AI Python for Beginners

DeepLearning.AI

Andrew Ng

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Tommy Nelson
DeepLearning.AI

Isabel Zaro
DeepLearning.AI

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DeepLearning.AI

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DeepLearning.AI

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DeepLearning.AI

Lesly Zerna
DeepLearning.AI

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AI Python for Beginners

Module 1: Basics of AI Python Coding

AI Python for Beginners

Course Introduction

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AI Python for Beginners

Lesson 1: What is Computer Programming?

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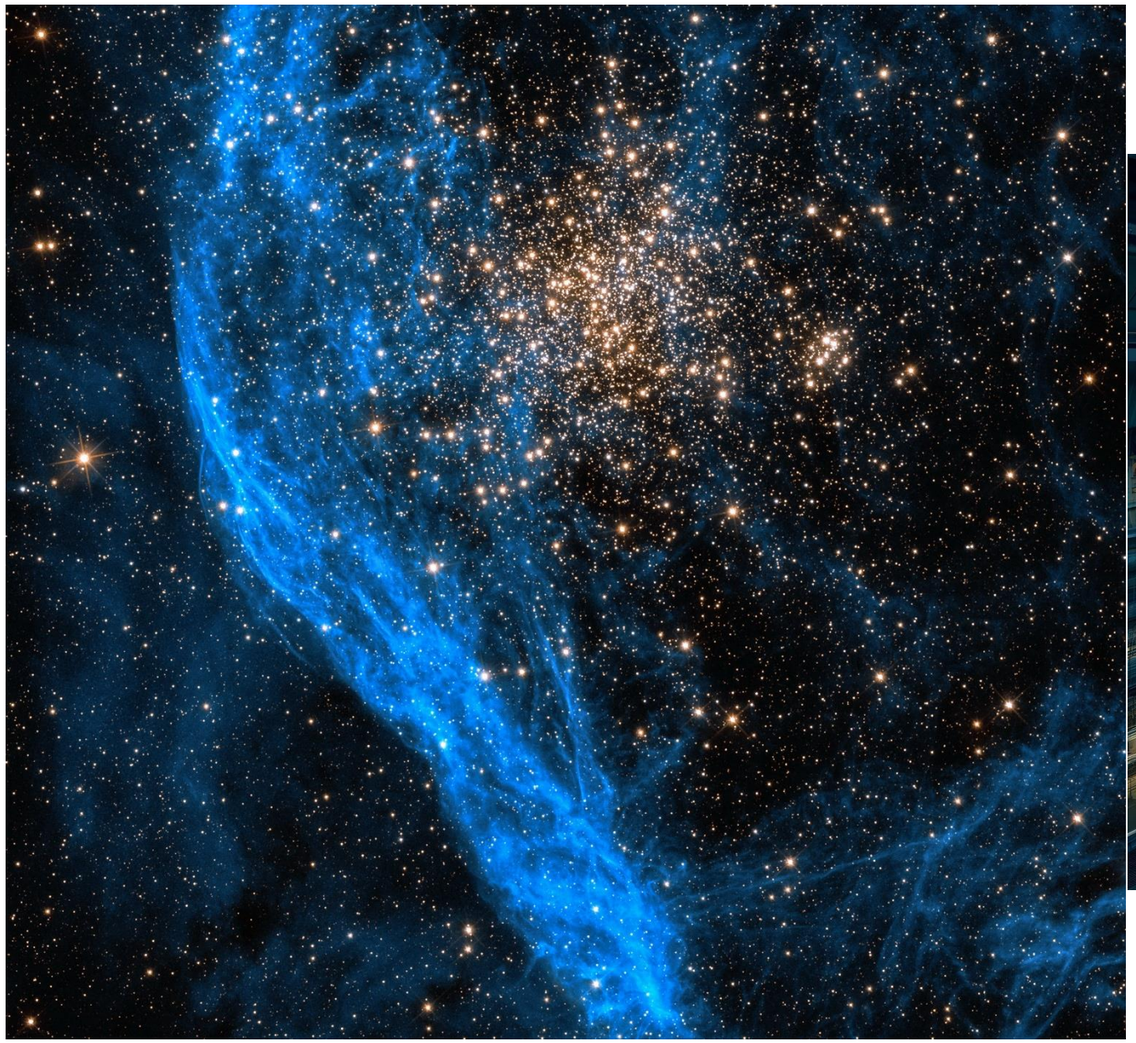
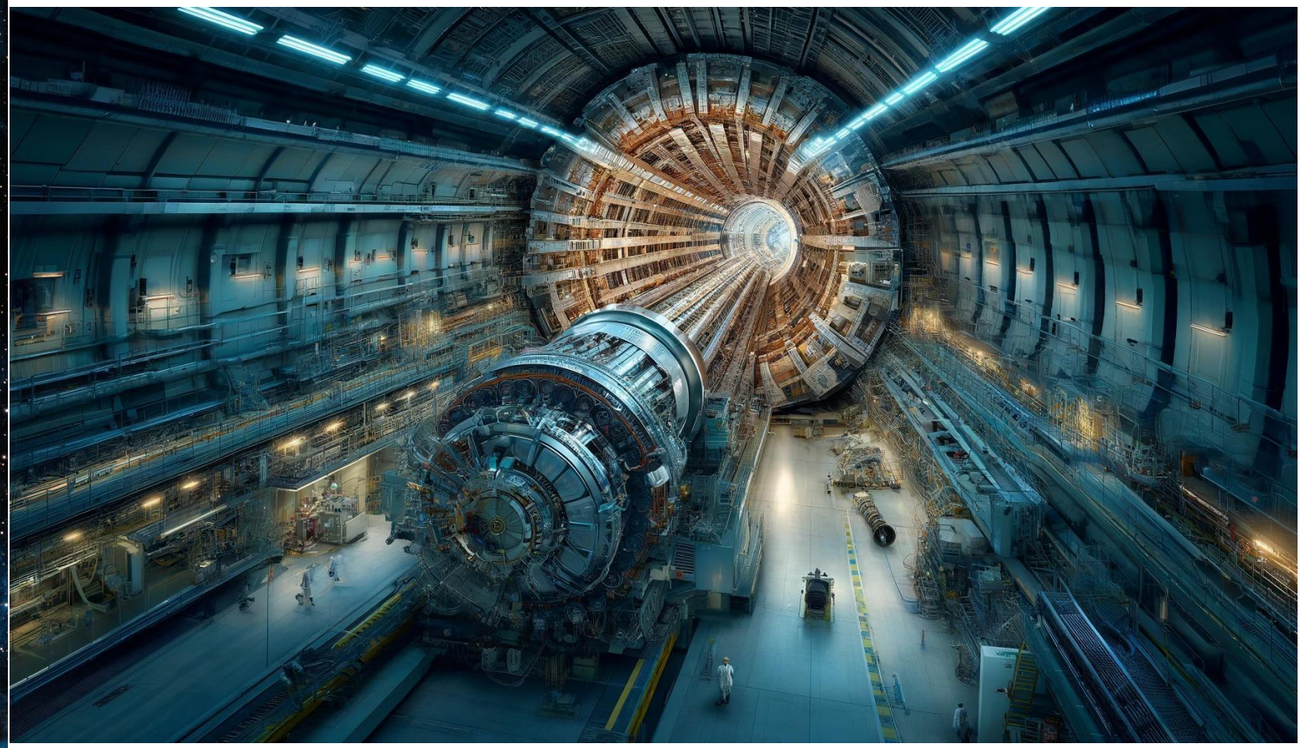
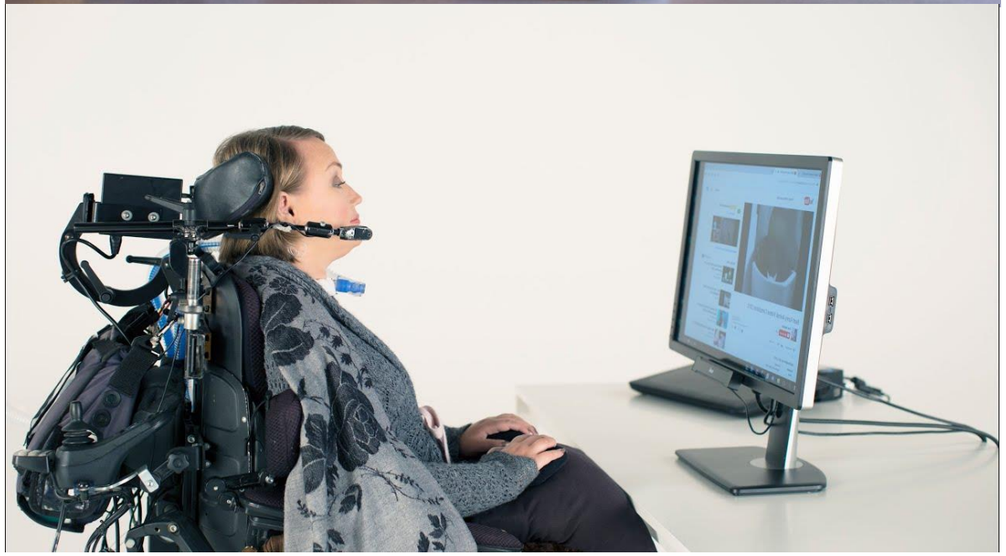
Programming helps the advancement of humanity

