

Programming in Python

IAP 2014

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Kojo



Joy



Will



Tom



Lars



Alex



Klee



Ada



Ceres



Ollie

A therapy robot designed for people with dementia. He understands touch and responds with sound and movement.

Python **2.7**

Basic Tools and Knowledge

Emphasis on Hands-on

Opening the Python Interpreter

Use IDLE or a Terminal

Words & Sentences

Characters stringed together are called “strings”.

“Hello!”

“abcdef0123456”

“42 is the answer to life...”

Variables & Assigning Value

Functions

```
def function_name(arg1, arg2, ..., argN):
```

```
#...
```

```
#code goes here
```

```
#...
```

```
return return_value
```

Given a name, return the string 'Hello [name]'.

Write a function to pig-latinize a single word. We define this as the second letter of the word onwards, followed by a dash, then the first letter and the string ‘ay’.

“Hello” → “ello-Hay”

Collecting Things in a List

Meet & Greet Exercise

Using a List to Create a New List

```
sentence_list = ["Hello", "World"]
```

```
[word[0] for word in sentence_list]
```

```
["H", "W"]
```

Write a function to pig-latinize a sentence. The sentence is given as a list of words. Return

[“Hello”, “world”] → [“ello-Hay”, “orId-way”]

Solutions

<http://bit.ly/1a31dip>

Feedback

<http://bit.ly/1fsaF0W>

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What's the difference
between “ and ‘ ?

stackoverflow.com

docs.python.org/2

libraries.mit.edu

How do you make the words in a sentence into a list?

“The quick brown fox” → [“The”, “quick”, “brown”, “fox”]

Download the class material and run rabbits.py and trip_times.py.

<http://bit.ly/1apa5g3>

If Statements
Brains!

If your name begins with an “A”,
then you get candy.

If you're taller than 5', then you can ride the roller coaster.

```
if (condition):  
    # code here
```

If you're taller than 5', then you can ride the roller coaster.

Write a function that takes an age as its argument and checks the following condition:

If you're 18 or over,
then print out "You can vote!"

Write a function that takes an age as its argument and checks the following condition:

If you're 18 or over,
then print out "You can vote!",
otherwise print "Wait {x} more years!"

```
if (condition):
    # code here
else:
    # code here
```

Write a function that takes an age as its argument and checks the following condition:

If you're 18 or over,
then print out "You can vote!",
otherwise print "Wait {x} more years!"

For Loops

When list comprehension isn't enough.

```
for {variable} in {list}:
    # code here with {variable}
```

Greet everyone person in a list
using a for loop.

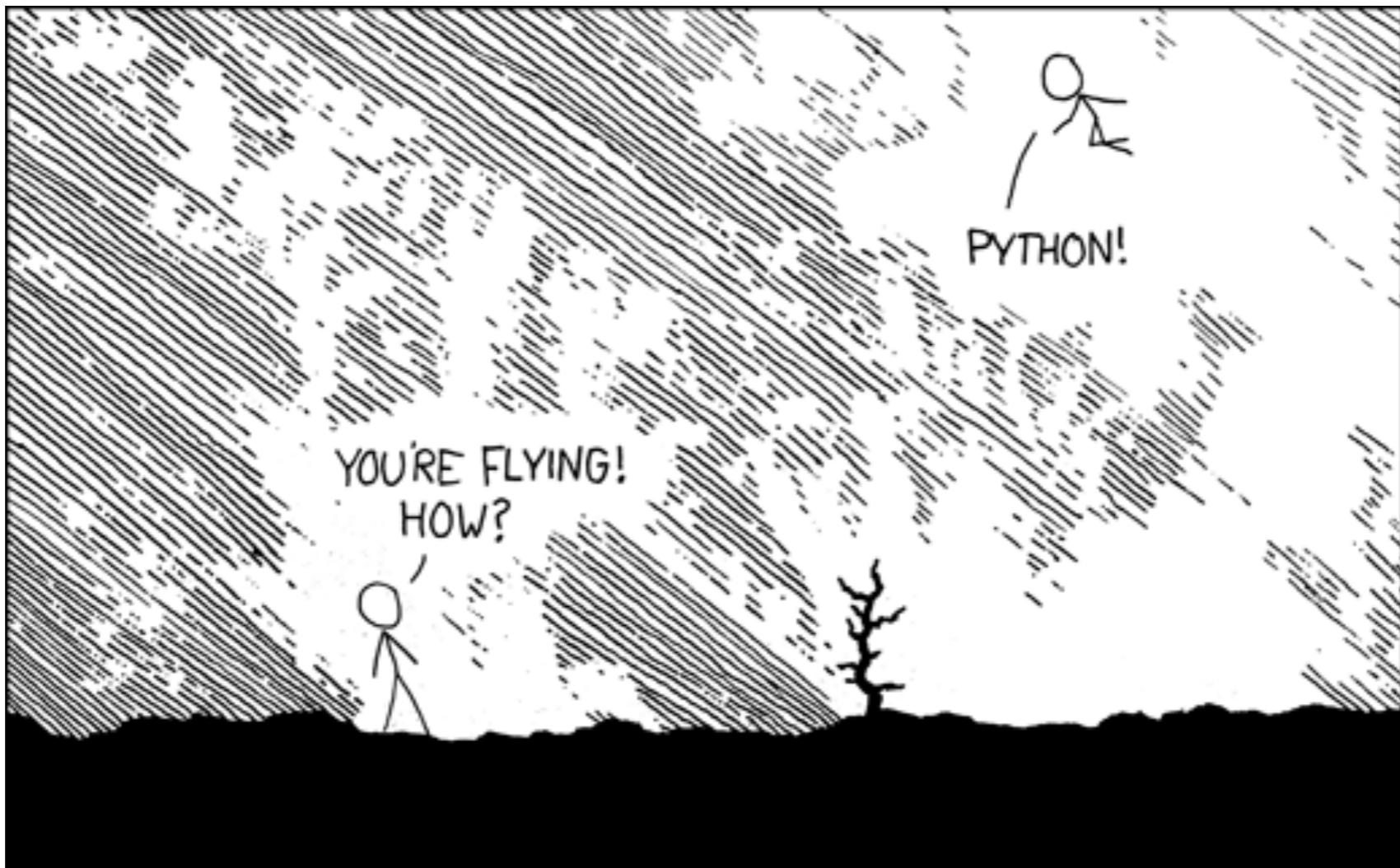
Write a function that returns the length of a list without using len().

Write a function that, given a list of voter ages, returns a new list where all entries are 18+.

imports

Don't reinvent the wheel.

import antigravity



I LEARNED IT LAST NIGHT! EVERYTHING IS SO SIMPLE!

HELLO WORLD IS JUST

`print "Hello, world!"`

I DUNNO...
DYNAMIC TYPING?
WHITESPACE?

COME JOIN US!
PROGRAMMING IS FUN AGAIN!
IT'S A WHOLE NEW WORLD UP HERE!

BUT HOW ARE YOU FLYING?

I JUST TYPED

`import antigravity`

THAT'S IT?

... I ALSO SAMPLED EVERYTHING IN THE MEDICINE CABINET FOR COMPARISON.

BUT I THINK THIS IS THE PYTHON.

Determine how to compute the cosine of a number. Import the right module and compute the cosine of 10.

Feedback

<http://bit.ly/1fsaF0W>