

# CS 152: For

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CS 152: Python for STEM

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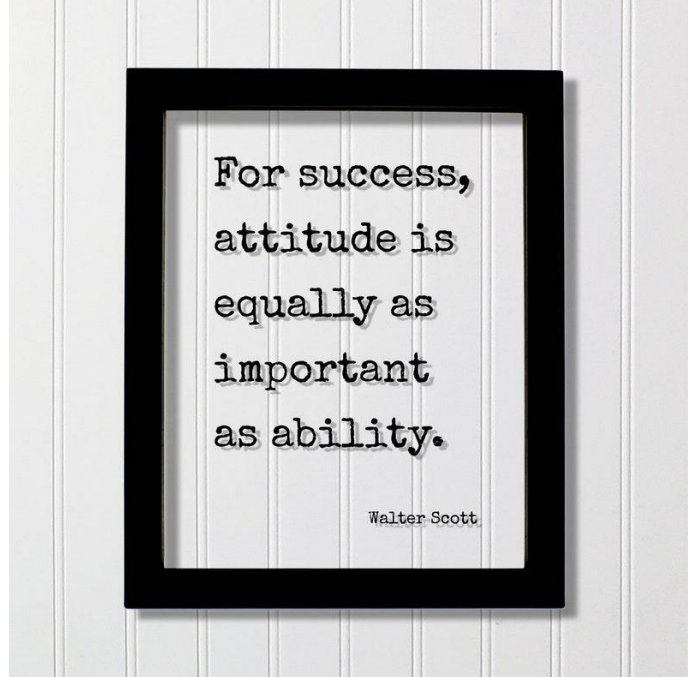


Colorado State University

# Weekly Announcements!

## TODO Reminders:

- Reading 9 (zybooks) – you should have already done that ☺
- Lab 06
- Reading 10 (zybooks)
- Lab 07
- Reading 11 (zybooks)



# Recall Activity - Attendance

- What is the difference between a for loop and a while loop? Explain using your own words.
- Turn your paper to the TAs or myself at the end of the class

# For

- Interacting through all elements in a list

```
list = [2,7,12,9,22,44,33]
count = 0
for elem in list:
    if elem%2 == 0:
        count += 1
print(list)
print("Total of even numbers:", count)
```

# For – range function

- **range(Y)** generates a sequence of all non-negative integers less than Y.  
Ex: **range(3)** creates the sequence 0, 1, 2.
- **range(X, Y)** generates a sequence of all integers  $\geq X$  and  $< Y$ .  
Ex: **range(-7, -3)** creates the sequence -7, -6, -5, -4.
- **range(X, Y, Z)**, where Z is positive, generates a sequence of all integers  $\geq X$  and  $< Y$ , incrementing by Z.  
Ex: **range(0, 50, 10)** creates the sequence 0, 10, 20, 30, 40.
- **range(X, Y, Z)**, where Z is negative, generates a sequence of all integers  $\leq X$  and  $> Y$ , incrementing by Z.  
Ex: **range(3, -1, -1)** creates the sequence 3, 2, 1, 0.

# For – range function

```
list = [2,7,12,9,22,44,33]
count = 0
for elem in list:
    if elem%2 == 0:
        count += 1
print(list)
print("Total of even
numbers:", count)
```

```
list = [2,7,12,9,22,44,33]
count = 0
for i in range(len(list)):
    if list[i]%2 == 0:
        count += 1
print(list)
print("Total of even numbers:",
count)
```

# While and For

```
i = 0
while i < 100 :
    # Loop body statements
    i += 1
```

```
i = 0
while i < 100 :
    #Loop body statements
    i += 1
```

```
for i in range( 100 ):
    # Loop body statements
```

```
for i in range( 100 ):
    #Loop body statements
```

# Nested Loop

```
for i in range(4):  
    for j in range(i):  
        print('*', end='')  
    print('')
```

```
*  
**  
***
```



# Break and Continue

```
for i in range(10):  
    if(i % 2 == 0):  
        continue  
    if(i == 5):  
        break  
    print(i)
```

1  
3

# Coding Along

- Write a Python function that receives a list and a value as a parameter and returns the number of times that the value is in the list.
- Write a Python function that receives a list as a parameter and returns a new list containing only the elements that are not repeated in the parameter. For example, if list is [1, 2, 1, 10, 3, 4, 3] the function will return the following list [2, 10, 4].

# Coding Activity

- Write a Python function that receives a list and returns a list containing only the even numbers.
- Write a Python function to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 1700(both included) and return a list containing those numbers.
- Write a Python function to write the following pattern:

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*
```