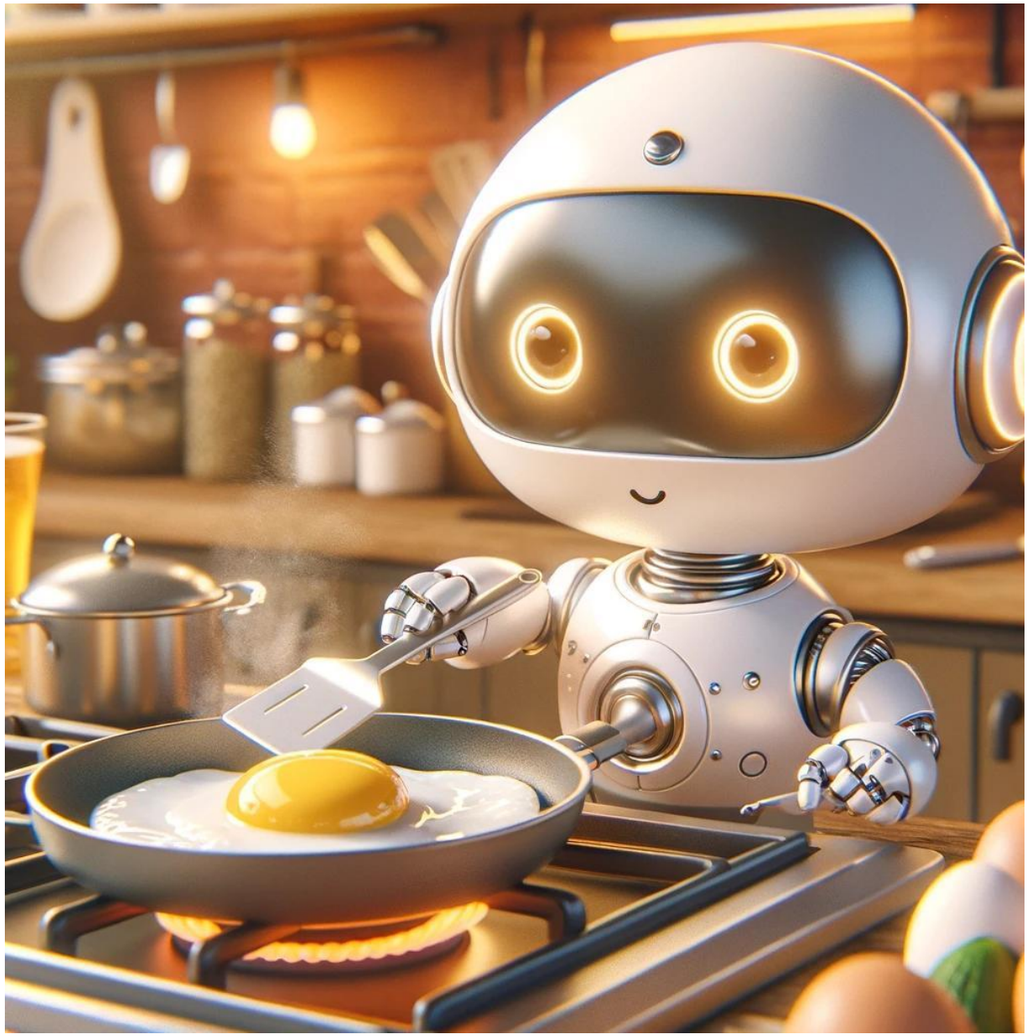




Programming helps the advancement of humanity



Programming: command machines to do your bidding!



