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Homework 5, ECE 590 & CS320 Software Reliability

Primary module:

```
def SelectionSort(listToSort):
    for i in range(len(listToSort)):
        start = i
        for j in range(i, len(listToSort)):
            if(listToSort[j]<=listToSort[start]+1): # < no +1
                start = j
        tem = listToSort[i]
        listToSort[i] = listToSort[start]
        listToSort[start] = tem
    return listToSort
```

Alternate module:

```
def InsertionSort(listToSort):
    for i in range(len(listToSort)):
        k = i
        while(k>2 and listToSort[k]<listToSort[k-1]): #k>0
            tem = listToSort[k]
            listToSort[k] = listToSort[k-1]
            listToSort[k-1] = tem
            k-=1
    return listToSort
```

I change both a little bit to make them get wrong answers in some situations. However, in some situations they can also get right answers.

```
from sort1 import SelectionSort;
from sort2 import InsertionSort;

def acceptance_test(unsortedList, sortedList):
    temp = unsortedList.copy()
    temp.sort()
    return temp == sortedList

def runCode(list1):
    print("\n\n\nTest primary module\n")
    res1 = SelectionSort(list1)
    if acceptance_test(list1, res1):
        print("Primary module functions correctly\n")
    else:
        print("Primary module failed, try Alternate module\n")
        res2 = InsertionSort(list1)
        if acceptance_test(list1, res2):
            print("Alternate module functions correctly\n")
        else:
            raise Exception("All modeles failed!", list1)


if __name__ == "__main__":
    list1 = [2,3,5,3,56,7,2,654,34]
    list2 = [10,9,8,7,6,5,4,3,2,1]
    list3 = [3,5,2,7,78,4,34,6]
    runCode(list1)
    runCode(list2)
    runCode(list3)
```

Here are outputs of the 3 test cases:

```
Test primary module

“Primary module functions correctly
```

```
Test primary module

Primary module failed, try Alternate module

Alternate module functions correctly
```

```
Test primary module

Primary module failed, try Alternate module

Traceback (most recent call last):
  File "main.py", line 32, in <module>
    runCode(list3)
  File "main.py", line 23, in runCode
    raise Exception("All modeles failed!", list1)
Exception: ('All modeles failed!', [2, 4, 3, 5, 6, 7, 34, 78])
(base)
```