Python Mega Assignment

Q.1) Why do we call Python as a general purpose and high-level programming language?

Ans.) Python is called as a general purpose and high-level programming language because python can be used everywhere in all domain so it is called general purpose, and it is programmer friendly we don’t care about low level activity like memory management and security etc. so it is also called high-level programming language.

Q.2) Why is Python called a dynamically typed language?

Ans.) Python called a dynamically typed language because in python we don’t require to declare type for variable. Python can easily understand based on the assign the value to the variable declared, it is easily understand which type of variable are, so python is called a dynamically typed language.

Q.3) List some pros and cons of Python programming language?

Ans.)

|  |  |
| --- | --- |
| **Pros**   1. Simply and easy to learn 2. Open source and freeware 3. High-level programming lang. 4. Platform independent 5. Portability 6. Dynamically typed 7. Object oriented 8. Interpreted 9. Extensive library | **Cons**   1. Performance wise not up to mark because this is interpreted language. 2. Not using for mobile application. |

Q.4) In what all domains can we use Python?

Ans.) The domains can we use python are:-

1. Data Science
2. Machine learning
3. IOT
4. Desktop application
5. Developing database application
6. Developing games
7. Networking programming
8. Artificial intelligence

Q.5) What are variable and how can we declare them?

Ans.) In python variable are to store the assign value. In python we are not required to data type values explicitly according to assign value provided the type will we assign automatically.

Q.6) How can we take an input from the user in Python?

Ans.) With the help of inbuilt input function we can take the input.

Ex. Input(“Enter your name”)

Q.7) What is the default datatype of the value that has been taken as an input using input() function?

Ans.) String

Q.8) What is type casting?

Ans.) We can convert one type value to another is called type casting.

Q.9) Can we take more than one input from the user using single input() function? If yes, how? If no, why?

Ans.) Yes, we can take more than one input from the user using single input() function with the help of for loop and split function.

Ex. a,b = [int(x) for x in input(“Enter the value of x”).split(‘,’)]

Q.10) What are keywords?

Ans.) In python some words are reserved for some meaning or functionality is called nothing but reserved word.

Q.11) Can we use keywords as a variable? Support your answer with reason.

Ans.) No, we can’t take keyword as a variable because keyword is a reserved word which have already given functionality inside it, they aren’t varying to store different values they gives error. So keyword we can’t take as a variable.

Q.12) What is indentation? What's the use of indentation in Python?

Ans.) Indentation are spaces in the python code. The uses of indentation in python are to denote block of code.

Q.13) How can we throw some output in Python?

Ans.) With the help of print() function we can display the output on the screen.

Q.14) What are operators in Python?

Ans.) Operator is a symbol that perform certain operation among the operands.

Python are different types of operator.

1. Arithmetic operator
2. Relational operator
3. Logical operator
4. Bitwise operator
5. Boolean operator
6. Assignment operator

Q.15) What is difference between / and // operators?

Ans.)

|  |  |
| --- | --- |
| **/ operator**   1. This is called division operator. 2. / operator always perform floating point arithmetic. 3. It is always return float values. | **// operator**   1. This is called floor division operator. 2. // operator can perform both floating point and integral arithmetic. 3. If argument are int type then result are int type if one argument are float type then the result will we in float type. |

Q.16) Write a code that gives following as an output.

iNeuroniNeuroniNeuroniNeuron

Ans.)

x = input("Enter any name:- ")

y = x\*4

print(y)

Enter any name:- iNeuron

iNeuroniNeuroniNeuroniNeuron

Q.17) Write a code to take a number as an input from the user and check if the number is odd or even.

Ans.)

x = int(input("Enter any name:- "))

if x%2==0:

    print("Even number")

else:

    print("odd number")

Q. 18) What are boolean operator?

Ans.) Boolean operator are and, or, not and gives result as True or False.

Q.19) What will the output of the following?

1 or 0

0 and 0

True and False and True

1 or 0 or 0

Ans.) True

False

False

True

Q.20) What are conditional statements in Python?

Ans.) Conditional statement in python works on according to given conditional statements.

There are different types of condition we have implement:-

If

If-elif

If-elif-else

Q.21) What is use of 'if', 'elif' and 'else' keywords?

Ans.) if condition:

Statement

If ‘if’ condition is true then statement will be executed.

elif condition: if first if condition is false then check another condition which is known as elif condition.

else condition: else condition is used when if or elif condition is false.

Q.22) Write a code to take the age of person as an input and if age >= 18 display "I can vote". If age is < 18 display "I can't vote".

