**Python Questions**

1. What is Python?

Answer: A multi-Purpose language, that is used by mathematicians, data analysis and much more.

1. What are the benefits of Python?

Answer: The ability to solve complex problems with less time and fewer lines of code.

1. What are the key features of Python?

Answer: The ability to right fewer lines of code, Cross platform, Huge Community, Large Ecosystem of libraries and frameworks.

1. What type of language is Python? Programming or Scripting?

Answer: Programming language.

1. What are the applications of Python?

Answer: Data science, Web Development, Finance and trading, Basic game development, Security and much more!

1. What is the difference between list and tuple in Python?

Answer: Items inside of a tuple cannot be edited it is only able to be viewed or iterated through. List items can be changed.

1. What are the global and local variables in Python?

Answer: Global variables are variables that are found outside of a function and are accessible throughout the whole program. Local variables are variables that are defined in a function and are not accessible throughout the program useless you specifically make it global. I.e. “global x”.

1. Define PYTHON PATH?

Answer: Is an environment variable that allows you to set additional dictionaries where python will look for more modules.

1. What are the two major loop statements?

Answer: For loops and While loops.

1. What do you understand by the term PEP 8?

Answer: A style guide that python code needs to follow or basically the rules that python needs to follow.

1. How memory management is done in Python?

It is done in a private heap that contains all of python’s object and data Structures. The python memory manager has different components that allows it to deal with other management specs such as sharing, caching, and preallocation.

1. What is the principal difference between Java and Python?

Answer: Java is statically typed and python is dynamically typed.

For python this means the names in code are bound to strongly typed objects at run time.

For java names are bound to types at compile time through explicit type declaration.

1. Define modules in Python?

Answer: Modules are files that contain python code that can be used in other parts of a project. These files can contain classes, functions, methods, and etc.

1. What are the built-in types available in Python?

Answer: numerics, sequences, mapping, classes, instances, and exceptions. Things like Booleans, methods, str, and classes are some examples of these.

1. What are Python Decorators?

Answer: they are a way to extend the behavior of a method or a function.

1. How do we find bugs and statistical problems in Python?

Answer: One way to start debugging is by using your code editor’s debugger. Depending on your editor it may provide you with a decent number of tools. There is also a tool called Pychecker.

1. What is the difference between .py and .pyc files?

Answer: .pyc files are the complied version of a module. This is used to speed up module loading. This will only speed up the module not the performance of the application.

1. How do you invoke the Python interpreter for interactive use?

Answer: On mac in the terminal you would type “python3” this will activate the interpreter. In here you can execute code or create a file and execute the file.

1. Define String in Python?

Answer: Is basically text. Must be surrounded by “or ‘.

Professional Answer: a sequence of letters, numbers, and symbols that can be a variable or a constant.

1. What do you understand by the term namespace in Python?

Answer: A mapping from names to objects. A system to have a unique name for each and every object in python.

1. How do you create a Python function?

Answer: def functionName():

print(‘hi’)

We start by using def and giving the function a name. next to the name we add parenthesis then a colon. Underneath that we tab over to make sure that the code is in the function. After writing the code leave 2 empty spaces as required by PEP8. After that call the function to execute it.

1. Define iterators in Python?

Answer: an object that allows us to go through all the items in a collection.

1. How does a function return values?

Answer: by having ‘return’ it will return a value.

1. Define slicing in Python?

Answer: A feature that enables accessing parts of sequences. Like strings, tuples, and list. With slicing we can edit or delete items out of changeable items like a list.

1. How can Python be an interpreted language?

Answer: Because it goes through an interpreter that gets executed through there.

1. function without return is valid?

Answer: Yes, if it is only performing a task and not trying to return a value

1. Define package in Python?

Answer: A container for 1 or more modules.

1. How can we make a Python script executable on Unix?

Answer: link to a quick tutorial

<http://openbookproject.net/thinkcs/python/english3e/app_c.html>

1. Which command is used to delete files in Python?

Answer: remove() and the file path.

1. Define pickling and unpickling in Python?

Answer: pickling is when an object is converted into a byte stream. Unpickling is the opposite converting it back in the object hierarchy.

1. Explain the difference between local and global namespaces?

Answer: Global namespace’s is one that is available throughout the program. A local one would be one that is only in the function it is called in.

1. What is a Boolean in Python?

Answer: True or False.

