What is a programmig language!?

Let's Kick it off →

It's just like a Communication between a Human and Computer

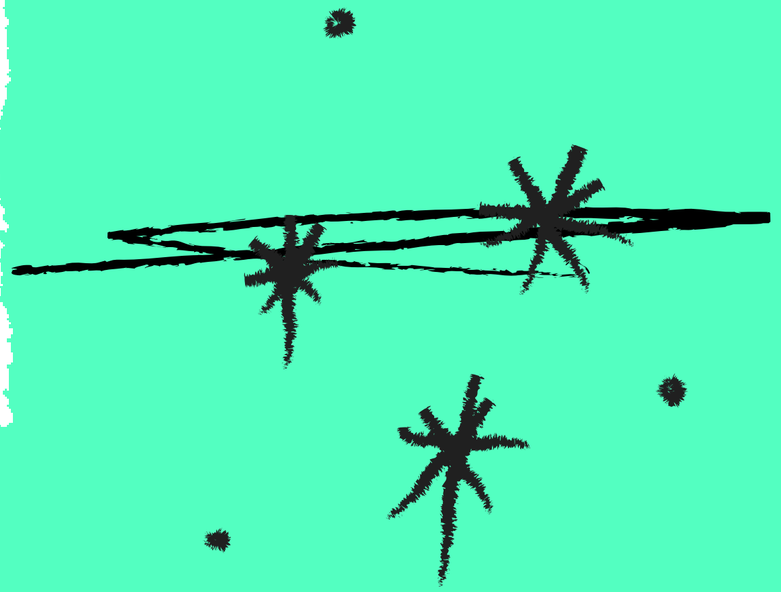
Programming language and it's uses

HTML	→	For Structure.
CSS	→	For Style.
JavaScript	→	For Fun.
React	→	For Work.
C	→	For Dinosaurs.
C++	→	For Dinosaurs.
C#	→	For Games.
Swift	→	For UI.
Ruby	→	For Rails.
PHP	→	For $
JQuery	→	For Legacy
Python	→	For Science
TypeScript	→	For Safety
Java	→	For DATA STRUCTURES

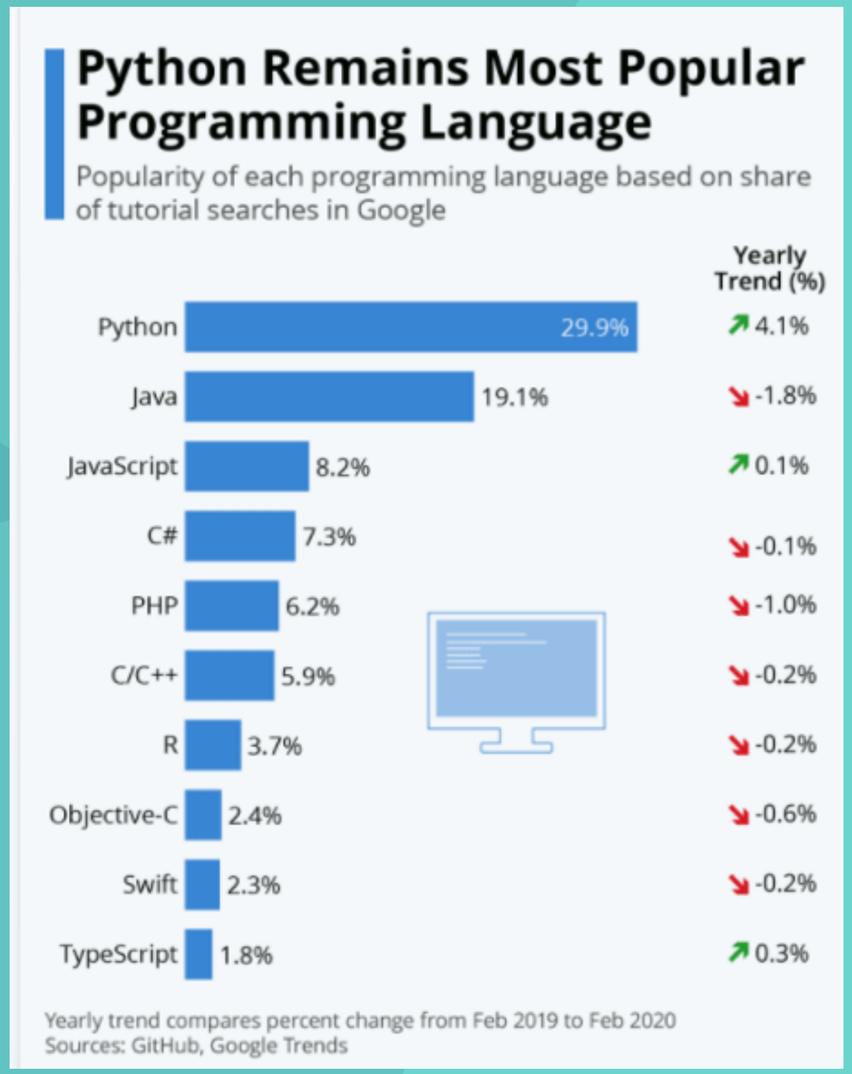
Oops!... one zero zero one zero one zero one... Fuck it...

