fig. 15.2):

- given a “pile” of items in an array
- insert into an already sorted array one item at a time using linear search
- non-adaptive version: continues linear search till end of sorted array
- adaptive version: stops linear search once an insertion point has been found

Contrast to selection sort:

- selection sort: *select* item from pile in order, add to the front (end) of sorted list
- insertion sort: pick next item from pile, *insert* in order into sorted list

Insertion Sort

Sort array $a[5, 2, 3, 8, 5, 1]$:

Non-adaptive: