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6.00 Introduction to Computer Science and Programming  
Fall 2008

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## Lecture 9 handout 6.00 Fall Term 2008

```
def bsearch(s, e, first, last, calls):
    print first, last, calls
    if (last - first) < 2: return s[first] == e or s[last] == e
    mid = first + (last - first)/2
    if s[mid] == e: return True
    if s[mid] > e: return bsearch(s, e, first, mid - 1, calls+1)
    return bsearch(s, e, mid + 1, last, calls + 1)
```

```
def search(s, e):
    print bsearch(s, e, 0, len(s) - 1, 1)
```

```
def selSort(L):
    for i in range(len(L) - 1):
        print L
        minIndx = i
        minVal= L[i]
        j = i + 1
        while j < len(L):
            if minVal > L[j]:
                minIndx = j
                minVal= L[j]
            j = j + 1
        temp = L[i]
        L[i] = L[minIndx]
        L[minIndx] = temp
```

```
def testSelSort():
    test1 = [1,6,3,4,5,2]
    raw_input('run selective test 1')
    selSort(test1)
    test2 = [6,1,2,3,4,5]
    raw_input('run selective test 2')
    selSort(test2)
    test3 = [6,5,4,3,2,1]
    raw_input('run selective test 3')
    selSort(test3)
    test4 = [1,2,3,4,5,6]
    raw_input('run selective test 4')
    selSort(test4)
```

```
def bubbleSort(L):
    for j in range(len(L)):
        print L
        for i in range(len(L) - 1):
            if L[i] > L[i+1]:
                temp = L[i]

                L[i] = L[i+1]
                L[i+1] = temp
```

```
##def bubbleSort(L):
##    swapped = True
##    while swapped:
##        swapped = False
##        print L
##        for i in range(len(L) - 1):
##            if L[i] > L[i+1]:
##                temp = L[i]
##                L[i] = L[i+1]
##                L[i+1] = temp
##            swapped = True

def testBubbleSort():
    test1 = [1,6,3,4,5,2]
    raw_input('run bubble test 1')
    bubbleSort(test1)
    test2 = [6,1,2,3,4,5]
    raw_input('run bubble test 2')
    bubbleSort(test2)
    test3 = [6,5,4,3,2,1]
    raw_input('run bubble test 3')
    bubbleSort(test3)
    test4 = [1,2,3,4,5,6]
    raw_input('run bubble test 4')
    bubbleSort(test4)
```