A set of instructions to perform a task

Fry the perfect egg:

1. Crack an egg into a small bowl making sure there are no shells on it. Set aside.
2. Add butter, or other fat, to a non-stick pan on medium-high heat for a minute.
3. Add egg into pan. Cook for three to four minutes.
4. Serve. Add salt and pepper to your taste.

Sum two numbers and display the result:

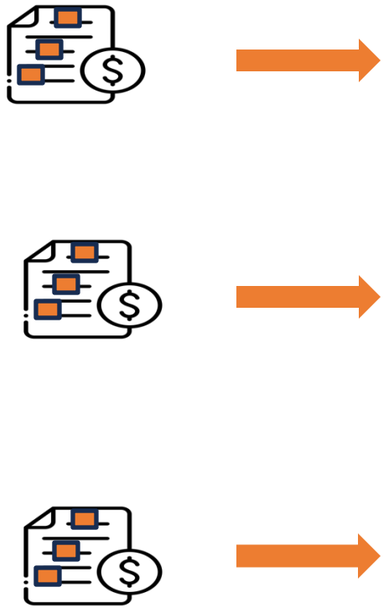
```
# Values for num1 and num2
num1 = 37
num2 = 5

# Calculate the sum
sum = num1 + num2

# Display the result
print(sum)
```

Programming gives you an edge

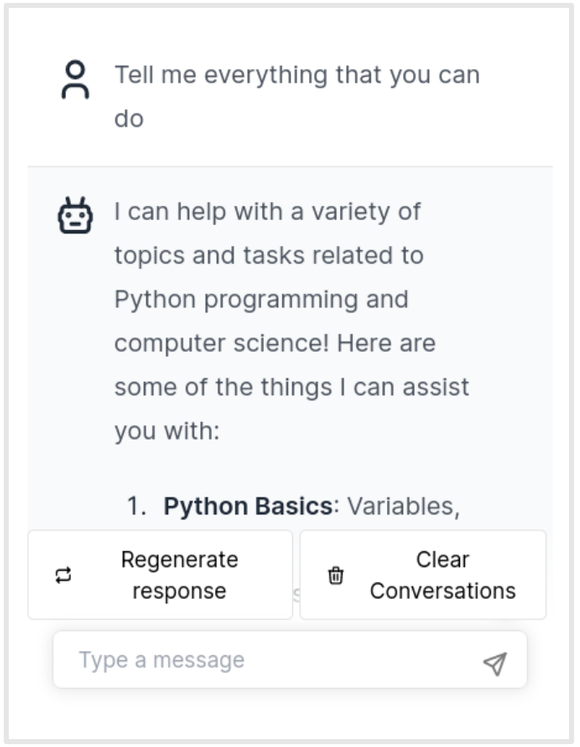
- Automate repetitive tasks
- Analyze lots of data
- Build, improve and use AI models

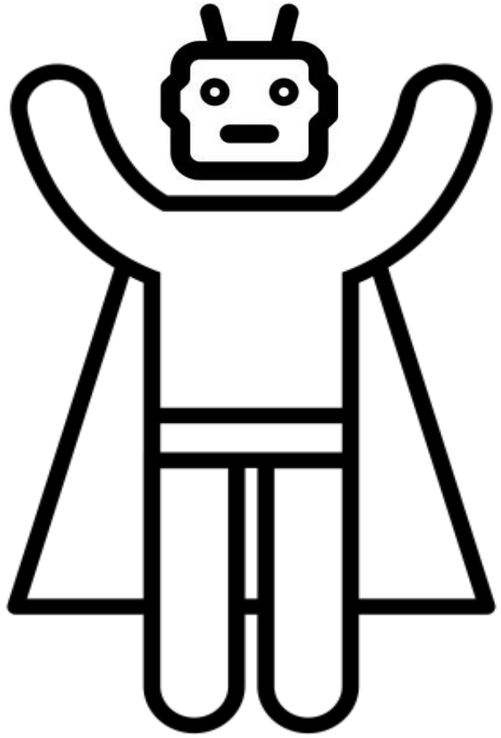


Date	Customer ID	Amount
06/05	CUST5859	$ 12400
04/15	CUST5729	$ 16100
04/12	CUST5350	$ 5040
05/25	CUST6839	$ 23200
...	...	...
...	...	...
...	...	...
05/10	CUST4459	$ 1200

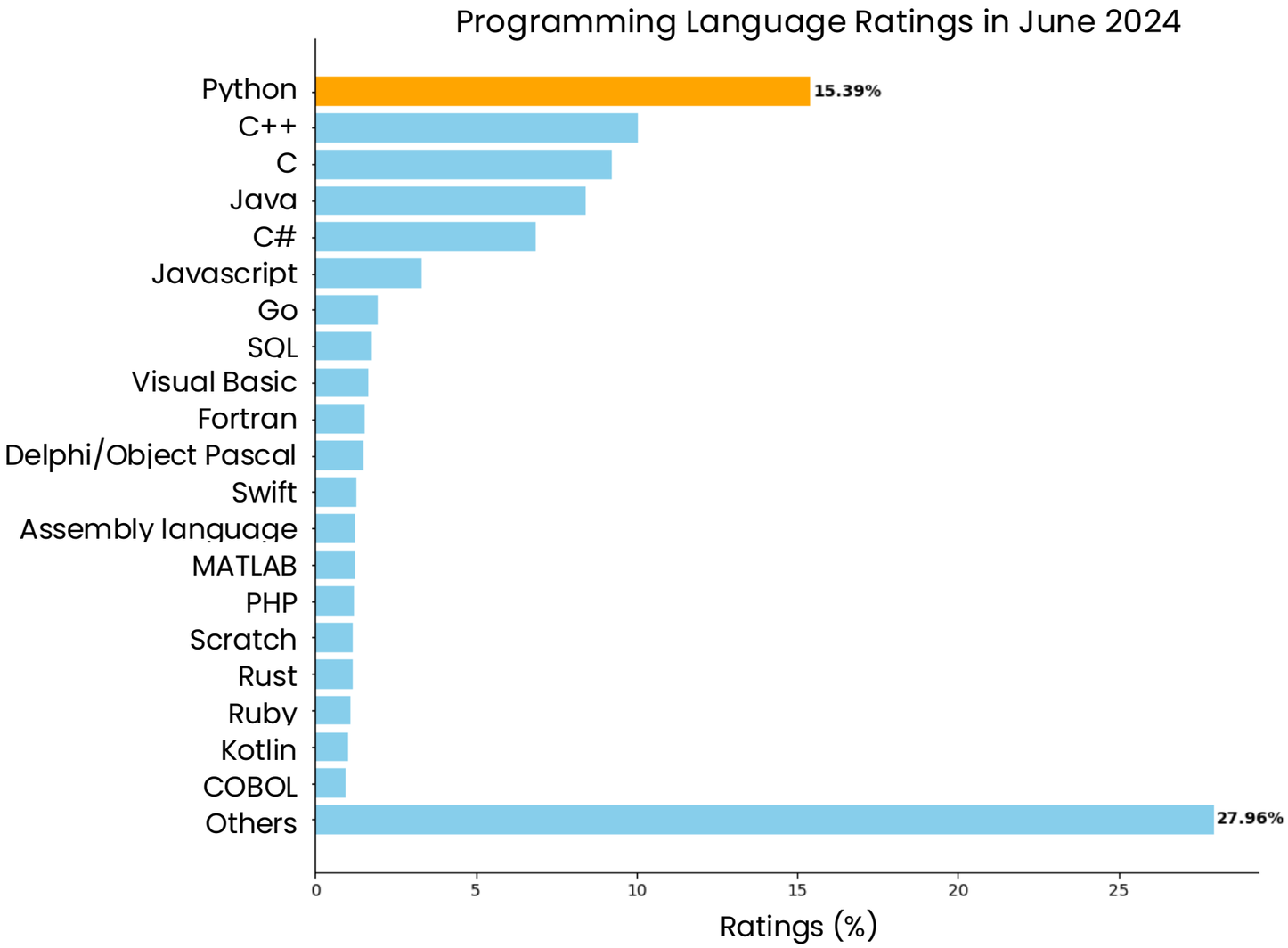
Programming + AI = superpowers!

