

# L11: Turtles, For loop

Thursday, January 27, 2022 9:29 PM

## Two different kinds of loops

Sunday, January 30, 2022

8:46 PM

while : waiting a while, until  
while don't understand, study

for : formal, know an exact number  
for 30 minutes, study

```
1 #demo while : while guess is not the answer, ask again
2
3 #set up the variables
4
5 #While guess not equal to answer
6     # get a new guess
```

```
1 #demo while : while guess is not the answer, ask again
2
3 #set up the variables
4 answer = 5 #this is called 'hard coding', user can't change it
5 guess = -1 #sometimes you set a default value for debugging
6
7 #While guess not equal to answer
8 while guess != answer:
9     guess = int(input("guess a number: "))
10
11     # get a new guess
```

```
1 #demo for
2
3 #for ten times
4
5     #print something
```

```
1 #demo for
2 |
3 #for ten times
4 for i in range(10):
5     #print something
6     print(i, "thing")
```

# Loops with turtles

Wednesday, April 20, 2022 1:26 PM

(Do a while loop with turtle)

(do a for loop with turtle)

Breakout rooms

Write the pseudocode for a turtle that draws square of length 100 using:

- without using a loop
- with a while loop
- With a for loop

# Feeling at home with range

Sunday, January 30, 2022 9:30 PM

range returns a sequence of integers

range(x) From 0 up to but not including x

range(a, b) from a u.t.b.v. is b

range(a, b, c) from a u.t.b.v. is b, counting by c  
(c could be negative!)

```
1 for i in range(5):
2     print(i, end="")
3
4 for i in range(2, 5):
5     print(i, end=" ")
6
7 for i in range(1, 8, 3):
8     print(i, end=" ")
9
10 for i in range(99, 0, -1):
11     print(i, " bottles of beer on the wall ")
```

```
1 print(range(2, 5))
2 #what do you think this will print?
3
4 #let's check the type!
5 print(type(range(2, 5)))
6
7 #can we use range to build a list?
8 can_we = list(range(2, 5))
```

3 ABCDs in ranges.py

\* × ranges.py ×

# Author: Scott Wehrwien

```

* x ranges.py x
# Author: Scott Wehrwien
# Date: 10/18/2019
# Demo of the range function, with some ABCD

print("Question 1:")
# 1. What does the following evaluate to?
list(range(3))
# A. [1, 2, 3]
# B. [0, 1, 2, 3]
# C. [1, 2]
# D. [0, 1, 2]
input("Enter to show answer.")
print("Answer 1:", list(range(3)))
print("\n") # extra blank line

```

```

Question 1:
Enter to show answer.
Answer 1: [0, 1, 2]

```

```

Question 2:
Enter to show answer:
Answer 2: [4, 5, 6]

```

```

Question 3:
Enter to show answer:
Answer 3: [4, 3, 2, 1]

```

for x in range(1, 4):  
 print(x + x \* x, end = str(x))

>> 2 6 2 12 3

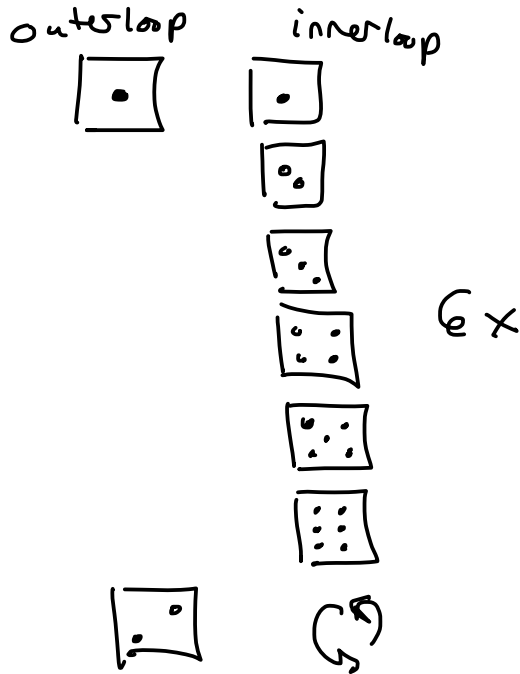
x  
 x  
 2  
 3

1 + 1 \* 1 = 2  
 2 + 2 \* 2 = 6  
 3 + 3 \* 3 = 12

# Nested For loops

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6x

```
for die1 in range(1, 7):  
    for die2 in range(1, 7):  
        print(die1, die2)
```

Again with while (worse!)

## Sequences and A3

Sunday, January 30, 2022 8:54 PM

["Sea green", "hot pink", "dark slate blue"]  
lists are ordered collections of values

Python numbers each position, starting at 0  
for i in ["red", "blue", "black"]:  
    print(i)      0      1      2

```
1 colors = ["MediumOrchid", "PeachPuff", "steelblue"]
2 #X11 color list: be creative!
3
4 for i in range(3):
5     print(colors[i])
```

remember! 0, 1, 2

Python lets you put anything into a list



```

1 colors = ["MediumOrchid", "PeachPuff", "steelblue"]
2 #X11 color list: be creative!
3
4 #other types of lists!
5 int_list = [44,55,3223]
6 float_list = [3.4,22.7]
7 everything_bagel_list = [77, "firebrick", 84.2, True]
8
9 for i in range(3):
10     print(colors[i])
11     print(int_list[i])
12     print(float_list[i])
13     print(everything_bagel_list[i])

```

why an error? (float has only 2 things in it)

why doesn't it print "True"?  
(range of 3 means won't reach 4th item)

```

9 #for loops with list sequences will run
10 # once for each item in the list
11 for i in everything_bagel_list:
12     print(i)

```

```

1 #what if we want a fruit tray of size 7
2 #with fruits drawn from the basket, in order
3
4 size_of_fruit_tray = 7
5 fruits_basket = ["Tohru", "Kureno", "Machi"]
6
7 #write a for loop which will iterate through
8 #the fruits, in order, until you have 7

```

breakout rooms 2-3  
Pick room, 3 min

Pick room, 3 min  
1) introduce yourselves  
2) share screens  
3) talk through it  
(I'll randomly visit rooms to see how  
it's going)

```
11 #what if we wanted to loop
12 for i in range(size_of_fruit_tray):
13     current_fruit = i % len(fruits_basket)
14     print(fruits_basket[current_fruit])
15
```

# Show cake working

Sunday, January 30, 2022 10:25 PM