

Python - Functional Programming

BACK TO THE BASICS - REFRESHER

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Contents

- ▶ variables
- ▶ conditionals
- ▶ functions
- ▶ loops
- ▶ break, continue
- ▶ try and except
- ▶ classes

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Python Hierarchy

Numbers		Collections			
Integral	Non-Integral	Sequences		Sets	
Immutable		Mutable	Immutable	Mutable	Immutable
Integers	Floats (c doubles)	Lists	Tuples	Sets	Frozen Sets
Booleans	Complex		Strings		
	Decimals				
	Fractions				

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Python Hierarchy

Callable	Singletons
UDFs	None
Generators	NotImplemented
Classes	
Built-in Functions	
Built-in Methods	
Instance Methods	

Multi-line Statements

- ▶ physical newline vs logical newline:
- ▶ Sometimes, physical newlines are ignored in order to combine multiple physical lines terminated by a logical NEWLINE token.
- ▶ Implicit Conversions:

```
[1,          [ 1, #item1  
2,          2, #item2  
3]          3  #item3  
            ]
```

```
def my_func (a,  
            b, #comment  
            c):  
    print(a, b, c)
```

Note: supports inline comments

Multi-line Statements

- ▶ Explicit Conversions:
 - ▶ You can break up statements over multiple lines explicitly, by using the \.
- ```
if a \
 and b \
 and c:
```

**Note: Does not supports inline commenting**

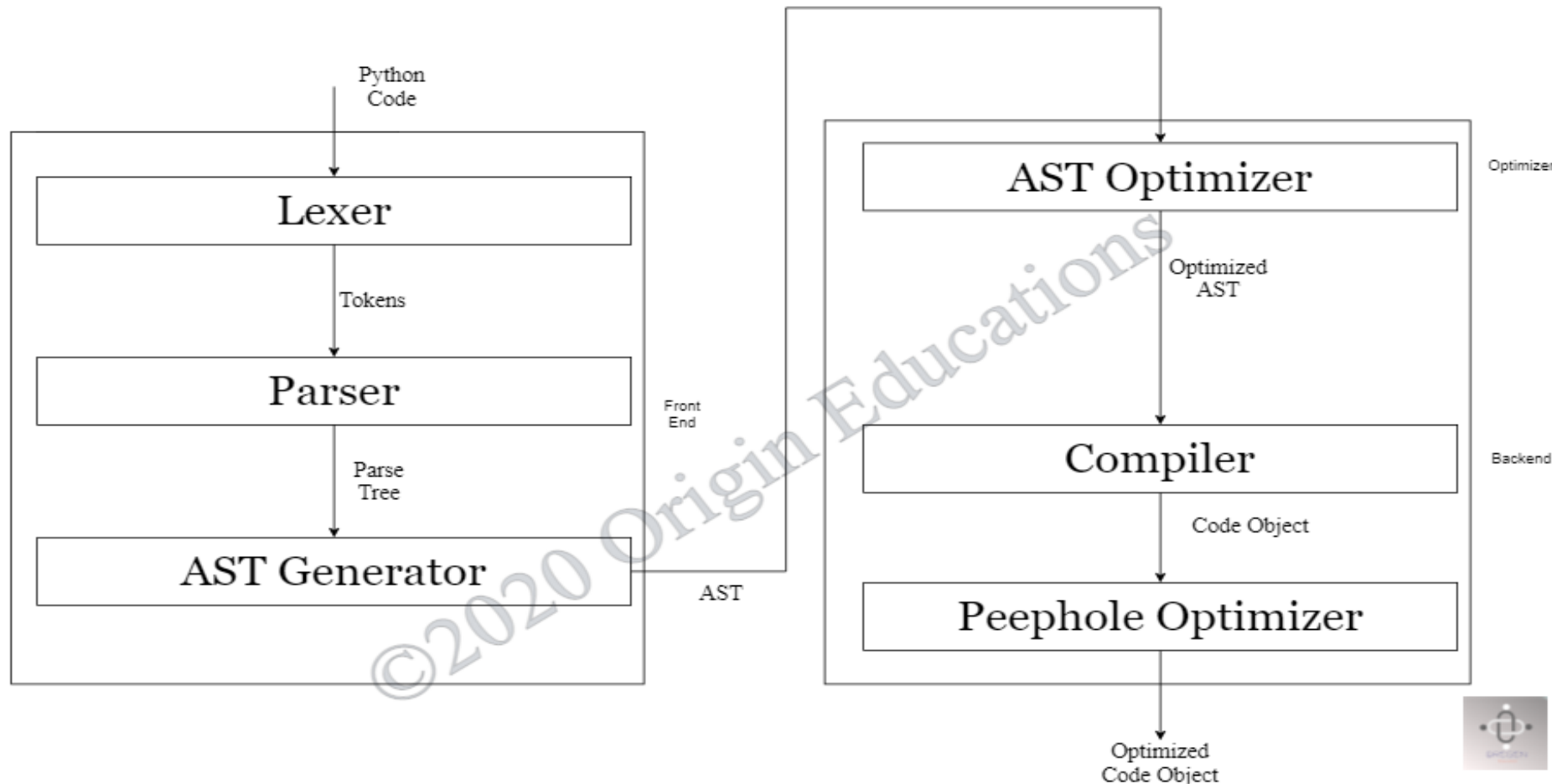
# Behind the Scenes:# 1

- ▶ **Step 1** : The interpreter reads a python code or instruction. Then it verifies that the instruction is well formatted, i.e. it checks the syntax of each line. If it encounters any error, it immediately halts the translation and shows an error message.
- ▶ **Step 2** : If there is no error, i.e. if the python instruction or code is well formatted then the interpreter translates it into its equivalent form in intermediate language called "Byte code". Thus, after successful execution of Python script or code, it is completely translated into Byte code.
- ▶ **Step 3** : Byte code is sent to the Python Virtual Machine(PVM).Here again the byte code is executed on PVM. If an error occurs during this execution then the execution is halted with an error message.

# Cpython Architecture

## How the CPython compiler works

A compiler, in its general sense, is a program that translates a program in one language into an equivalent program in another language. There are many types of compilers, but most of the time by a compiler we mean a static compiler, which translates a program in a high-level language to a machine code.





# Behind the Scenes:#2

## **For loop:**

```
value = [1,2,3,4,5]
```

```
for item in value:
```

```
 print(item)
```

## How Python does the above:

## **Sequence Type**

```
item= iter(value)
```

```
While True:
```

```
 try:
```

```
 print(next(item))
```

```
 except StopIteration:
```

```
 break
```

# Info to Remember

| Type      | To be followed                             | Example            |
|-----------|--------------------------------------------|--------------------|
| Packages  | short, all-lowercase names.                | pziplab            |
| Modules   | short, all-lowercase names.<br>underscores | foo_lev or foolev  |
| Classes   | Camelcase.                                 | UserData           |
| Functions | lowercase, underscores                     | User_data          |
| Variables | lowercase, underscores                     | User_data          |
| Constants | UPPERCASE, underscores                     | TOTAL_TIME_ELAPSED |

**Reference:** [pep-0008-Conventions](#)

**Exceptions:** [Exceptions](#)

# send me your suggestions!

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