Programming will let you unleash the true power of current AI tools





Why Python?



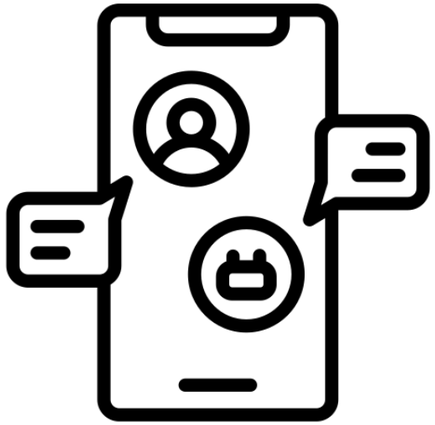
Python is currently the most popular programming language.

- Supportive community.
- Chatbots like ChatGPT are reliable

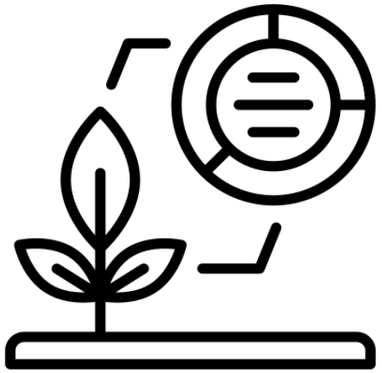
Python is everywhere in AI

Self-driving cars

Chatbots



Smart Agriculture



Python is everywhere. Period.

Web Service Efficiency at Instagram with Python

Instagram Engineering · Follow
Published in Instagram Engineering · 6 min read · Jun 21, 2016

1.4K 11

Instagram currently features the world's largest deployment of the Django web framework, which is written entirely in Python. We initially chose to use Python because of its reputation for simplicity and practicality, which aligns well with our philosophy of "do the simple thing first." But simplicity can come with a tradeoff: efficiency. Instagram has doubled in size over the last

Top highlight

Spotify R&D | Engineering

Blog Podcasts Open Source About Jobs

The most frequent question we heard at PyCon this weekend, was how do we use Python at Spotify. Hopefully this post answers the question!

At Spotify the main two places we use Python are backend services and data analysis. Python has a habit of turning up in other random places, as most of our developers are happy programming in it.

Data Platform Explained Part II

Fixed-Power Designs: It's Not

Languages

At the lower levels, Uber's engineers primarily write in Python, Node.js, Go, and Java. We started with two main languages: Node.js for the Marketplace team, and Python for everyone else. These first languages still power most services running at Uber today.

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Lesson 2: Writing Code with Chatbots

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Lesson 3: Navigating the Learning Platform

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Lesson 4: Running your First Program

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Lesson 5: How to Succeed in Coding

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Lesson 6: Data in Python

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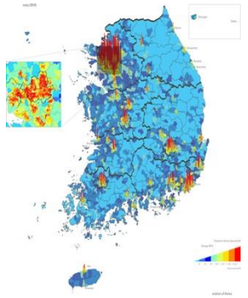
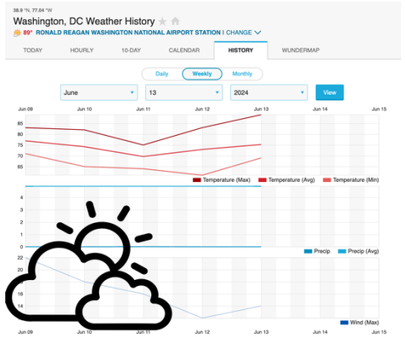
Day-to-day data



Population density map of South Korea



Weekly weather conditions in Washington, DC (USA)

Prices of individual stocks with daily highs and lows

(Image credits: South Korean Government, Weather Underground, pexels.com)

Data in Computer Programming

Text

“a”, “egg”, “My favorite activity is hiking!”

