

\*Tags: While Loops, For Loops, range function

## Intro to Loops

Loops repeat stuff

### While loops

- as long as this is true, the code will run

```
answer = input("Please say hi ")

while answer != "hi":
    answer = input("Rude. Please say hi... ")

print("Hi to you too!")
```

- can use increment and decrement variable to give a finite count
- Q: When the following code runs, how many times is "KITTEN PILE" printed out?

```
1. num = 5
2. while num < 3:
3.     print("KITTEN PILE")
4.     num += 1
```

0, This loop runs while num is less than 3, but it starts at 5! So it never runs!

### Avoid infinite loops!

```
# INFINITE LOOP!
# count = 10
# while count > 0:
#     print(count)
#     count += 1

count = 10
while count > 0:
    print(count)
    count -= 1
```

### Snake Eyes Exercise

```
import random
roll1 = random.randint(1,6)
```

```
roll2 = random.randint(1,6)
roll_count = 1

while roll1 != 1 or roll2 != 1:
    print(roll1, roll2)
    roll1 = random.randint(1,6)
    roll2 = random.randint(1,6)
    roll_count += 1

print(roll1, roll2)
print("YAY SNAKE EYES!!!")
print(f"it took {roll_count} rolls")
```

## For Loops

Used to repeat a section of code known number of times

```
word = "Tacos"
for character in word:
    print(character)
```

T  
a  
c  
o  
s

Q: What is the value of `total` after the following code runs?

```
1. total = 0
2. for ltr in "euphoria":
3.     if ltr in "aeiou":
4.         total += 1
```

Total = 5

## Loops and Indentation

```
# good
for letter in "Pop Tart":
    print(letter)
    print("*****")

# bad
for letter in "Pop Tart":
```

```
print(letter)
print("*****")
```

## Range Function

range() : returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and stops before a specified number

- ranges include their start point but do NOT include the end number

```
# From -10 to 10
for num in range(-10,10):
    print(num)

# From 0 to 10
for num in range(10):
    print("HELLO WORLD!")

# From 0 to 102, counting by 2s
for num in range(0,102,2):
    print(num)

# From 10 down to 1
for number in range(10,1,-1):
    print(number)
```

## Bottles of Beer Exercise

```
# WITH A FOR LOOP
for num_bottles in range(99,0,-1):
    print(f"{num_bottles} bottles of beer on the wall.")
    print(f"{num_bottles} bottles of beer.")
    if num_bottles == 1:
        print(f"take one down, pass it around,no more bottles of beer on the wall.")
    else:
        print(f"take one down, pass it around,{num_bottles - 1} bottles of beer on the wall.")
    print("*" * 50)

# WITH A WHILE LOOP
num_bottles = 99
while num_bottles > 0:
    print(f"{num_bottles} bottles of beer on the wall.")
    print(f"{num_bottles} bottles of beer.")
    if num_bottles == 1:
        print(f"take one down, pass it around,no more bottles of beer on the wall.")
    else:
        print(f"take one down, pass it around,{num_bottles - 1} bottles of beer on the wall.")
    print("*" * 50)
    num_bottles -= 1
```

```

wall.")
    else:
        print(f"take one down, pass it around,{num_bottles - 1} bottles of
beer on the wall.")
        print("*" * 50)
        num_bottles -= 1

```

## Loops Exercises

```

# -----
#     PART 1
# -----
word = "supercalifragilisticexpialidocious"

# Write a for loop that prints out each character in the above "word" variable
for char in word:
    print(char)

# Write a while loop that does the same thing!
idx = 0
while idx < len(word):
    print(word[idx])
    idx += 1

# -----
#     PART 2
# -----
# Write a while loop that prints the even numbers from 100 to 140 (including
140)
num = 100
while num <= 140:
    print(num)
    num += 2

# Write a for loop that does the same thing (with range())
for x in range(100,142, 2):
    print(x)

# -----
#     PART 3
# -----
# Write a loop that asks a user to input the passphrase "sillygoose" and keeps
asking them to do so until they comply:

```

```
reply = input("Enter the passphrase: ")
while reply != "sillygoose":
    reply = input("Enter the passphrase: ")
```