### ****Q1. What is the difference between list and tuples in Python?****

List:mutable ,collection of mix data types ,enclosed with [],add,delete,operation can be performed easily,list are slower than tuples

Tuple:immutable,collection mix data types,enclosed with(),delete ,add some operation can not be performed ,tuples are faster than list

### ****Q2). What are the key features of Python?P****

### **python is general purpose high level programming language,highly interpreted,free, easy to use, huge library,object-oriented,portable,dynamically typed language,plateform independent")**

### ****Q3. What type of language is python? Programming or scripting?****

### IN python our code execute line by line,python program run directly from the source code,with no intermediary compilation step.

**Q4.Python an interpreted language. Explain.**

### AN INTERPRETD language is any programming language which is not in machine level code before run time.python source code is first compiled into a binary code which is not OS understandable code .

**Q5.What is pep 8?python enhancement proposal**

### it is set of rules that specify how to write &design python code with maximum readability.

### ****Q6.What are the benefits of using Python?****

### ****Free,**EASY TO USE ,huge number of library ,interpreted language ,dynamically typed language,portable ,open source library**

### ****Q7.What are Python namespaces?****

### **(object k pas konse variables h )** **which type of variable object have?**

### Syntax:objectname.\_\_dict\_\_ :will tell all the variables which object have

### ****Q8.What are decorators in Python?****

### ****Decorator increase the functionality of other function without changing its structure.****

### **Q9.What are Dict and List comprehensions?**

### **List comprehension:**

### List comprehension offers a shorter syntax when you want to create a new list based on the values of an existing list.

### squares=[]

### for i in range(1,11):

### squares.append(i\*\*2)

### print(squares)

### #using list comprehension

### print("\n")

### sqaures2=[i\*\*2 for i in range(1,11)]

### print(sqaures2)

### print("\n")

### #dict comprehension:in the form of key:value

### key=['a','e','i','o','u']

### value=list(range(1,6))

### print(value)

### my\_dict={k:v for (k,v) in zip(key,value)}

### print(my\_dict)

### **Q10.What are the common built-in data types in Python?**

### **List,tuples,string,dictionary,set,numbers,Boolean**

### **Q11.What is the difference between .py and .pyc files?**

### **.py-python source code files**

### **.pyc-python byte code source file (when we import code from other source then we got .pyc format**

### **Q12.What is slicing in Python?**

### **Slicing:to access some data from the given sequences (list,tuples.string )**

### **String[start:stop-1:step]**

### **Q13.What are Keywords in Python?**

### **Keywords are the special words that have special meaning**

### **Total 35 keyword are there**

### **Import keyword ‘print(keyword.kwlist)**

['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']

### **Q14.What are Literals in Python and explain about different Literals**

### print("literals can be defined as data that is given in a variable or constant ")

### print("single,double,triple quotes")

### **String literals:a=:”jyoti”**

### **A character literal a=’t’**

### **Numeric literals:a=10**

### **Boolean literals:True or False**

### **Literal Collections string,list,tuples,**

### **Null values**

### **Q15.How to combine dataframes in pandas?**

### **#concatenating dataframes:use to append either columns or rows from 1 dataframe to another.**

### **import pandas as pd**

### **data=pd.read\_csv("Weather.csv")**

### **d1=data.head(5)**

### **d2=data.tail(5)**

### **#print(d1)**

### **#print("\n ",d2)**

### **frames=[d1,d2]**

### **#pd.concat(objs,axis=0,join='outer',join\_axes=None,ignore\_index=Flase)**

### **#print("join(outer(union,default),inner(intersection)),how to handle indexes on other axis")**

### **print("=====\n=====")**

### **#print(pd.concat(frames)) #it will give data as it is nothing wiil change no index nothing**

### **#print(pd.concat(frames,keys=['x','y'],ignore\_index=True)) #keys is use to define the data from which dataframe data have been taken**

### **#ignore\_index=True means it will give the index in order o1,2,3,4**

### **#using append we can also add 2 data frame**

### **print(d1.append(d2))**

### ****Q16.What are the new features added in Python 3.9.0.0 version?****

* New modules like zoneinfo and graphlib

## ****Improved Modules like ast, asyncio, etc.****

* New String Methods to Remove Prefixes and Suffixes
* New Dictionary functions Merge(|) and Update(|=)

**Q18. What is namespace in Python?**

A namespace is a system that has a unique name for each and every object in Python,so that we can avoids naming conflicts .