1. What is Python String format and Python String replace?

Answer: The format method formats a value that is defined by {} Example: txt.format(price = 20) / txt = ‘The price is {price}.

The replace method replaces a specific phrase with another phrase.

1. Name some of the built-in modules in Python?

Answer: Random, Math, array, and abc (Abstract base classes)

1. What are the functions in Python?

Answer: abs, any, all, bool, dict, int, list, tuple, max.

1. What are Dict and List comprehensions in Python?

Answer: it’s a concise way to make a list so instead of having to write it like this:

squares = []

>>> for x in range(10):

squares.append(x\*\*2)

We can write it like this:

Squares = [x\*\*2 for x in range (10)]

1. Define the term lambda?

Answer: A simple one-line anonymous function that can be passed to other functions.

1. When would you use triple quotes as a delimiter?

Answer: For multi-line strings.

1. Define self in Python?

Answer: It is a parameter that is a reference to the current instance of a class. Mainly used to access variables that belong to the class.

1. What is \_init\_?

Answer: A function that all classes have. We use it to assign values to objects in class such as self.name and self.age.

1. Define generators in Python?

Answer: They are a function that behave just like iterators. A simpler way to make an iterator.

1. Define docstring in Python?

Answer: Documentation for what the code does or why we wrote code the way we wrote it.

1. How do we convert the string to lowercase?

Answer: by using the method lower().

1. How to remove values from a Python array?

Answer: By using the methods remove() and pop()

1. What is Try Block?

Answer: A try block is where we try a line of code and if we do not get the answer we want, no answer, or an error instead of the program crashing we’ll raise an expectation.

1. Why do we use the split method in Python?

Answer: We use this to put a string into a list.

1. How can we access a module written in Python from C?

Answer: We can Import it over.

1. How do you copy an object in Python?

Answer: we can use the methods copy() or deepcopy()

So, a regular copy or a shallow copy creates a new compound object and to a certain extent inserts references into it found from the original.

As for, Deep copy creates a new compound object and then recursively, inserts the copies into the object found on the original.

In short shallow copy is one level deep, will affect the original and the copy. The deep copy will make a whole independent copy from the original.

1. How do we reverse a list in Python?

Answer: you can use the sort() and set reverse to true or use the reverse().

1. How can we debug a Python program?

We can use Pychecker, Debugger provided by code editor, PEP8, unit testing, creating test in the console or in a venv.

1. Write a program to count the number of capital letters in a file?

Answer: *# Let's write a program that will count the amount of capital letters in a file*

*# By Levance Wamley*

import random

import string

*# First select the file we want to read*

file = open('sample.txt')

data = file.read()

*# returning the words in a list*

words = data.split()

capitals = 0

lowers = 0

*# Here we are going to iterate through the list and seperate the words*

for word in words:

*# Now we are iterating through the word to get the letter in each word*

for letter in word:

*# if the letter is capital then we will count it if not then we'll give a point to the lowercase counter*

if letter.isupper():

capitals += 1

else:

lowers += 1

print(f"There are {capitals} captial letters in the file.")

print(f"There are {lowers} lowercase letters in the file.")

*# practice to get the understand how to get the amount of letters in a string*

cap\_letters = 0

low\_letters = 0

sentence = "".join(random.choices(string.ascii\_letters, *k*=20))

for caps in sentence:

if caps.isupper():

cap\_letters += 1

else:

low\_letters += 1

print(f"There are {cap\_letters} captial letters in the string.")

print(f"There are {low\_letters} lowercase letters in the string.")

1. Write a program to display Fibonacci sequence in Python?

Answer: *# Create program that follows a Fibonacci sequence.*

*# By Levance Wamley*

*# Let's create a function that can handle all of the work*

def fibo(*n*):

a, b = 0, 1

*# if the user types 1 just show them 0*

if n == 1:

print(a)

elif n < 0:

*# if the user tries to use negative numbers show this message.*

print("I'm sorry I am not able to go backwards yet.")

else:

print(a)

print(b)

for x in range(2, n):

c = a + b

a = b

b = c

print(c)

final = c

print(f"The final number is: {final}")

*# We will allow the user to input their own number and decide how long they want the sequence to go.*

question = input('Enter a Number: ')

*# change the string to a integer*

number = int(question)

fibo(number)

1. Write a program in Python to produce Star triangle?

Answer: *# create a program that will make a star triangle*

*# by Levance Wamley*

*# we are setting the amount of rows we want to have*

row = 8

*# This is the for loop that controls the rows being made.*

for x in range(0, row):