Ans.

age = int(input("Enter age:- "))

if age>=18:

    print("I can vote")

else:

    print("I can't vote")

Q.23) Write a code that displays the sum of all the even numbers from the given list.

numbers = [12, 75, 150, 180, 145, 525, 50]

Ans.)

numbers = [12, 75, 150, 180, 145, 525, 50]

sum=0

for x in numbers:

    if x%2==0:

        sum=sum+x

print(sum)

Q.24) Write a code to take 3 numbers as an input from the user and display the greatest no as output.

Ans.)

num1=int(input("Enter the first number"))

num2=int(input("Enter the second number"))

num3=int(input("Enter the third number"))

maximun= num1 if num1>num2 and num1>num3 else num2 if num2>num3 else num3

print(maximun)

Q.25) Write a program to display only those numbers from a list that satisfy the following conditions

- The number must be divisible by five

- If the number is greater than 150, then skip it and move to the next number

- If the number is greater than 500, then stop the loop

numbers = [12, 75, 150, 180, 145, 525, 50]

Ans.)

numbers = [12, 75, 150, 180, 145, 525, 50]

for x in numbers:

    if x%5==0:

        if x>150:

            continue

        if x>500:

            break

        print(x)

Q.26) What is a string? How can we declare string in Python?

Ans.) Any sequence of character within either single quotes or double cotes is considered as string. String cab be declared in single quotes, double quotes or triple quotes.

Like:- str1=’sudhanshu’

Str2=”sudhanshu’s”

Str3=”’sudhanshu’s “kumar” “’

Q.27) How can we access the string using its index?

Ans.) We can access the character of string with the help of indexing. The syntax of index is :- s=’sudhanshu’

s[0] means s

we can access character of string with the help of index number , the index number by default starts with 0.

Q.28) Write a code to get the desired output of the following

string = "Big Data iNeuron"

desired\_output = "iNeuron"

Ans.)

string = "Big Data iNeuron"

x=string.split()

y=x[2]

print(y)

Q.29) Write a code to get the desired output of the following

string = "Big Data iNeuron"

desired\_output = "norueNi"

Ans.)

string = "Big Data iNeuron"

x=string.split()

y=x[2]

z=y[::-1]

print(z)

Q.30) Reverse the string given in the above question.

Ans.)

string = "Big Data iNeuron"

x=string[::-1]

print(x)

Q.31) How can you delete entire string at once?

Ans.) We can use del command to delete the entire string at once.

Q.32) What is escape sequence?

Ans.) In string literals we can use escape sequence to associate special meaning.

Q.33) How can you print the below string?

'iNeuron's Big Data Course'

Ans.) We have to put double quotes in both sides of string then the single quotes in the string is automatic consider as a whole string. This is the properties of string.

string ="'iNeuron's Big Data Course'"

print(string)

Q.34) What is a list in Python?

Ans.) List is the collection of group of individual elements in a single entity where insertion order is preserved and duplicate are allowed is called the list data type.

Q.35) How can you create a list in Python?

Ans.) We can create list in python with the help of square bracket and elements are separated with comma inside it.

L=[10,20,30,’sudhanshu’,0.5]

Q.36) How can we access the elements in a list?

Ans.) We can access the elements in a list with the help of indexing and slice operator.

l=[10,20,30,40,50,60,70,80,90]

x=l[2]

print(x)

Q.37) Write a code to access the word "iNeuron" from the given list.

lst = [1,2,3,"Hi",[45,54, "iNeuron"], "Big Data"]

Ans.)

lst = [1,2,3,"Hi",[45,54, "iNeuron"], "Big Data"]

x=lst[4][2]

print(x)

Q.38) Take a list as an input from the user and find the length of the list.

Ans.) With the help of eval function we can take input from the users as a string and find the length of the string with the help of len function.

l=eval(input("Enter the string"))

x=len(l)

print(x)

Q.39) Add the word "Big" in the 3rd index of the given list.

lst = ["Welcome", "to", "Data", "course"]

Ans.) With the help of insert function we can inserted the element at specified position.

lst = ["Welcome", "to", "Data", "course"]

lst.insert(3,"Big")

print(lst)

Q.40) What is a tuple? How is it different from list?

Ans.) Tuple is exactly same as the list except that in tuple we can not changes any content inside it after created the tuple but in the list we can changes the content inside it. This is the major difference between list and tuple.

Q.41) How can you create a tuple in Python?

Ans.) We can create tuple in python by close parenthesis with single comma.

