

Big O

1. Create pseudocode to compute $\sum_{i=2}^n 3i^2$ and give a big-O estimate.

2. Create pseudocode to compute $\sum_{i=2}^n 3i^2 + \sum_{i=1}^n i$ and give a big-O estimate.

3. Count the number of operations given the the FindMax algorithm. Give a big O estimate.

```
def FindMax(list):
    potentialMax=list[0]
    for i in list:
        if potentialMax<i:
            potentialMax=i
    return potentialMax
```

```
FindMax([1,4,-5,6,19])
```

```
19
```

4. Count the number of operations given the the BinarySearch algorithm. Give a big O estimate.

```
def BinarySearch(x, list):
    i=0
    j=len(list)-1
    while i<j:
        m=floor((i+j)/2)
        if x>list[m]:
            i=m+1
        else:
            j=m
    if x ==list[i]:
        location=i+1
    else:
        location=-1
    return location
```

```
BinarySearch(8,[1,2,3,4])
```

```
-1
```