Numbers

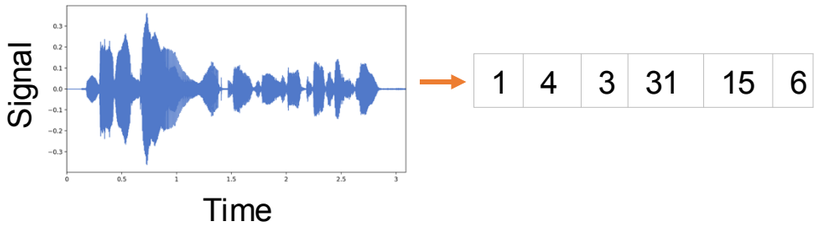
3.14, 525600, -42, 5.67e-34

Tabular Data

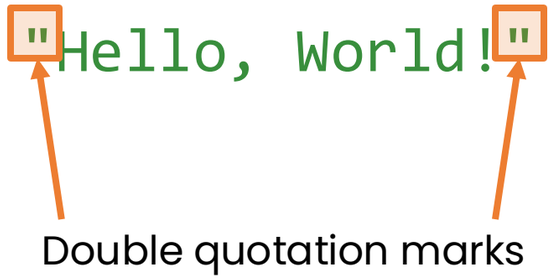
Item	Quantity	Price per unit ($)
T-shirt	3	26
Jeans	1	55

Images

Sound



Text in Python: Strings



- Strings in python are any combination of text, number, or symbol characters enclosed in double quotation marks
- Everything between the quotation marks is part of the string, including white space

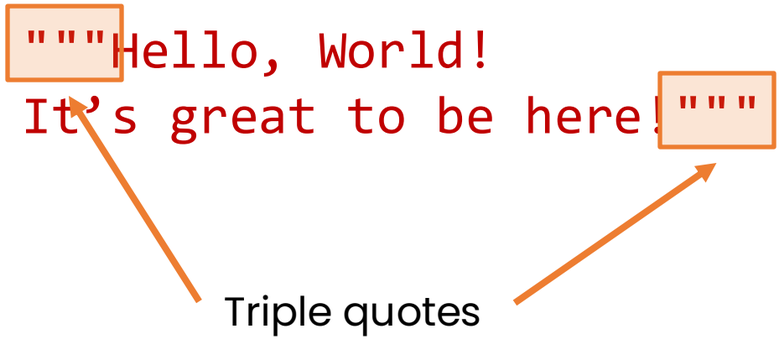
Text in Python: Strings

Strings

Used to represent text:

- `"Hello, world"`
- `"My favorite drink is Earl Grey tea"`
- `"¯\_(ツ)_/¯"`
- `"2.99"`

Multiline strings in Python



Checking data type in python

```
print("Hello, World!")
```

```
Hello, World
```

```
type("Hello, World!")
```

```
str
```

`print()` and **`type()`** are **functions**

More about those in a later lesson...

Numbers in Python

Integers and floats

Used to represent **numbers**:

- Integers represent numbers with no decimal part
  - 42
  - 100
  - -9
  - 0

- Floats have digits after the decimal place
  - 3.14
  - 2.99
  - -0.003

Using Python as a calculator

```
print(2 + 6)
```
Addition

```
print(57 - 40)
```
Subtraction

```
print(12 * 60)
```
Multiplication

```
print(100 / 60)
```
Division

Order of operations in Python

The same as in Math!

Celsius to Farenheit:

Then multiply!

Temp. in C = (Temp in F – 32) * 5/9

Do this first!

```
print(75 - 32 * 5 / 9)
```

Then subtract result from 75

Python will do this step first!

```
print((75 - 32) * 5 / 9)
```

Wrap subtraction in parentheses

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Lesson 7: Combining Text and Calculations

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Progress so far

Strings represent text

- `"Hello, world"`

Integers and floats represent numbers

- Integers: `42, 100, -9, 0`
- Floats: `3.14, 2.99, -0.003`

Display data to screen

- `print("Hello, World!")`
- `print(100)`

Use Python as a calculator

- `print(3 * 4.5)`

How do print statements work?

```
print("Isabel is 28 years old.")

print(f"Isabel is {28 / 7} dog years old.")
```

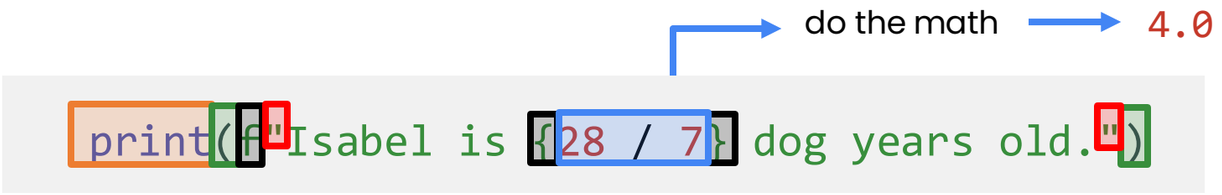
How Python carries out the print() statement

```
print("Isabel is 28 years old.")
```

```
Isabel is 28 years old.
```

1. Tells Python to display to screen
2. Checks for opening and closing parentheses
3. Sees a quotation mark, checks for match to close
4. Python displays everything between the quotes to the screen exactly as written

How Python interprets f-strings



1.Tells Python to display to screen

2.Checks for opening and closing parentheses

3.Sees the f character – knows this is a formatted string

4.Checks for opening and closing quotation marks

5.Checks for opening and closing curly braces

6.Carries out the calculation inside the curly braces

How Python interprets f-strings

```
print(f"Isabel is {28 / 7} dog years old.")
```

```
Isabel is 4.0 dog years old.
```

