# Python Q/A

What is Python and why is it popular?

* Python is a popular language for web and software development because we can create complex, multi-protocol applications while maintaining concise, readable syntax.
* some of the most popular applications were built with Python.
* The python language is one of the most accessible programming languages available because it has simplified syntax and not complicated, which gives more emphasis on natural language.
* Due to its ease of learning and usage, python codes can be easily written and executed much faster than other programming languages.

What are the differences between Python 2 and Python 3?

|  |  |
| --- | --- |
| **PYTHON 2** | **PYTHON 3** |
| Python 2 was launched in 2000 | Python 3 was launched in 2008 |
| Python 2 considers the “print” keyword a statement | Python 3 considers “print” a function |
| Python 2 stores strings by ASCII | Python 3 uses Unicode |
| Python 2 has a more complex syntax than Python 3 | many libraries exclusively use Python 3 |
| Python discontinued Python 2 support in January 2020. Many Python 2 libraries aren't forward compatible | Python 3 remains the most popular choice |

What is the difference between a tuple and a list in Python?

|  |  |
| --- | --- |
| **TUPLES** | **LISTS** |
| It comes in handy when storing a collection of items, especially if you want those items to be unchanging. | Lists are one of the most flexible and powerful containers in Python. |
| Tuples are used to store heterogeneous and homogeneous data. | You can use Python lists to store data of multiple types simultaneously |
| Tuples are similar to lists. It also preserves the data sequence. | Lists help preserve data sequences and further process those sequences in other ways |
| Tuples are immutable, they are faster than the list because they are static. | Lists are dynamic. |
| Tuples are immutable in nature. | Lists are mutable |
| Tuples are ordered | Lists are ordered. |
| An index is used to traverse a tuple. | An index is used to traverse a list. |

Lists help store multiple items and then iterate over them using a loop. Because lists are dynamic, you can easily add or remove items anytime.

How do you create a dictionary in Python?

To create an empty dictionary, first create a variable name which will be the name of the dictionary. Then, assign the variable to an empty set of curly braces, {} .

my\_dictionary = {}

print(my\_dictionary)

print(type(my\_dictionary))

output:

{}

<class ‘dict’>

Another way of creating an empty dictionary is to use the dict() function without passing any arguments.

my\_dictionary = dict()

print(my\_dictionary)

print(type(my\_dictionary))

output:

{}

<class 'dict'>

What is a function in Python and how do you define one?

A function is a block of code which only runs when it is called. we can pass data, known as parameters, into a function. A function can return data as a result.

def myfunction():  
 print("Hello World")  
myfunction()

What is a function in Python and how do you define one?

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.

def myfunction():

print("Hello World")

def functionName(arg1):  
 return arg1 \* 3  
result= functionName(3)  
print(result)

Another basic example of subtracting 2 numbers looks like this:

def subtractNum():

print(34 - 4)

subtractNum()

Output: 30

What is object-oriented programming (OOP) and how does it relate to Python?

Object-oriented programming is a programming paradigm that provides a means of structuring programs so that properties and behaviours are bundled into individual objects.

developers often choose to use OOP in their Python programs because it makes code more reusable and makes it easier to work with larger programs.

OOP programs prevent you from repeating code because a class can be defined once and reused many times.

How do you handle exceptions in Python?

* A single try statement can have multiple except statements.
* You can also provide a generic except clause, which handles any exception.
* After the except clause(s), you can include an else-clause.
* The else-block is a good place for code that does not need the try: block's protection.

Python provides two very important features to handle any unexpected error in your Python programs and to add debugging capabilities in them –

**Exception Handling** − This would be covered in this tutorial. Here is a list standard Exceptions available in Python: [Standard Exceptions](https://www.tutorialspoint.com/python/standard_exceptions.htm).

**Assertions** − This would be covered in [Assertions in Python](https://www.tutorialspoint.com/python/assertions_in_python.htm)

How do you read and write files in Python?

**Write()**

The *write()* method writes any string to an open file. It is important to note that Python strings can have binary data and not just text.

The write() method does not add a newline character ('\n') to the end of the string −

fileObject.write(string)

Here, passed parameter is the content to be written into the opened file.

#!/usr/bin/python

# Open a file

fo = open("foo.txt", "wb")

fo.write( "Python is a great language.\nYeah its great!!\n")

# Close opend file

fo.close()

The above method would create foo.txt file and would write given content in that file and finally it would close that file. If you would open this file, it would have following content.

**Read()**

fileObject.read([count])

Here, passed parameter is the number of bytes to be read from the opened file. This method starts reading from the beginning of the file and if count is missing, then it tries to read as much as possible, maybe until the end of file.

## **Example**

Let's take a file foo.txt, which we created above.

#!/usr/bin/python

# Open a file

fo = open("foo.txt", "r+")

str = fo.read(10);

print "Read String is : ", str

# Close opend file

fo.close()

How do you install and use external packages in Python?

An external module, you must first install it on your machine. To install, you'll need to download the files from the internet to your computer, then integrate them with the main Python library so that the language knows where the module is located

How do you use the "if" statement in Python to perform conditional execution?

The if-else statement is used to execute both the true part and the false part of a given condition. If the condition is true, the if block code is executed and if the condition is false, the else block code is executed.

a=20

if a>50:

    print("This is the if body")

print("This is outside the if block")

Since 20 is not greater than 50, the statement present inside the if block will not execute. Instead, the statement present outside the if block is executed.