

INFO5002: Intro to Python for Info Sys

Loops

PCC 113-127

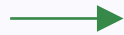


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Loops reduce repetition

- We repeat a group of operations together under a loop to reduce re-writing.
- Let's say we want to print "hello" five times without using the repetitions operator.

```
print("hello")  
print("hello")  
print("hello")  
print("hello")  
print("hello")
```



```
do block five times:  
  print("hello")
```

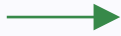
But how?



The while loop

- If we want to repeat a block of code while a condition is **True** then use **while**.

```
print("hello")  
print("hello")  
print("hello")  
print("hello")  
print("hello")
```



```
x = 0  
while x < 5:  
    print("hello")  
    x += 1
```

Change the path

- You can change the executing path with **break** and **continue**.

How many times does hello print?

5 and 3

```
x = 0
while True:
    print("hello")
    x += 1
    if x >= 5:
        break
```

```
x = 0
while x < 5:
    x += 1
    if x % 2 == 0:
        continue
    print("hello")
```

Let's practice

- Create the following function:
 - I. `print_hello_x` which takes in an integer and prints “hello” integer number of times. Don't use the repetition operator.
 - II. `riemann_sum` which takes in an integer and returns the sum of all numbers from 0 to the argument (including). Do not use the closed form.
 - III. `riemann_sum_lower` which takes in two integers and returns the sum of all the numbers between the first (including) to the second (including). Do not use closed form.

And some more

- Create the following function:
 - I. `sum_even` which given an input sums together all the numbers from 0 to the input (inclusive) that are even.
 - II. `get_age` which keeps asking for user input until the age is a valid human age (assume humans don't live beyond 150y) and returns that age.

You can get user input with `input`. `x = input("This is the prompt")`

You can turn a string into an int with `int`. `x = int(x)`