

# Data Structures & Programmatic Thinking

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# Plan for today

Mutability

Iteration

# Mutability

Mutability is a feature of variables in most programming languages. It means that variables can be updated to newer values.

```
x = 1  
x = x * 3  
  
print(x)
```

# Mutability

# Iteration

Iteration is the act of repeating a process. In Python we express iteration with the **while** statement

# While

1. Evaluate the condition
2. If the condition is False, exit while and go to next statement
3. If condition is true, execute body. Then go to step 1.

# While



# Stopping a loop

You can always stop a loop using the `break` keyword

```
while True:
    if im_bored_of_iterating:
        break
    else:
        print("i'm iterating!")
```

# Infinite loops

Infinite loops are loops whose condition never evaluates to False. This means that they'll run forever (unless we break them)

- + Create a function that prints the numbers 1 to 50 (using iteration)
- + Create a program that prints multiplication tables from 1 to 10
- + Create a function `~pyramid~` that receives an integer `~n~` as parameter and prints `~n~` lines of the following pattern:

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