Lambda Functions

In Python

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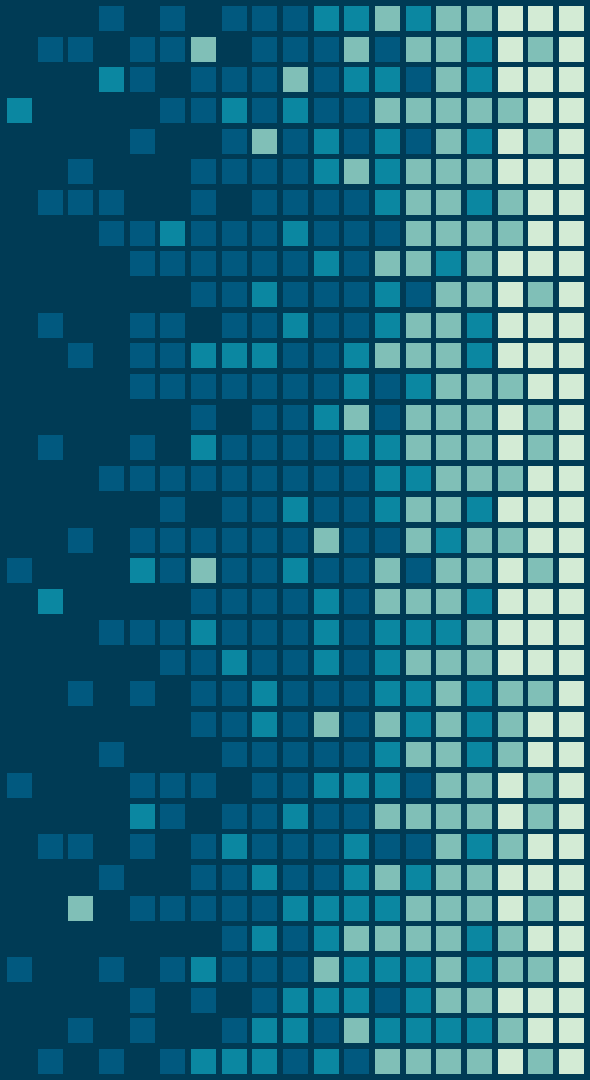

Example 1

Regular function:

```
def double(x):
    return (2 * x)
```

Lambda:

```
double = lambda x: 2 * x
```

For both:

```
>>double(10)
20
```

Example 2

Regular function:

```
def algebra(x):
    return((x ** 3) - 1)
```

Lambda:

```
algebra = lambda x: (x ** 3) - 1
```

For both:

```
>>algebra(5)
124
```

History

- Alonzo Church was an American mathematician
- He developed Lambda Calculus in the 1930's
- He contributed to math, logic, and computer science theory.
- Lambda Calculus is totally abstract math.
- Functional languages are based on it.

Uses of Lambda Functions:

- Simple functions
- One-use functions

Why?

- It can be shorter code
- No return statement - it just does it
- It can go inside another function, and be shorter especially if function is only called once
- Its cool :)

Guidelines:

- Can put function call in a lambda function
- Can put print function inside a lambda function
- Can do conditionals inside a lambda function
- Ok to return None
- It has to return an expression
  - Something that has an = sign
  - Not something that assigns a value
  - Not a procedure

Conditionals Example

>> size = lambda *number:* print(“big number”) if number > 200 else print(“small number”)

>> size(300)

big number

>> size (-5)

small number

String Example

```
>>> greet_player = lambda greeting, name:
print(f"{greeting},  {name}!")

>>> greet_player("Hello", "Mouse")

Hello, Mouse!
```

Questions?

Sources:

https://pythonconquerstheuniverse.wordpress.com/2011/08/29/lambda_tutorial/

https://realpython.com/python-lambda/

https://en.wikipedia.org/wiki/Alonzo_Church