So, Why we learn python?

WHY PYTHON?



- Easy to learn and use
- Expressive and high-level programming language
- Interpreted language
- Cross platform Language
- Free and Open source
- Large Standard Library
- Extensible
- GUI programming support
- Dynamically Typed
- Object oriented programming Language



WHY PYTHON IS SO POPULAR?

First and foremost reason why Python is much popular because it is highly productive as compared to other programming languages like C++ and Java.Python is also very famous for its simple programming syntax, code readability and English-like commands that make coding in Python lot easier and efficient.

History of Python

HISTORY OF PYTHON

- Python was conceptualized by **Guido Van Rossum** in the late **1980s**.
- Rossum published the first version of Python code (0.9.0) in February **1991** at the CWI (Centrum Wiskunde & Informatica) in the Netherlands , Amsterdam.
- Python is derived from **ABC** programming language, which is a general-purpose programming language that had been developed at the CWI.
- Rossum chose the name "**Python**", since he was a big fan of Monty Python's Flying Circus.
- Python is now maintained by a core development team at the institute, although Rossum still holds a vital role in directing its progress.

Libraries in python

Web and Mobile Development

1. FLask, Django
2. Kivy

Desktop and Game Developement

1. Tkinter
2. Pygame

Data Analysis, Machine learning

Pandas, Numpy, Matplotlib, Seaborn

Machine and Deep Learning

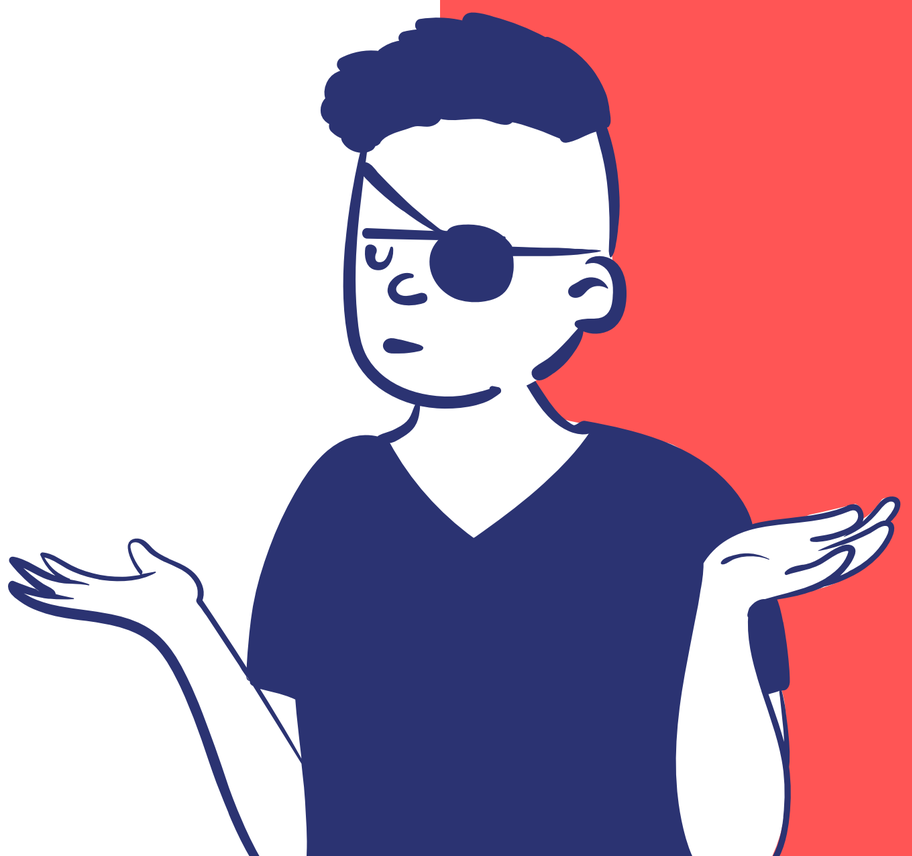
1. Sckitlearn
2. TensorFlow, Keras, Pytorch, Theano

Automation and Web Scraping

1. Selenium, PyAutoGUI
2. BeautifulSoup, Scrapy

Basics of Python

- How to print python?
- Python is Case Sensitive
- Python is Indentative
- How to declare a variable?
- Why we use comments?