*# So here we are making the columns this*

*# Depending on which iteration it is on it will add the appropriate amount of spaces*

*# Example 6 - 0 - 1 will give use 5 spaces and 1 star*

for y in range(0, row-x-1):

print(end=" ")

*# With this loop we will print the star then a space to seperate them*

*# Depending on the iteration we will get a amount of stars*

for y in range(0, x+1):

print("\*", end=" ")

*# the print at the end is being used to create a break or new line*

print()

1. WAP to check whether the given number is prime?
2. *# Create a Program that will give you all of the prime #'s in a list.*
3. *# By Levance,*
4. *# First we will define a start and end for the program to check.*
5. start = 5
6. end = 25
7. *# We create a for loop to iterate through the numbers defined.*
8. *# we add a one to the end so that number will show.*
9. for num in range(start, end+1):
10. *# We add a 2nd loop in this loop well will take each number and divide indiviually.*
11. *# We start at 2 be we know that prime numbers are made of just 1 and it self.*
12. *# so if the numbers between get it to 0 then we know its not a prime.*
13. *# if the number gets to zero we know it is not a prime then we break the loop aand go to the next number.*
14. for i in range(2, num):
15. if num % i == 0:
16. break
17. else:
18. print(num)
19. Python code to check string palindrome or not?

Answer: *# Create a program that checks to see if a string is palindrome*

*# By Levance Wamley*

def palidrome(*word*):

*# store the string and remove any spaces and special chars.*

*# note: I know that nesting replaces is not the prettiest but will come back to fix it.*

original = word.lower().replace(" ", "").replace(

"'", "").replace(",", "").replace("?", "")

*# We are gonna reverse the string here.*

reverse = original[::-1]

*# The if statement goes as follows:*

*# The first statement will check to see if the string is empty*

*# the second part will compare if the original and the reverse are the same*

*# Finally if the two variables don't match we tell them it doesn't work*

if not word:

print("Do not leave this blank")

elif original == reverse:

print("Yes the word is palidrome")

else:

print("Sorry this word is not a Palidrome")

text = input("Enter a palindrome word or sentence.")

palidrome(text)

1. Write Python code to sort a numerical dataset?

Answer: *# Create a program that will sort a numerical Datasheet*

*# By Levance Wamley*

my\_list = [45, 22, 11, 46, 7, 4, 67, 9]

*# The code below is ment to iterate till the biggest number is at the end*

*# we are gonna heve the outer loop execute that code the same number of times till the whole list is sorted correctly*

for j in range(len(my\_list)-1):

*# here we want to tell how many times the loop will be executed*

*# so from index 0 all the way to the last index*

*# so because we have 8 numbers in this list it will go through the list 7 times*

for i in range(len(my\_list)-1):

*# we will check each of the numbers in the list to see which number is greater*

if my\_list[i] > my\_list[i+1]:

*# here we are swapping the numbers if it is greater so the lower numbers can go to the front*

my\_list[i], my\_list[i+1] = my\_list[i+1], my\_list[i]

print("List sorted: ", my\_list)

1. What is the output of the following code?

Answer: This question is given to you at the time of the interview they might have something for you to look at.

1. What is the procedure to install Python on Windows and set path variable?

Answer: <https://geek-university.com/python/add-python-to-the-windows-path/>

Check this site and read it step by step.

1. Differentiate between SciPy and NumPy?

Answer: Numpy Stands for Numerical python and is used for homogeneous data in arrays. Basically, the manipulation of numerical data. SciPy stands for Scientific Python and is more like a tool collection some of these tools include: integration, differentiation, gradient optimization and plenty more. Both of these are modules of python.

1. How do Python arrays and lists differ from each other?

Answer: It is the functions that you can use on them. For example: you can divide an array and get the sum of all of the numbers inside. But a list will throw an error. Also, A list needs to be imported before you can use it or its methods.

1. Can we make multi-line comments in Python?

Answer: No, we cannot sadly.

1. What is the difference between range and xrange?

Answer: Range will return a list, while xrange will return a xrange object. It creates values as you need them with a special technique called yielding. This is technique is used with generators. Range generates a static list at run time.

1. Explain how can we build or set up the database in Django?

Answer: First in the models we are going to want to import the database module that comes with Django. Next we are going to want to create our tables and what are going inside of them. Once that is done, we are going to go to the terminal and type in python3 manage.py makemigrations and python3 manage.py migrate. This will create a db.sqlite file that we can drop into SQLite.

