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EE104

05/15/2023

**Job interview Q&A**

1. **What is PYTHON PATH?**

A: It is an environment variable which is used when a module is imported. Whenever a module is imported, PYTHONPATH is also looked up to check for the presence of the imported modules in various directories. The interpreter uses it to determine which module to load.

1. **What type of language is python? Programming or scripting?**

A: Python is capable of scripting, but in general sense, it is considered as a general-purpose programming language. To know more about Scripting, you can refer to the Python Scripting Tutorial.

1. **What are python modules? Name some commonly used built-in modules in Python?**

A: Python modules are files containing Python code. This code can either be functions classes or variables. A Python module is a .py file containing executable code.

Some of the commonly used built-in modules are:

• os

• sys

• math

• random

• data time

• JSON

1. **What are decorators in Python?**

A: Decorators are used to add some design patterns to a function without changing its structure. Decorators generally are defined before the function they are enhancing. To apply a decorator we first define the decorator function. Then we write the function it is applied to and simply add the decorator function above the function it has to be applied to. For this, we use the @ symbol before the decorator.

1. **What is type conversion in Python?**

A: Type conversion refers to the conversion of one data type into another.

int() – converts any data type into integer type

float() – converts any data type into float type

ord() – converts characters into integer

hex() – converts integers to hexadecimal

oct() – converts integer to octal

tuple() – This function is used to convert to a tuple.

set() – This function returns the type after converting to set.

list() – This function is used to convert any data type to a list type.

dict() – This function is used to convert a tuple of order (key, value) into a dictionary.

str() – Used to convert integer into a string.

complex(real,imag) – This function converts real numbers to complex(real,imag) number.

1. **What are functions in Python?**

A: A function is a block of code which is executed only when it is called. To define a Python function, the def keyword is used.

Example:

def Newfunc():

print("Hi, Welcome to Edureka")

Newfunc(); #calling the function

Output: Hi, Welcome to Edureka

1. **How can files be deleted in Python?**

A: You need to import the OS Module and use os.remove() function for deleting a file in python. For example:

import os

os.remove("file\_name.txt")

1. **What are python iterators?**

A: These are the certain objects that are easily traversed and iterated when needed.

1. **Define modules in Python?**

A:The module is defined as a file that includes a set of various functions and Python statements that we want to add to our application.

Example of creating a module: In order to create a module first, we need to save the code that we want in a file with .py extension.

Save the module with module.py

def wishes(name):

Print("Hi, " + name)

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

A: py files are Python source files. .pyc files are the compiled bytecode files that are generated by the Python compiler

1. **Define String in Python?**

A: String in Python is formed using a sequence of characters. Value once assigned to a string cannot be modified because they are immutable objects. String literals in Python can be declared using double quotes or single quotes.

Example:

print("Hi")

print('Hi')

1. **Is Python fully object oriented?**

A: With the exception of access specifiers, Python does adhere to the paradigm of object-oriented programming and has all of the fundamental OOPs principles, including inheritance, polymorphism, and more. Strong encapsulation is not supported by Python (adding a private keyword before data members). However, it does have a convention for data concealing, which is to prefix a data member with two underscores.

1. **What does len() do?**

A: len() is an inbuilt function used to calculate the length of sequences like list, python string, and array. For example:

my \_list=[1,2,3,4,5]

len(my\_list)

1. **Write a code to display the contents of a file in reverse?**

A: for line in reversed(list(open(filename.txt))):

print(line.rstrip())

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

A: We can access the module written in Python from C by using the following method.

Module == PyImport\_ImportModule("<modulename>");

1. **How do we reverse a list in Python?**

A; By using the list.reverse(): we can reverse the objects of the list in Python.

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

with open(SOME\_LARGE\_FILE) as countletter:

count = 0

text = countletter.read()

for character in text:

if character.isupper():

count += 1

1. **What is pygame in Python used for?**

A: You can use the open-source pygame package to create games and other multimedia applications using the Python programming language. pygame, which can operate on a variety of platforms and operating systems, is built on top of the highly portable SDL (Simple DirectMedia Layer) development package.

1. **Give some examples for the python frameworks for Game Development and briefly explain them.**

A: PyKyra:

PyKyra is the most recent and fastest Python game creation platform. It is built on the SDL library and the Kyra engine, which are both used for drawing and rendering in 2D and quasi-3D video games. In addition to Kyra's core features, it supports MPEG video, audio, and direct image reading (MP3, Wav, and Multichannel module files).

PyGame:

Pygame is the most popular game development framework. It’s a Python wrapper building video games based on the SDL library. The SDL library enables cross-platform use of the system's multimedia hardware, including the mouse, keyboard, joystick, and audio and video. Cross-platform tools SDL and Pygame enable the creation of rich multimedia Python programs and games on any platform that does so. Without having to worry about the effects of compelling audio and video on the backend, it is easier to focus on the game's logic and aesthetics.

