Cmpe 150 Lab 8: While Loops

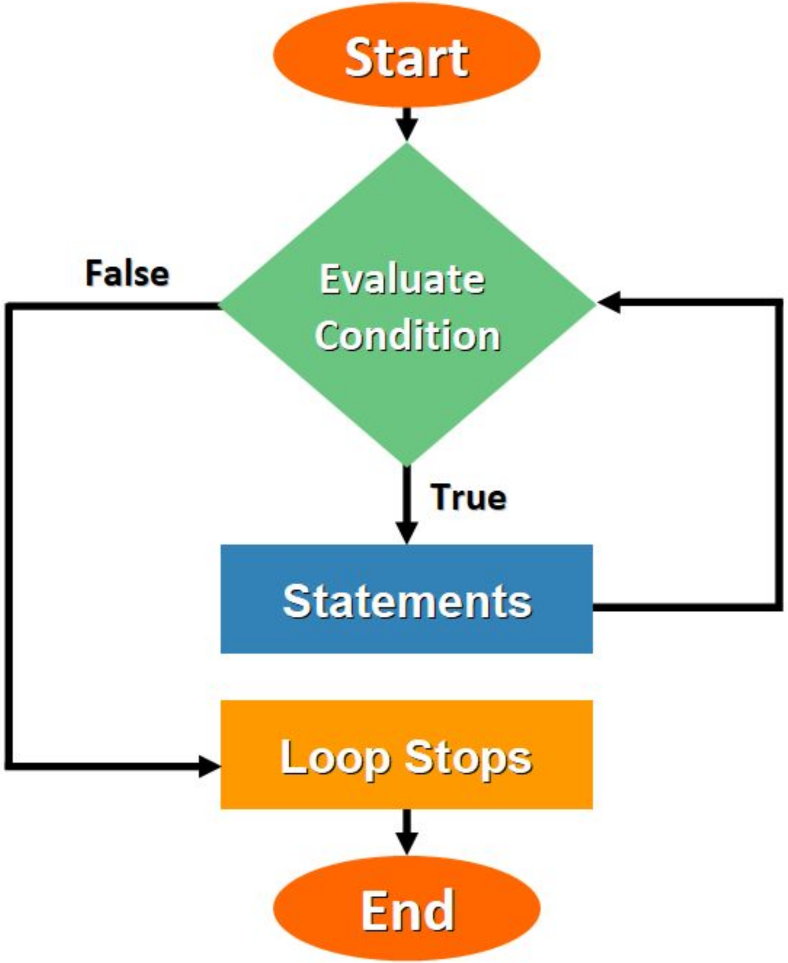
Last Week

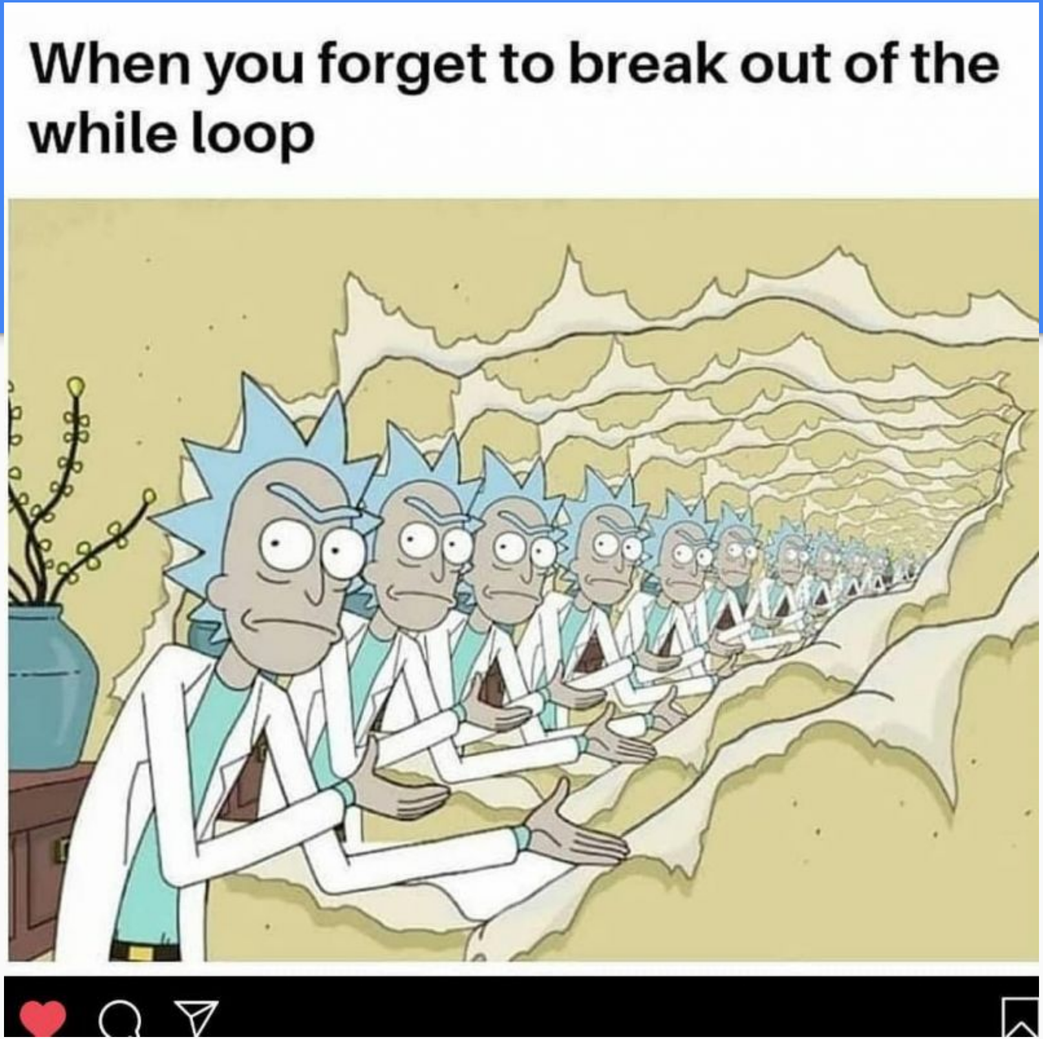
- We learned about conditionals. Previously, we learned for loops.

- This week, we will learn about another type of loop. Instead of repeating some portions of our code some pre-determined times, can we iterate over that part as long as some condition is satisfied?

While Loop Syntax

-
  ```
  while <logical proposition>:
      code line 1
      code line 2
      code line 3
  ```