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Lesson 8: Variables

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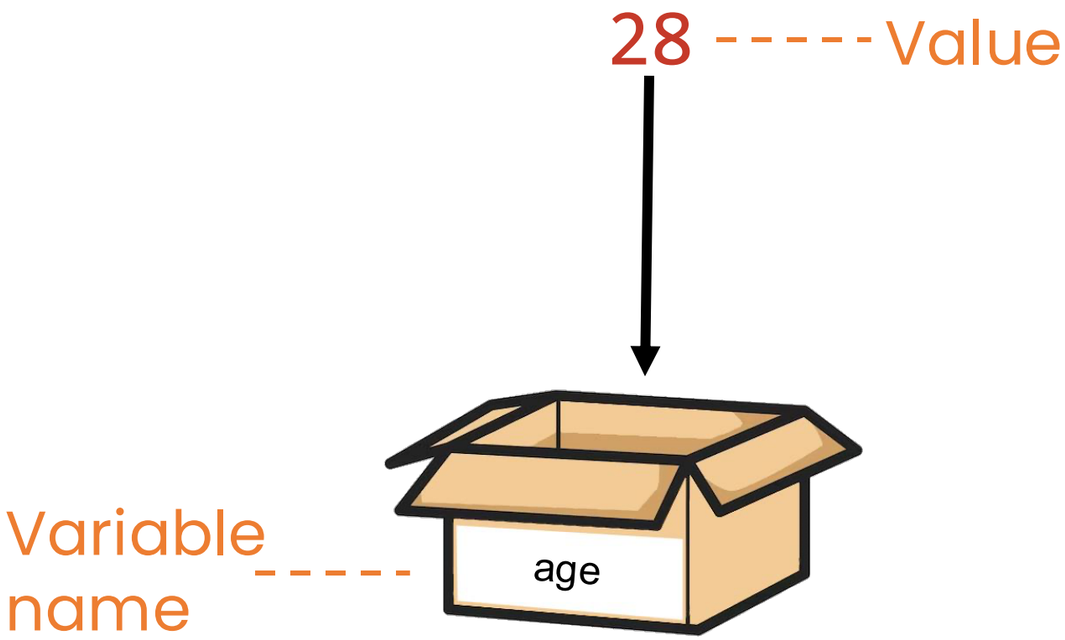
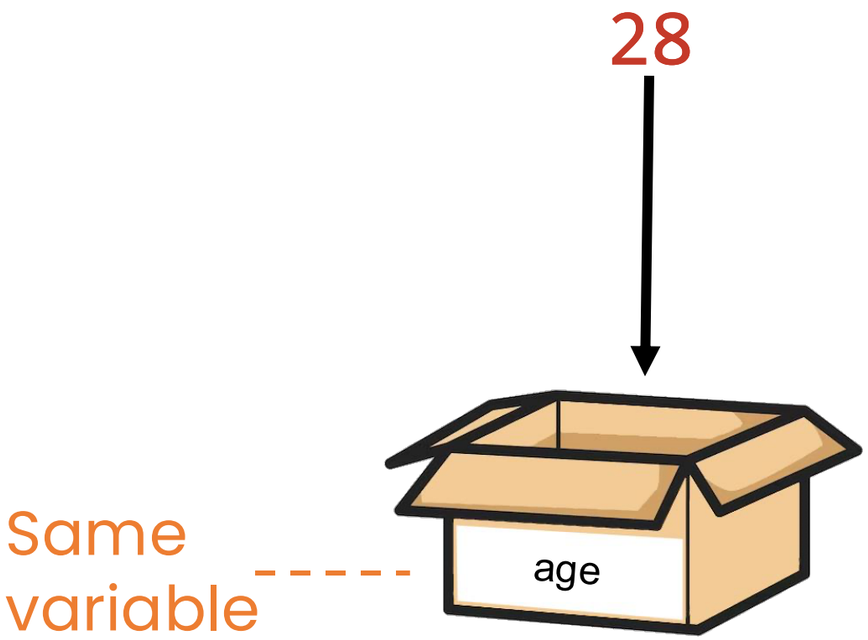
Variables – what are they

```
age = 28
```



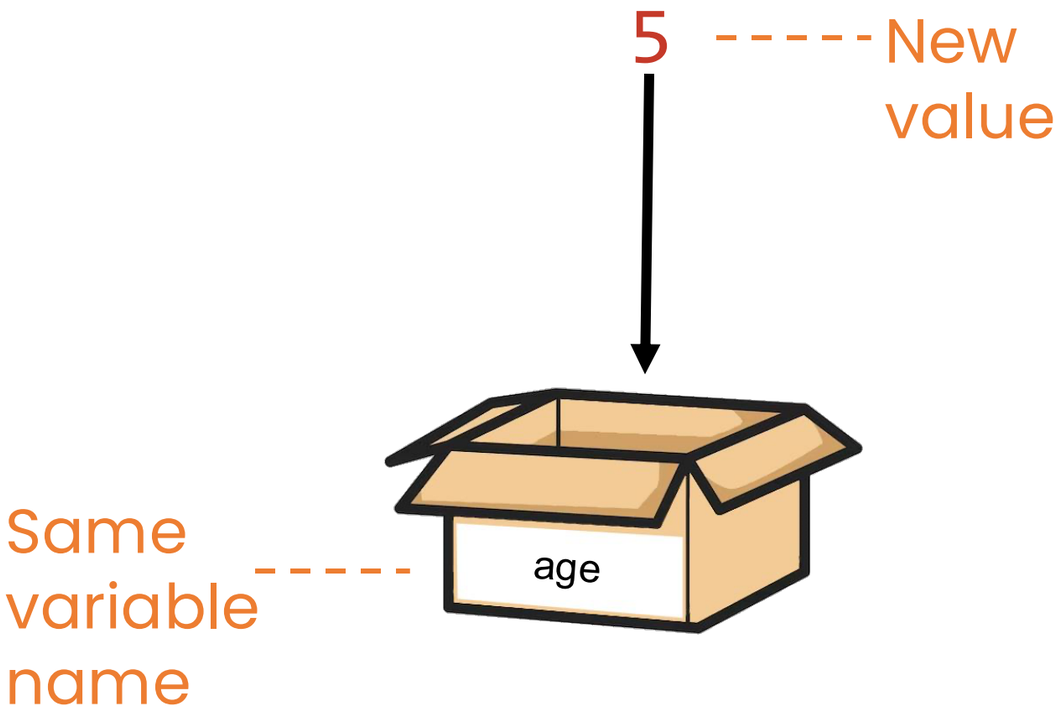
Variables – what are they

```
age = 28
age = 5
```

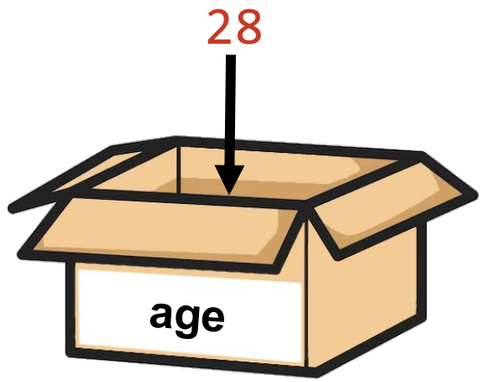


Variables – what are they

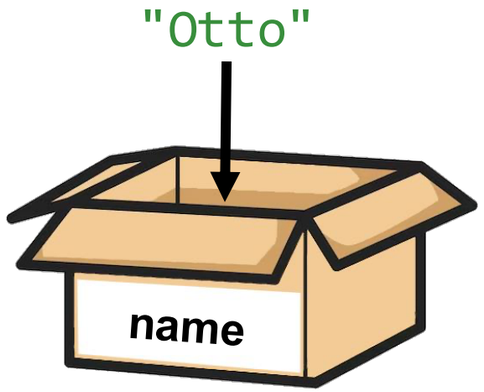
```
age = 28
age = 5
```



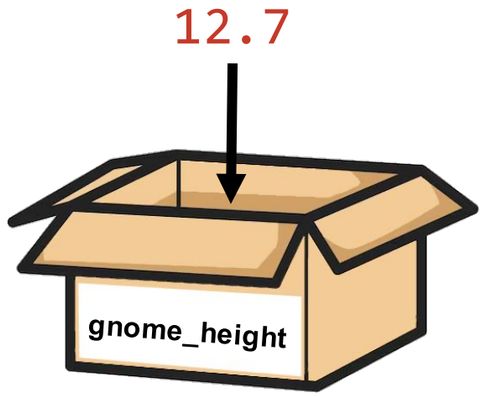
```
age = 28
```




```
name = "Otto"
```



