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unsortedList = [5,3,4,1,2]

def bubbleSort(list):
    for passNum in range(0, len(list)-1):
        for pos in range(0, len(list)-1):
            if list[pos] > list[pos+1]:
                #swap
                temp = list[pos]
                list[pos] = list[pos+1]
                list[pos+1] = temp
    return list

def numExists_linear_search(list, numToLookFor):
    numExists = False
    for pos in range(len(list)):
        if list[pos] == numToLookFor:
            numExists = True
    return numExists

def numExists_binary_chop(list, numToLookFor):
    numExists = False
    while True:

        #find middle of list
        midPoint = len(list)//2

        #debug output
        print("list: ", list)
        print("list len: ", len(list))
        print("mid point: ", midPoint)

        if midPoint == 0:
            #searched list, cannot find it
            numExists = False
            break
        elif numToLookFor == list[midPoint]:
            #found!
            numExists = True
            break
        elif numToLookFor < list[midPoint]:
            #search in lower half of list
            list = list[:midPoint]
        else:
            #search in upper half of list
            list = list[midPoint:]
    return numExists

print(unsortedList)
sortedList = bubbleSort(unsortedList)

```

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print(sortedList)

searchFor = int(input("What do you want to look for? "))

if numExists_binary_chop(sortedList, searchFor):
    print("It exists")
else:
    print("It doesn't exist")
```