

function

function is a collection of statements that are grouped together to perform an operation.
e.g.

```
def func_name(parameters):  
    code block
```

https://github.com/JasonWang19/cacc_python/blob/master/week5/practice1.py

https://github.com/JasonWang19/cacc_python/blob/master/week5/practice2.py

https://github.com/JasonWang19/cacc_python/blob/master/week5/practice3.py

Review loop

For solving same problem, we can have multiple ways, especially when involving loop. for and while can be used for different purpose. Solution 5 uses list comprehensions, which will be introduced later, here is just showing different ways python can do to solve the same question.

range() function

range function generates a list of numbers, which is generally used to iterate over with for loops.

Guess number

https://github.com/JasonWang19/cacc_python/blob/master/week5/guess_number.py

utilize condition and loop to implement a game to guess a number.

Recursion

In order to let computer find the target number efficiently, we can use recursion.

Recursion is a method of solving a problem where the solution depends on solutions to smaller instances of the same problem. The approach can be applied to many types of problems, and recursion is one of the central ideas of computer science.

For guess number problem, once a number is guessed in a range, and we know the position of guessed number vs target number, we can ignore half of the numbers in the range, so the problem become the same again.

Can start by using:

https://github.com/JasonWang19/cacc_python/blob/master/week5/guess_number0.py

recursion solution:

https://github.com/JasonWang19/cacc_python/blob/master/week5/guess_number1a.py

Once recursion happens, the status of the method will be stored in a stack. We can manually save the status and implement the same by loop

https://github.com/JasonWang19/cacc_python/blob/master/week5/guess_number1b.py