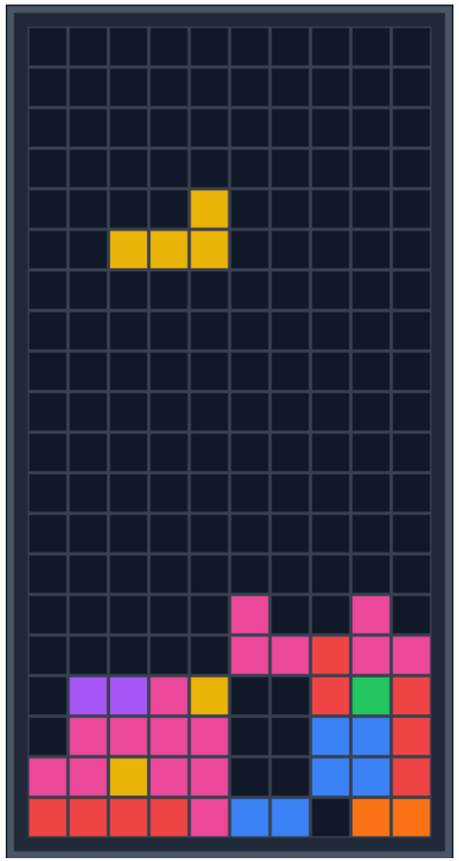

```
gnome_height = 12.7
```



What variables are for

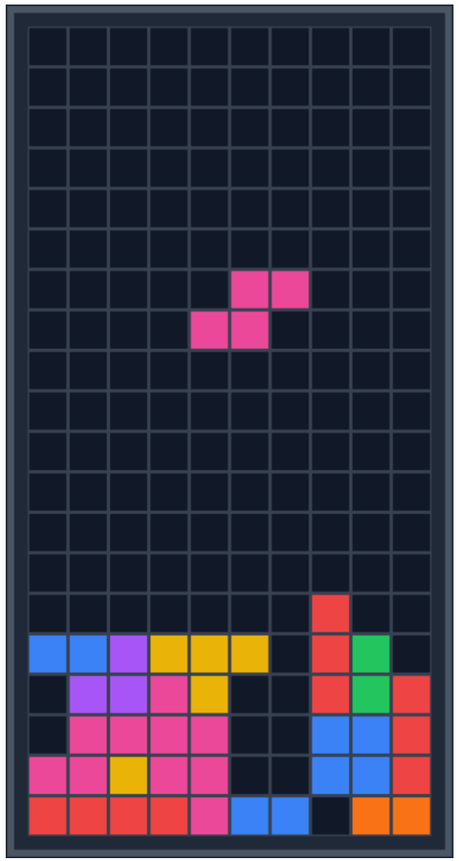
1. Give a value a name to use later

2. Use the same name to refer to changing values



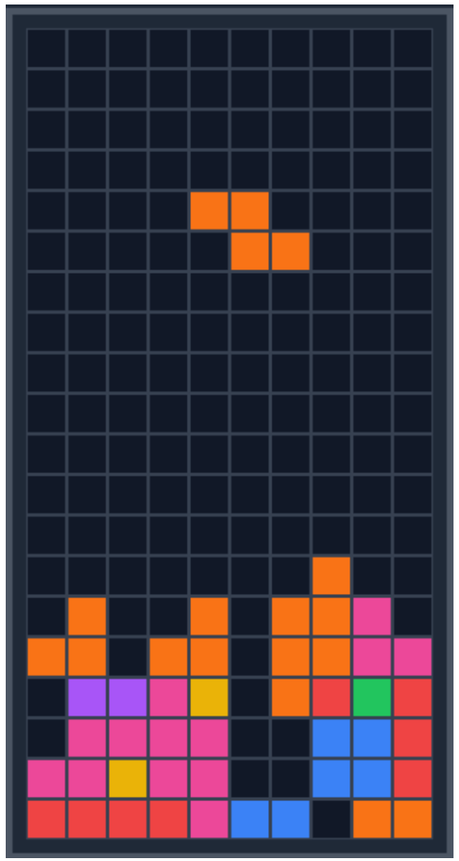
Score

0



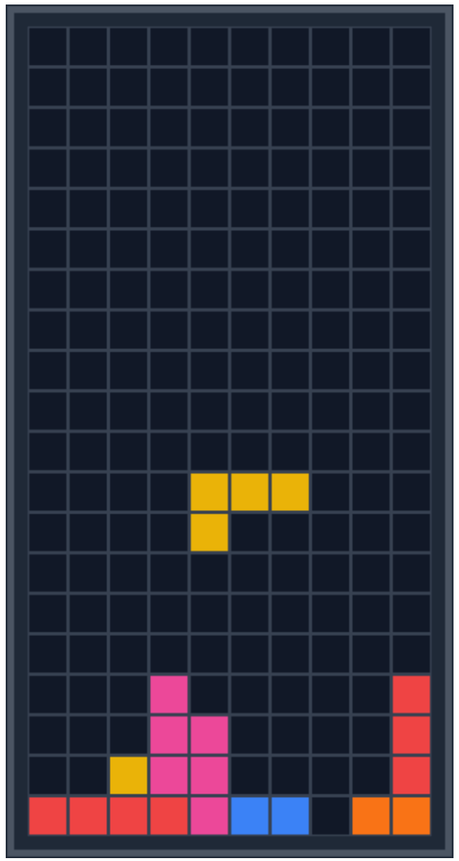
Score

50



Score

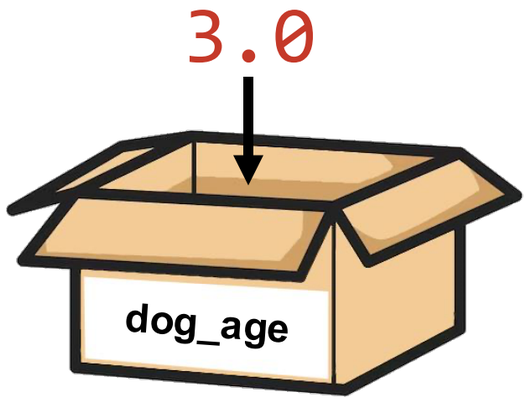
150



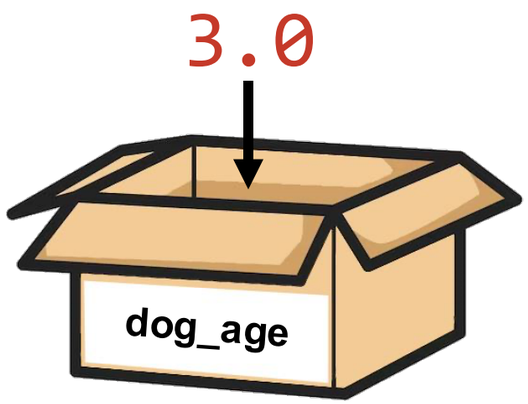
```
print(score)
save_high_score(score)
```