1. List out the inheritance styles in Django?

Answer: Multi-table and Abstract models.

Abstract Base Classes are used when you want the parent class to have information you don’t want to type out in the child model.

Multi-table is used when you are sub-classing an existing model and need each model to have its own database.

1. How to save an image locally using Python in which we already know the URL address?

Answer: *# going to make a program that saves a image from the internet*

*# By Levance Wamley*

import urllib.request

*# Created a function to gather the link, file path and set a name*

def img\_saver(*url*, *file\_path*, *filename*):

*# here we are telling the program where to save and name the file and what type of extension we want*

full\_path = file\_path + filename + ".jpeg"

*# we go to grab the image from the link and then save it.*

urllib.request.urlretrieve(url, full\_path)

*# link to file and name*

link = "https://image.shutterstock.com/image-photo/ripe-red-apples-wooden-box-600w-1115705399.jpg"

filename = "apple"

img\_saver(link, "images/", filename)

1. How can we access sessions in flask?

Answer: <https://overiq.com/flask-101/sessions-in-flask/>

Please read the article above for a better understanding.

1. Is flask an MVC model? If yes, justify your answer by showing an example of your application with the help of MVC pattern?

Answer: It’s not an MVC it is a minimalistic framework that gives you enough freedom to use it like a MVC.

1. What are the database connections in Python Flask, explain?

Answer: Cannot find an answer for this will come back to this.

1. Explain the procedure to minimize or lower the outage of Memcached server in Python development?

Answer: Setting a timeout value when the server goes down the client will retry until the timer goes out.

1. What is Dogpile effect?

Answer: This is when cache expires and the website is hit with a lot of request at the same time. This can be prevented with a semaphore lock.

1. What are the OOPS concepts in Python?

Answer: Object, Class, Method, Polymorphism, Data Abstraction, Encapsulation, Inheritance

1. Define object in Python?

Answer: A entity that has a state and behavior. A collection of variables and methods that act on data.

1. What is a class in Python?

Answer: They are the blueprints for creating new objects. Classes can inherit methods from each other to keep the code dry.

1. How to create a class in Python?

Answer: *# By Levance Wamley*

class Animal():

def eat(*self*):

print("I am eating")

1. What is the syntax for creating an instance of a class in Python?

Answer: *# By Levance Wamley*

class Animal():

def eat(*self*):

print("I am eating")

class Dog(Animal):

pass

rex = Dog()

rex.eat()

1. Define what is “Method” in Python programming?

Answer: A method is a function that belongs to an object.

Example: list have append, insert, pop, delete and plenty more.

1. Does multiple inheritance is supported in Python?

Answer: Yes, it is but we should be careful on how we use it.

We want to be careful when we are using inheritance though because we don't want it were, we have multi-leveled classes going off each other. This is because if one crash it can cause a chain reaction causing you to go back to find the issue and causing the same or different issue to another class.

We also want to be careful having multiple classes going of one class. It is ok to have anywhere from 2 - 3 going of one class otherwise you'll start to see you are having classes to have classes.

1. What is data abstraction in Python?

Answer: Used to hide detail and show only functionalities. Abstracting means to give names ton things so that the name captures the core of the function or what the program does.

1. Define encapsulation in Python?

Answer: A restriction on method and variables. Code and data are wrapped together within a single unit from being modified by accident.

1. What is polymorphism in Python?

Answer: The ability to define methods in the child class with the same name as the parent class. The ability to take many forms. With this we understand that a task can be performed in many different ways.

1. Does Python make use of access specifiers?

Answer: No, it does not.

1. How can we create an empty class in Python?

Answer: by typing ‘pass’. We are not allowed to leave classes blank but with ‘pass’ the code reader will go pass this.

1. Define Constructor in Python?

Answer: A special method otherwise known as a magic method that is called when we make a point object in a class.

1. How can we create a constructor in Python programming?

Answer: *# By Levance Wamley*

class Dog(Animal):

def \_\_init\_\_(*self*,*name*,*age*):

self.name = name

self.age = age

1. Define Inheritance in Python?

Answer: For classes this is where a child class can directly use a function that is declared in a parent class without it being declared inside of it. Example parent class Mammal() can walk. By giving the class Dog(Mammal) the instance of mammal now the dog knows how to walk.