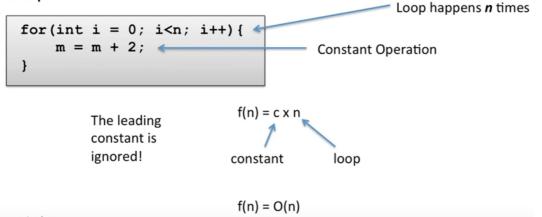
### Algorithm Analysis

#### Example 1



# Algorithm Analysis Part 1

#### Example 3 - Nested Loops

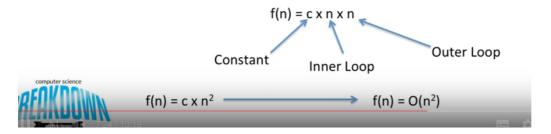
for (int i = 0; i<n; i++) {

for (int j = 0; j<n; j++) {

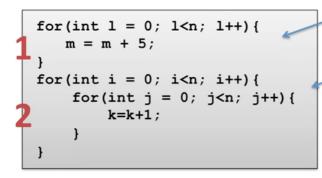
k=k+1;

Constant time operation

}



#### Example 4 - Consecutive Statements



## Single Loop Operation

Outside loop has inside

**Nested Loops** 

$$f(n) = c \times n + c \times n \times n$$

$$1$$
2

$$f(n) = c \times n + c \times n^2$$

$$f(n) = O(n^2)$$

```
Constant ___ Constant
Example 5 – If-Then-Else
                                                      Outer Loop
 if(x + 1 < 5){
                                                        Inner Loop
     return -1;
 } else {
      for (int i = 0; i < n; i++) {
           for(int j = 0; j < n; j + +) {
                                                    Constant
               k=k+1; <
                                                f(n) = c_0 + c_1 + n \times n \times c_2
      return k;
                                                  f(n) = c_0 + c_1 + c_2 \times n^2
  }
                                                       f(n) = O(n^2)
```