PyopenGL:

PyopenGL is one of the Top Python Frameworks for game development on iOS since it provides a standard cross-platform connector for OpenGL. OpenGL is a high-performance software development environment for 3D and 2D applications. PyopenGL works with various platforms, including Linux, Windows, and macOS, and a variety of Python GUI libraries, such as PyQt, PyGame, and Raw XLib, to mention a few. It also contains plenty of add-ons. Features:

* It works with a broad range of systems.
* It works with a variety of third-party GUI libraries. PyopenGL finds extensive usage in the iOS game development industry.
* Compared to other similar graphics libraries, it is also quite simple.

1. **What are the libraries of python that are used for Artificial intelligence and Machine learning?**

A: Various libraries used for the development of AI and ML are,

SciPy

NumPy

PyBrain

Sickit-learn, etc.

1. **What is gradient descent?**

A: An optimization method called gradient descent is used to determine the parameters (coefficients) of a function (f) that minimizes a cost function (cost).

When parameters need to be found by an optimization technique but cannot be determined analytically (for example, using linear algebra), gradient descent is the method of choice.

1. **What's the trade-off between bias and variance?**

A: If our model is too simple and has very few parameters then it may have high bias and low variance. On the other hand if our model has large number of parameters then it’s going to have high variance and low bias. So we need to find the right/good balance without overfitting and underfitting the data.

1. **What Is the Role of Activation Functions in a Neural Network?**

A: At the most basic level, an activation function decides whether a neuron should be fired or not. It accepts the weighted sum of the inputs and bias as input to any activation function. Step function, Sigmoid, ReLU, Tanh, and Softmax are examples of activation functions

1. **What Is the Difference Between a Feedforward Neural Network and Recurrent Neural Network?**

A: In this deep learning interview question, the interviewee expects you to give a detailed answer.

A Feedforward Neural Network signals travel in one direction from input to output. There are no feedback loops; the network considers only the current input. It cannot memorize previous inputs (e.g., CNN).

A Recurrent Neural Network’s signals travel in both directions, creating a looped network. It considers the current input with the previously received inputs for generating the output of a layer and can memorize past data due to its internal memory.

1. **What Are the Different Layers on CNN?**

There are four layers in CNN:

* Convolutional Layer - the layer that performs a convolutional operation, creating several smaller picture windows to go over the data.
* ReLU Layer - it brings non-linearity to the network and converts all the negative pixels to zero. The output is a rectified feature map.
* Pooling Layer - pooling is a down-sampling operation that reduces the dimensionality of the feature map.
* Fully Connected Layer - this layer recognizes and classifies the objects in the image.

1. **Explain split(), sub(), subn() methods of “re” module in Python?**

These methods belong to the Python RegEx or ‘re’ module and are used to modify strings.

* split(): This method is used to split a given string into a list.
* sub(): This method is used to find a substring where a regex pattern matches, and then it replaces the matched substring with a different string.
* subn(): This method is similar to the sub() method, but it returns the new string, along with the number of replacements.

1. **Does Python have OOps concepts?**

A: Python is an object-oriented programming language. This means that any program can be solved in python by creating an object model. However, Python can be treated as a procedural as well as structural language.

1. **Differentiate between SciPy and NumPy?**

A: The difference between SciPy and NumPy is as follows:

|  |  |
| --- | --- |
| NumPy | SciPy |
| Numerical Python is called NumPy | Scientific Python is called SciPy |
| It is used for performing general and efficient computations on numerical data which is saved in arrays. For example, indexing, reshaping, sorting, and so on | This is an entire collection of tools in Python mainly used to perform operations like differentiation, integration and many more. |
| There are some of the linear algebraic functions present in this module but they are not fully fledged. | For performing algebraic computations this module contains some of the fully-fledged operations |

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

A: In python, there is no specific syntax to display multi-line comments like in other languages. In order to display multi-line comments in Python, programmers use triple-quoted (docstrings) strings. If the docstring is not used as the first statement in the present method, it will not be considered by the Python parser.

1. **Do we need to declare variables with data types in Python?**

A: No. Python is a dynamically typed language, I.E., Python Interpreter automatically identifies the data type of a variable based on the type of value assigned to the variable.

**Work Citation**

*60+ python interview questions and answers to get your desire job*. LogicRays Academy. (2023, April 26). https://www.logicraysacademy.com/blog/python-interview-questions/#:~:text=60%2B%20Python%20Interview%20Questions%20and%20Answers%20to%20Get,What%20is%20namespace%20in%20Python%3F%20...%20More%20items

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