Built-in Data Types

Built-in Data Types

In programming, data type is an important concept.

Variables can store data of different types, and different types can do different things.

Python has the following data types built-in by default, in these categories:

Text Type:	`str`
Numeric Types:	`int`, `float`, `complex`
Sequence Types:	`list`, `tuple`, `range`
Mapping Type:	`dict`
Set Types:	`set`, `frozenset`
Boolean Type:	`bool`
Binary Types:	`bytes`, `bytearray`, `memoryview`

In Python, the data type is set when you assign a value to a variable:

Example	Data Type
`x = "Hello World"`	str
`x = 20`	int
`x = 20.5`	float
`x = 1j`	complex
`x = ["apple", "banana", "cherry"]`	list
`x = ("apple", "banana", "cherry")`	tuple
`x = range(6)`	range
`x = {"name" : "John", "age" : 36}`	dict
`x = {"apple", "banana", "cherry"}`	set
`x = frozenset({"apple", "banana", "cherry"})`	frozenset
`x = True`	bool
`x = b"Hello"`	bytes
`x = bytearray(5)`	bytearray
`x = memoryview(bytes(5))`	memoryview

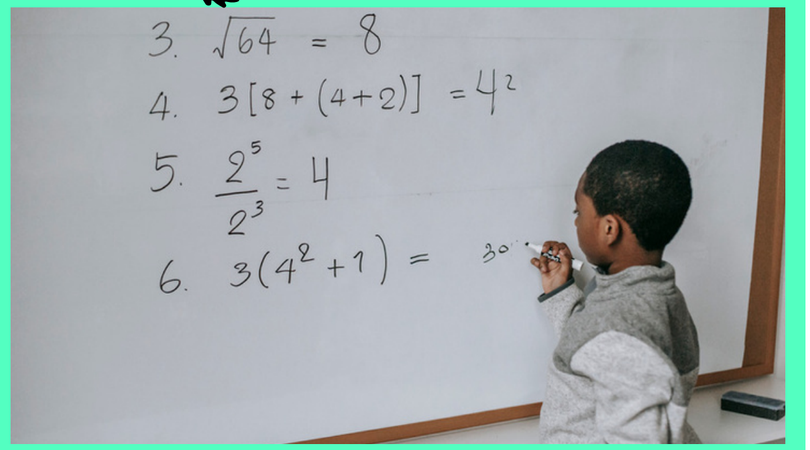
What is a String?

- Strings are Arrays
- String Length
- Slicing
- String Concatenation
- String methods-Upper Case(), Lower case(),split()

Operators

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Identity operators
- Membership operators
- Bitwise operators

Arithmetic Operators



Arithmetic operators are used with numeric values to perform common mathematical operations:

Operator	Name	Example
+	Addition	x + y
-	Subtraction	x - y
*	Multiplication	x * y
/	Division	x / y
%	Modulus	x % y
**	Exponentiation	x ** y
//	Floor division	x // y

Assignment operators

Python Assignment Operators

Assignment operators are used to assign values to variables:

Operator	Example	Same As
=	x = 5	x = 5
+=	x += 3	x = x + 3
-=	x -= 3	x = x - 3
*=	x *= 3	x = x * 3
/=	x /= 3	x = x / 3
%=	x %= 3	x = x % 3
//=	x //= 3	x = x // 3
**=	x **= 3	x = x ** 3
&=	x &= 3	x = x & 3
|=	x |= 3	x = x | 3
^=	x ^= 3	x = x ^ 3
>>=	x >>= 3	x = x >> 3
<<=	x <<= 3	x = x << 3

Comparison operators

Python Comparison Operators

Comparison operators are used to compare two values:

Operator	Name	Example
==	Equal	x == y
!=	Not equal	x != y
>	Greater than	x > y
<	Less than	x < y
>=	Greater than or equal to	x >= y
<=	Less than or equal to	x <= y

Logical & Identity operators

Python Logical Operators

Logical operators are used to combine conditional statements:

Operator	Description	Example	T
and	Returns True if both statements are true	x < 5 and x < 10	
or	Returns True if one of the statements is true	x < 5 or x < 4	
not	Reverse the result, returns False if the result is true	not(x < 5 and x < 10)	

Python Identity Operators

Identity operators are used to compare the objects, not if they are equal, but if they are actually the same object, with the same memory location:

Operator	Description	Example	T
is	Returns True if both variables are the same object	x is y	
is not	Returns True if both variables are not the same object	x is not y	

Bitwise operators

Python Bitwise Operators

Bitwise operators are used to compare (binary) numbers:

Operator	Name	Description
&	AND	Sets each bit to 1 if both bits are 1
|	OR	Sets each bit to 1 if one of two bits is 1
^	XOR	Sets each bit to 1 if only one of two bits is 1
~	NOT	Inverts all the bits
<<	Zero fill left shift	Shift left by pushing zeros in from the right and let the leftmost bits fall off
>>	Signed right shift	Shift right by pushing copies of the leftmost bit in from the left, and let the rightmost bits fall off

Tuples

- Tuples are used to store multiple items in a single variable.
- mytuple = ("apple", "banana", "cherry")
- Tuple is one of 4 built-in data types in Python used to store collections of data, the other 3 are List, Set, and Dictionary, all with different qualities and usage.
- A tuple is a collection which is ordered and unchangeable.
- Tuples are written with round brackets

Set

- Sets are used to store multiple items in a single variable.
- myset = {"apple", "banana", "cherry"}
- Set is one of 4 built-in data types in Python used to store collections of data, the other 3 are List, Tuple, and Dictionary, all with different qualities and usage.
- A set is a collection which is unordered, unchangeable, and unindexed.

Note: Set items are unchangeable, but you can remove items and add new items.

- Sets are written with curly brackets

Dictionaries

- Dictionaries are used to store data values in key:value pairs.
- A dictionary is a collection which is ordered, changeable and do not allow duplicates.
- As of Python version 3.7, dictionaries are ordered. In Python 3.6 and earlier, dictionaries are unordered.
- Dictionaries are written with curly brackets, and have keys and values:
- thisdict = {
- "brand": "Ford",
- "model": "Mustang",
- "year": 1964
- }

IF....Else.... Statement

- If
- Elif
- Else
- Nested if
- And OR in If statement

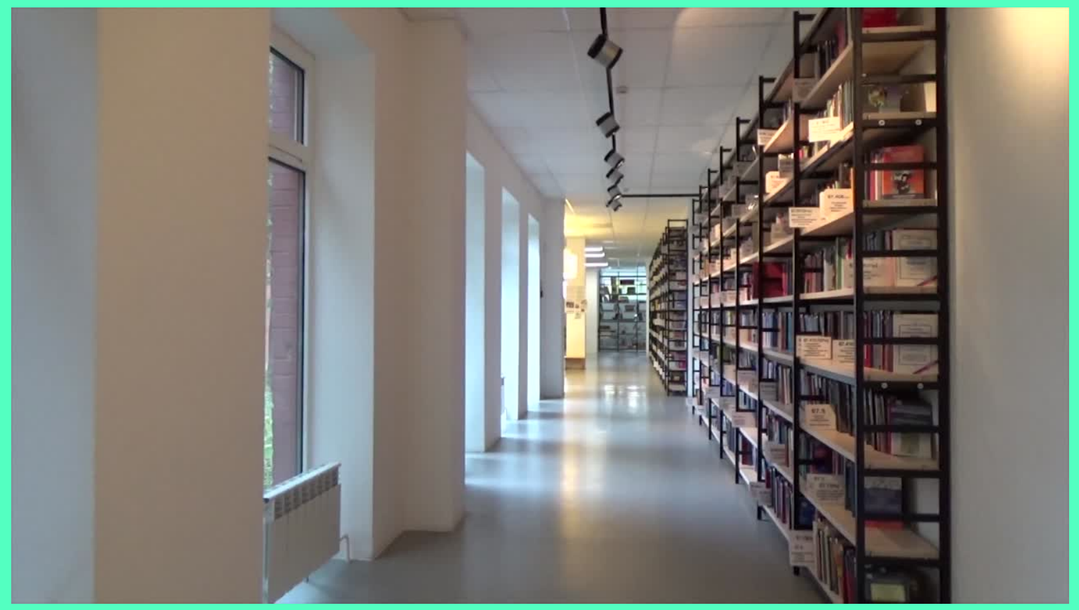
Control Flow Statement

- Python has two primitive loop commands:
- while loops-while loop is used to execute a block of statements repeatedly until a given condition is satisfied..
- for loops-for loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).

Functions

- A function is a block of code which only runs when it is called.
- You can pass data, known as parameters, into a function.
- A function can return data as a result.
- Calling a function(),Arguments, Return a value.
- Recursion-a defined function can call itself.

libraries



- Numpy- It can be used to perform a wide variety of mathematical operations on arrays.
- Pandas- It stands for “Python Data Analysis Library ”
- Matplotlib- It is a cross-platform, data visualization and graphical plotting library for Python and its numerical extension NumPy.

AS YOU BUILD YOUR BODY
BUILD YOUR OWN CODE