Start
Evaluate Condition
False
True
Statements
Loop Stops
End



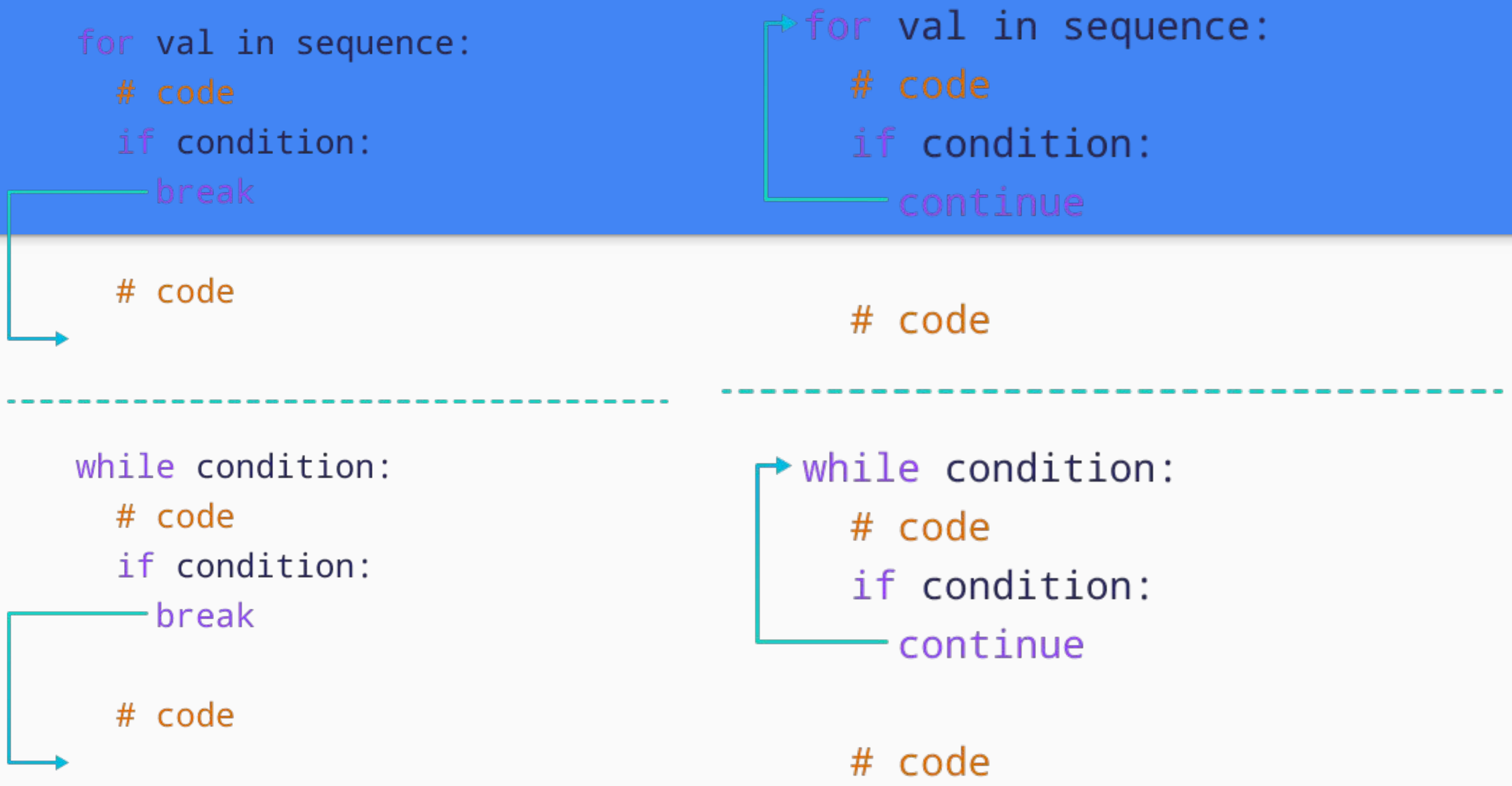
When you forget to break out of the while loop

Example: Enter Your Age

-
  ```
  age = int(input())
  while age <= 0:
      print('You entered', age, '. You must enter a positive number as age!!!')
      age = int(input())
  print('Your age:', age)
  ```

Break and Continue

- Break: Ending the loop immediately.
- Continue: Jumping to the next iteration without executing the remaining lines.



```
for val in sequence:
  # code
  if condition:
    break

  # code
```

```
for val in sequence:
  # code
  if condition:
    continue

  # code
```

```
while condition:
  # code
  if condition:
    break

  # code
```

```
while condition:
  # code
  if condition:
    continue

  # code
```

Important Points

- Break and continue can be used in both loop types:

  For loops and while loops

- Also, a break statement can be used to avoid infinite loops in while loops. For instance, while True:

Needless to Say

- Nested structures are possible. Inside if, we can use while. Inside the while loop, we can use for and so on. Any combination and depth level is possible since these are general building blocks.

-
  ```
  while x < 100:
      if x % 3 == 1:
          print(x)
  ```

Thanks

Any questions?

References

1. https://www.freecodecamp.org/news/python-while-loop-tutorial/
2. https://devrant.com/rants/2452205/while-loops
3. https://www.programiz.com/python-programming/break-continue