### Lightbox

### **var1 = 5 #global namespace**

### **def some\_func():**

### 

### **var2 = 6 #local name space**

### **def some\_inner\_func():**

### 

### **# var3 is in the nested local**

### **# namespace**

### **var3 = 7**

**Q19. What is PYTHONPATH?**

### PYTHONPATH is an environment variable which the user can set to add additional directories that the user wants Python to add to the sys. path directory list. ... So, when you import modules in your Python scripts, PYTHONPATH is also checked to see which directories might contain the imported module.

**Q20. What are python modules? Name some commonly used built-in modules in Python?**

**Python modules nothing but it is python source code file.this code may be any function,classes,variables ..py is the extension name for this file .**

**Os,time,math,keyword,random etc .**

**Q21.What are local variables and global variables in Python?**

### #local variables and global variables

### a= 3 #global variable (those variable which is defined outside any function and can also access outside the function )

### def func():

### x=7 #local variable (those variables which are defined inside any function called local variables )

### #return x

### return a

### return

### def func2():

### #print(x)

### print(a)

### #print(func2()) #func() x variable ka scope only func() tak hi h ,iske bhar hum use nhi kr skte

### print(func())

**Q22. Is python case sensitive?**

### Yes,NAME ,name both are 2 different things .

**Q23.What is type conversion in Python?**

### #int(),str(),bin(),hex(),list(),tuple(),complex(real,img)

**Q25. Is indentation required in python?**

### Yes,if we will not use indentation it will give error .

**Q26. What is the difference between Python Arrays and lists?**

|  |  |  |
| --- | --- | --- |
|  | **arrays** | **lists** |

|  |  |
| --- | --- |
| **Collection of similar data types** | **Mixed data types** |
| **Array module we need** | **No need of any module** |
| **Array use for longer sequence** | **Lists we use for shorter sequence** |
| **Array is less flexible sice adding,deleting element wise done** | **More flexible (adding,deleting,updating )** |

**Q27. What are functions in Python?**

**Functions are the block of code which perform some spicifc task and have a certain for identification**

**def add(a,b): #here a,b parameter and function will take input here .**

**return a+b**

**add(4,5)ation.**

**Q28.What is \_\_init\_\_?**

**\_\_init\_\_ is a mothod or constructor ,it is automatically called when any object /instance of class is created.and all classes have \_\_init\_\_ method class Employee:**

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

**self.name=name**

**self.age=age**

**self.salary=salary**

**#create a object instance of a class**

**E1=Employee("jyoti",24,40000) #\_\_init\_\_ creates memory allocation for E1**

**print(E1.age)**

**print(E1.salary)**

**#self:self is an object /instance of a class .this is first parameter of function definition**

**Q29.What is a lambda function?**

**Lambda function/anonymous function /single line statement but have no name .**

**Syntax:lambda arguments:expression**

**1)dd2=lambda a,b:a+b,**

**2)is\_even=lambda a:a%2==0**

**print(is\_even(9)) #False means not even number**

**Q30. What is self in Python?**

**#self:self is an object /instance of a class .this is first parameter of function definition**

**Q31.** **How does break, continue and pass work?**

**print("break: allows loop termination when any condition is met, control is transfer to the next statement")**

**print("continue: allows to skip some part of loop when specific condition is met and controller is transferred to the beginning of the loop")**

**print("pass: when we need any block but want to skip its execution, null operation, nothing will happen when it is executed. ")**

**#print 1 to 10m**

**for i in range(1,11):**

**if i==5:**

**break #it will stop the execution after meeting specific conditon**

**print(i,end=" ") #now break this loop when i=5**

**print("\n")**

**#continue keyword**

**for i in range(1,11):**

**if i==5:**

**continue #it will skip only condition next part will execute**

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

**#pass statement**

**x=18**

**if x>18:**

**#you dont want to write after this then use pass statement**

**Pass**

**Q32. What does [::-1} do?**

**Reverse of the elements**

**Q33. How can you randomize the items of a list in place in Python?**

from random import shuffle

x = ['Keep', 'The', 'Blue', 'Flag', 'Flying', 'High']

shuffle(x)

print(x)

output: 'Flag', 'Blue', 'Flying', 'Keep', 'High', 'The']

**Q34. What are python iterators?**

Iterators are objects which can be traversed though or iterated upon.

tu=(1,2,'jyoti')

x=iter(tu)

print(list(x))

for a in tu:

print(a,end=",")

**Q35. How can you generate random numbers in Python?**

Random is a module to generate random number .

