

Hypothekids Python Worksheet 3

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(expected 20 minutes completion time)

1 Lists

A list is a new data type. Instead of holding a single value, it holds multiple values.

You've actually already been introduced to them, and just not known it. A string is simply a list of characters.

1.1 How to interact with lists

Lists can be defined like this `l = [1, 2, 3, 4, 5]`. This is a list of numbers.

All lists are ZERO INDEXED, ie, to access the first element of the list (1), you would write `l[0]`. 1 being the name of the list, and 0 being the element you are trying to access.

1.2 A samples

```
l = ['a', 'b', 'c', 'd', 'e', 'f'] # A list with 6 strings
```

```
print (l[0]) # This will print 'a'
```

```
print (l[2]) # This will print 'c'
```

```
print (l[5]) # This will print 'f'
```

1.3 Strings as lists

```
sample_string = 'this is a sample string'
```

```
print (sample_string[0]) # This will print 't'
```

```
print (sample_string[4]) # this will print ' '
```

1.4 Helper function

The `len(<iterable>)` function returns the length of a string. See the documentation for more information.

We can use this function to iterate through a list:

```
l = [100, 110, 120, 130, 140, 150]

index = 0

while index < len(l):
    print (l[index])
    index = index + 1
```

This will print out each value of the list.

Here's a sample way to sum all elements of a list:

```
l = [100, 110, 120, 130, 140, 150]

index = 0
sum = 0

while index < len(l):
    sum = sum + l[index]
    index = index + 1

print (sum)
```

1.5 The Problem:

Write a function that finds the average of a list of numbers.

ie, given the list of `[1, 2, 3, 4, 5]`, it should print 3.

Try on `[14, 16, 15, 17, 19, 20, 23, 25]`, it should be 18.625.

Submit the code as usual through Google Classroom.