Scoping + Indentation

~~Scope~~ - where a variable is valid to use.

Indentation Ex 1

```
if age >= 16:
    print("Drive")
print("Go to park")
```

age 20
Drive
Go to Park

age 10
Go to Park

Ex 2

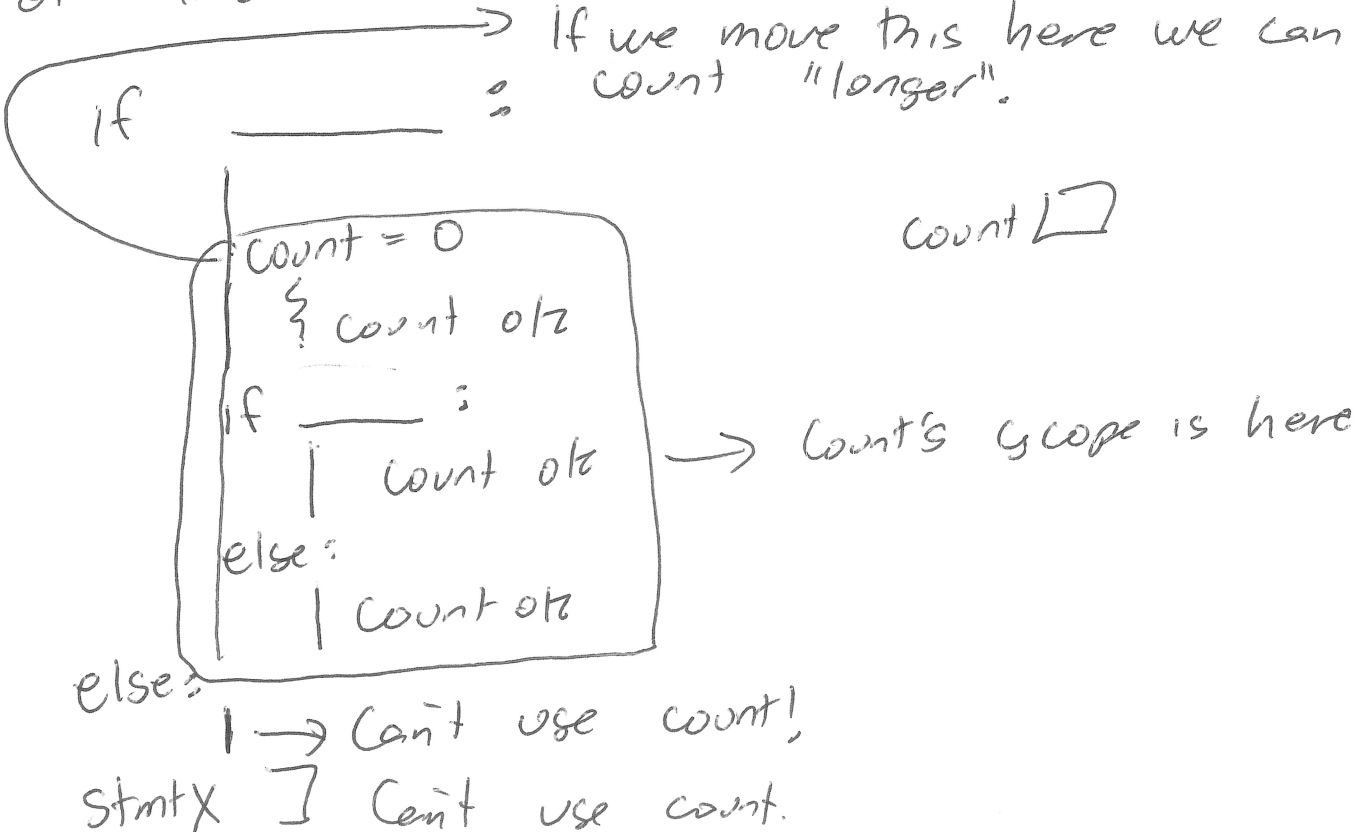
```
if age >= 16:
    print("Drive")
    print("Go to park")
```

inside if

age 20
Drive
Go to Park

age 10

Scope - a variable is "alive" or "valid" from the 1st place it is used until that level of indentation runs out.



$$2S = n(n+1)$$

$$\boxed{S = \frac{n(n+1)}{2}}$$

for loop version 1:

an + int

```
for var in range(n):
    # sets var = 0, 1, 2, ... n-1
    Runs code
```

---

for loop version 2:

any int, any int

```
for var in range(a, b):
    #sets var = a, a+1, a+2, ... b-1
```

b-1 ← exclusive

total = total + (i+1)

total ~~0~~ X ~~3~~ 6

i 0, 1, 2, 3, ... , n-1

i+1

1 2 3

$S = 1 + 2 + 3 + 4 + \dots + n$

$S = n + (n-1) + (n-2) + \dots + 1$

$2S = (n+1) + (n+1) + (n+1) + \dots + (n+1)$

for version 3

for var in range(start, end, skip):

var = start, start + skip, start + 2*skip,
start + 3*skip, ... < end

Var = Var + Something

SHORTHAND Var += Something

any operator