Score
450

```
print(f"""Otto's age in dog years is {dog_age}.
          So a dog that's about {dog_age} would
          be the same age as Otto. Any dog born about
          {dog_age} years ago would be in the
          same stage of life as Otto.""")
```



```
print(f"""Otto's age in dog years is     3.0    .
          So a dog that's about     3.0     would
          be the same age as Otto. Any dog born about
              3.0     years ago would be in the
          same stage of life as Otto.""")
```



```
print(f"""Otto's age in dog years is     3.0    .
          So a dog that's about     3.0     would
          be the same age as Otto. Any dog born about
             3.0     years ago would be in the
          same stage of life as Otto.""")
```

```
Otto's age in dog years is 3.0. So a dog that's
about 3.0 would be the same age as Otto. Any dog
born about 3.0 years ago would be in the same stage
of life as Otto.
```

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Lesson 9: Building LLM Prompts with Variables

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Lesson 10 – Functions: Actions on Data

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Functions make coding easier

Some functions allow you to perform actions on data for specific tasks and provide (or return) results

```
len("Hello World!")
```

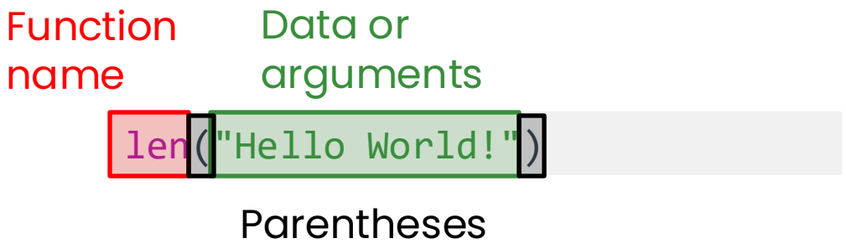
```
round(42.17)
```

Other functions allow you to display information

```
print("Hello World!")
```

Function data, actions and results

This function gets the number of characters for the string you provide



The commonly used lingo for the data you provide for a function is "**argument**."

Function data, actions and results

This function gets the number of characters for the string you provide

```
len("Hello World!")
```

```
12
```

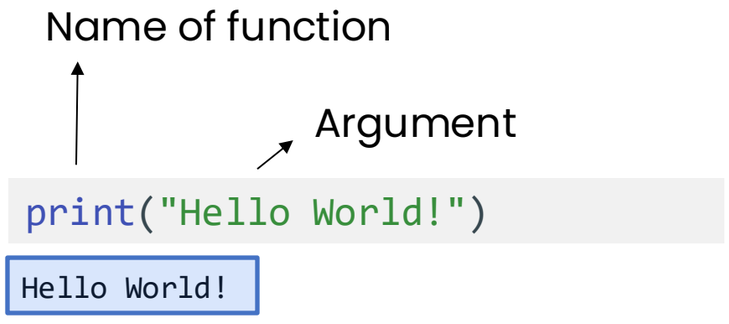
result

The commonly used lingo for using a function is "**calling a function**."

We also say the function **returns** its result.

Function data, actions and results

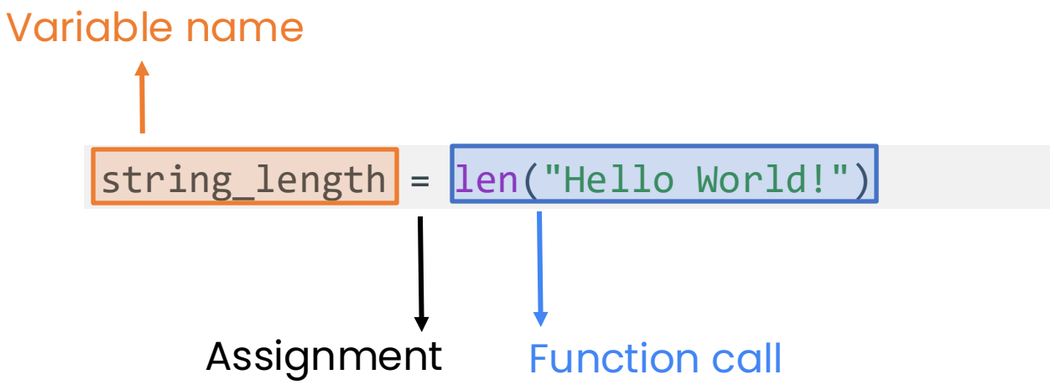
This function displays what you provide



Display-only result

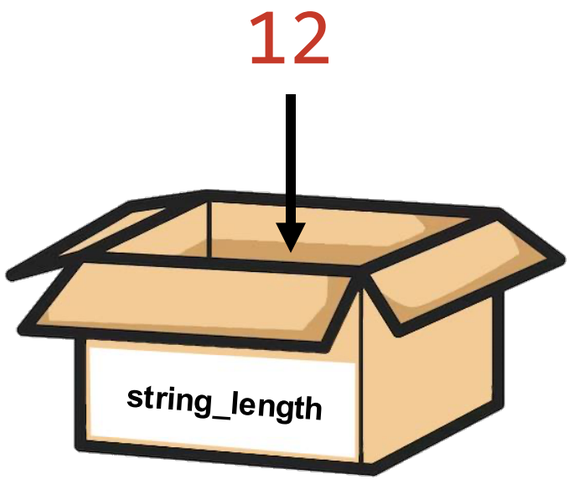
Assigning function results to variables

You can save function results, which is useful for functions that return values



Assigning function results to variables

```
string_length = 12
```




```
print(string_length)
```

```
12
```