1)import random

random.random():will generate random number between 0.0 to 1.0

2)print(random.randint(1,4)) #it will give integer random number between a,b

3)print(random.choice([4,5,6,7,'karan'])):from the given sequence it will give any number

4)print(random.randrange(1,100,10)) #start,stop,step

**Q37. How do you write comments in python?**

Comments ==🡺 #

**Q38. What is pickling and unpickling?**

**#pickling:process of converting a class object into a byte stream,so that it can be stored in a file .This is called as object serialization.**

**print("we use pickle module to perform pickling and unpickling.")**

**print("pickle has 2 main methods:dump(),load()")**

**#pickle.dump(object,file):It returns the pickled representation of the object as a bytes object,instead of writing it to a file.**

**#unpickling:byte stream converted back into a class object /de-serialization**

**#pickle.load(file):used to read an pickled object from a binary file and returns it into object .**

**#why we need pickling and unpickiling?**

**print("when we store some structured data in the file and want to perform calculation that time we need unpickiling and unpckiling ")**

**import pickle**

**class Student:**

**def \_\_init\_\_(self,name,roll,address):**

**self.name=name**

**self.roll=roll**

**self.address=address**

**def display(self):**

**print(f"Name:{self.name} Roll:{self.roll} Address:{self.address}")**

**with open("student.dat",mode='wb') as f:**

**stud1=Student("rahul",101,"ranchi")**

**stud2=Student("jyoti",102,"amit")**

**pickle.dump(stud1,f) #dump the data into byte stream**

**pickle.dump(stud2,f) #yaha par jitni bar data dump krna h utni bar data mention krenge**

**print("pickiling done")**

**#how to unpickiling**

**with open("student.dat",mode="rb") as f1:**

**var=pickle.load(f1)**

**var2=pickle.load(f1)**

**print("unpickiling done")**

**var.display()**

**var2.display()**

**Q40. How will you capitalize the first letter of string?**

**Ans: string.capitalize()**

**Q41. How will you convert a string to all lowercase?**

**Ans:** **string.lower()**

**Q42. How to comment multiple lines in python?**(a,b): #here a,b parameter and function will take input here .

**Ans: #**

**Q43.What are docstrings in Python?**

**Ans:doctstrings are nothing but *documentation strings*.within triple quotes**

**“””my name is jyoti”””**

Q44. What is the purpose of ‘is’, ‘not’ and ‘in’ operators?

**#is:when 2 operands are true =True**

**a=[2,3,4]**

**b=[4,5,6]**

**print(a is a)**

**c=[2,3,4]**

**print(a is c) #False because elements are same but storage location is different**

**#returns the inverse of boolean value**

**d=True**

**print(not d)#in :use to check elements is present or not**

**if 2 in a:**

**print("element is present")**

**else:**

**print("element is not present")**

**Q45. What is the usage of help() and dir() function in Python?**

print("help is a in-built useful function that written the complete documentation of particular method,classes,objects")

print("dir() is use to display the defined symbols ")

def add(a,b):

s=a+b

return s

res=add(2,3)

print(res)

print("complete documentation",help(add))

print(dir(add))

#print(help(list))

**Q50. What does len() do?**

Ans:len() will count the length of given sequences

**Q52. What are negative indexes and why are they used?**

Negative index:access from the last ,called negative index

**Q54.How can files be deleted in Python?**

Import os

Os.remove(“filename”)

#Q55. What are the built-in types of python?

print("int,float,complex,string,boolean")

**Q63.** **What are Python libraries? Name a few of them.**

Collection of python packages.numpy,pandas,scipy ,matplotlib,seaborn

**Q64. What is split used for?**

Convert string into list a="jyoti is from harayana"

a.split() #output:['jyoti', 'is', 'from', 'harayana']

**Q65. How to import modules in python?**

**Import math**

**Math.pi**

**Q77. Write a program in Python to produce Star triangle.**