Sorts

CSC 505 Spring 2022 (001)

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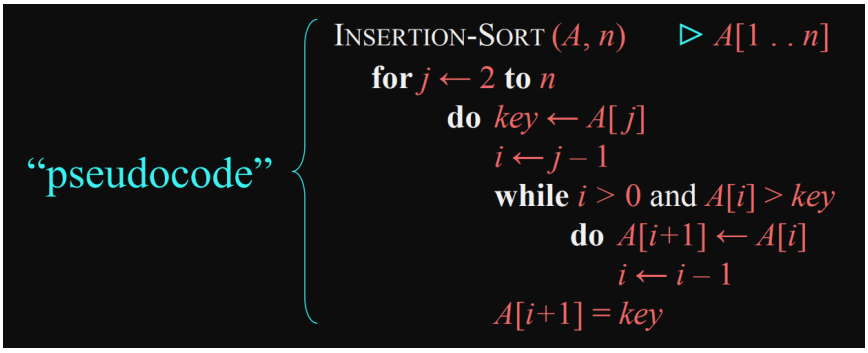
Contents

1 Insertion Sort

MIT OCW Introduction to Algorithms 6.046J/18.401J LECTURE 1



1.1 Stack Overflow

`https://stackoverflow.com/questions/12755568/how-does-python-insertion-sort-work`
Title: How does Python insertion sort work?

```
def insertion_sort(seq):
    for i in range(1, len(seq)):
        j = i
        while j > 0 and seq[j - 1] > seq[j]:
            seq[j - 1], seq[j] = seq[j], seq[j - 1]
            j -= 1
```

1.2 Changes

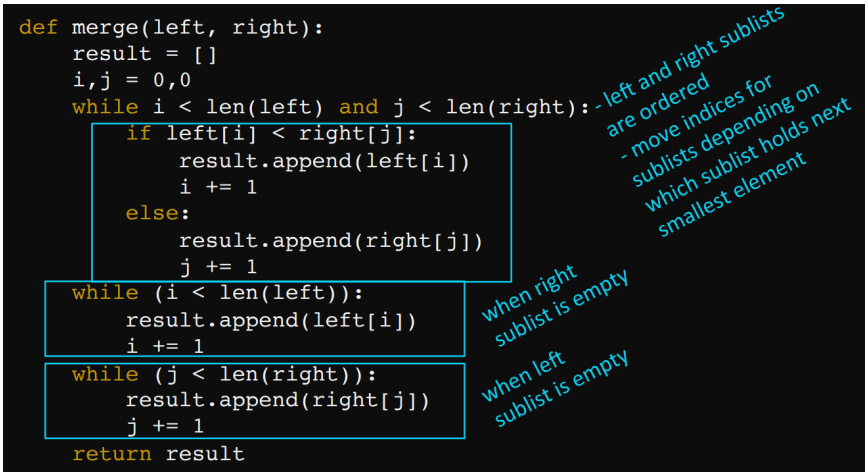
- Variable names were changed for consistency with mergeSort.
- Operator was switched to "less than" for consistency.

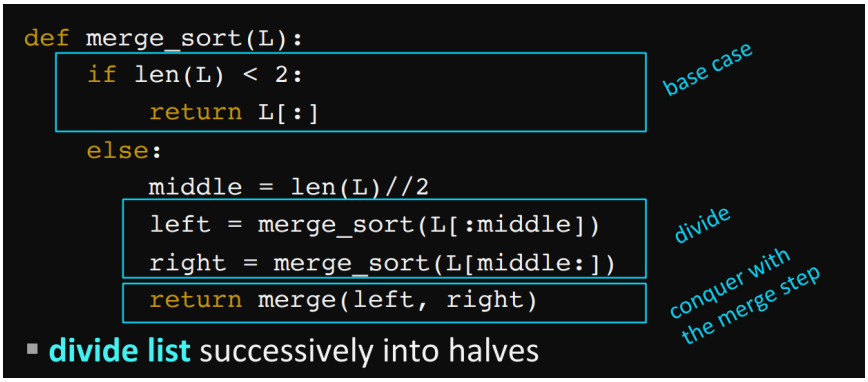
1.2.1 Note

Psuedocode does not exactly match implementation, but close inspection will reveal that the execution matches psuedocode.

2 Merge Sort

MIT OCW SEARCHING AND SORTING ALGORITHMS 6.0001 LECTURE 12





2.1 Changes

- Variable names were changed for consistency.
- Assignation of "middle" incorporates int() for readability.
- "<=" used instead of "<" in "merge" to make sort stable.

3 isSorted

Take from Stack Overflow. Title: Pythonic way to check if a list is sorted or not `https://stackoverflow.com/questions/3755136/pythonic-way-to-check-if-a-list-is-so`

```
all(l[i] <= l[i+1] for i in range(len(l) - 1))
```