Ex. T=(12,23) or t=10,

Q.42) Create a tuple and try to add your name in the tuple. Are you able to do it? Support your answer with reason.

Ans.) When we create tuple and try to add element inside it then gives type error because tuple is immutable once the tuple is created then we can’t modified it.

Q.43) Can two tuple be appended. If yes, write a code for it. If not, why?

Ans.) Yes, the two tuple be appended with the help of addition concatenation operator.

t1=(10,20)

t2=(30,40)

t3=t1+t2

print(t3)

Q.44) Take a tuple as an input and print the count of elements in it.

Ans.)

t=eval(input("Enter tuple of elements"))

print(len(t))

Q.45) What are sets in Python?

Ans.) If we want to group of unique value in as a single entity and duplicate are not allowed then we can go for set. Set is the group of elements in which duplicates are not allowed and insertion order is not preserved.

Q.46) How can you create a set?

Ans.) We can represent set in curly braces with comma separation.

Ex. S={10,20,30,40,50}

Q.47) Create a set and add "iNeuron" in your set.

Ans.)

s={10,20,30}

s.add("sudhanshu")

print(s)

Q.48) Try to add multiple values using add() function.

Ans.) When we add more than one values then gives type error which give add function takes one argument but gives more than one.

Q.49) How is update() different from add()?

Ans.) add() function help of only add single object whereas update() function help us to more than one object but all the elements are iterable.

Q.50) What is clear() in sets?

Ans.) To remove all elements from the set then we can use clear() function.

Q.51) What is frozen set?

Ans.) Frozen set provides immutable implementation of the set objects.

Q.52) How is frozen set different from set?

Ans.) In the set we can modified and update the value but in frozen set we can’t modified and update the values means this is immutable type.

Q.53) What is union() in sets? Explain via code.

Ans.) We use this function to return all values from both the set.

s1={10,20,30}

s2={"sudhanshu",40,50}

print(s1.union(s2))

Q.54) What is intersection() in sets? Explain via code.

Ans.) Returns common elements present in both the set of elements.

s1={10,20,30,40,50}

s2={"sudhanshu",40,50}

print(s1&s2)

Q.55) What is dictionary in Python?

Ans.) If we want to represent group of elements in key value pairs then we can go for dictionary. In the dictionary the elements inside it in the form of key value pairs.

Q.56) How is dictionary different from all other data structures.

Ans.) In the dictionary the values in the form of key value pair inside it.

Q.57) How can we declare a dictionary in Python?

Ans.) d={} or d=dict() we can create dictionary from both the method.

Q.58) What will the output of the following?

var = {}

print(type(var))

Ans.) The output of the above code is

<class 'dict'>

Q.59) How can we add an element in a dictionary?

Ans.) We can add an element in a dictionary in the form of key value pair.

d={}

d[100]="sudhanshu"

d[500]=200

print(d)

Q.60) Create a dictionary and access all the values in that dictionary.

Ans.) We can access data by using key.

d={10:30,40:50,60:80}

print(d[10])

Q.61) Create a nested dictionary and access all the element in the inner dictionary.

Ans.)

Record = {'personal' :{'id': 102, 'name': 'Sudhanshu', 'age' : 26},

    'exam' :{'total': 950, 'perc': 99.6, 'grade' : 'A+'}}

print(Record['personal']['id'])

print(Record['personal']['name'])

print(Record['personal']['age'])

Q.62) What is the use of get() function?

Ans.) get() function used in python to retrieve the value from the dictionary.

Q.63) What is the use of items() function?

Ans.) items() method is used to return the list with all dictionary keys with values

Q.64) What is the use of pop() function?

Ans.) Removes the elements from specific position.

Q.65) What is the use of popitem() function?

Ans.) Removes the item that was last inserted into dictionary is called popitem() function.

Q.66) What is the use of keys() function?

Ans.) The keys() method in Python Dictionary, returns a view object that displays a list of all the keys in the dictionary in order of insertion using Python.

Q.67) What is the use of values() function?

Ans.) returns a view object. The view object contains the values of the dictionary, as a list.

Q.68) What are loops in Python?

Ans.) Looping means repeating something over and over until a particular condition is satisfied.

Q.69) How many type of loop are there in Python?

Ans.) There are two types of loop in python

For loop 2) while loop

Q.70) What is the difference between for and while loops?

Ans.) for loop are used when we know the how many elements are retrieve earlier but in while loop we don’t know in earlier for repeat of loops in advance until satisfied condition.

Q.71) What is the use of continue statement?

Ans.) In the continue statement skip the particular condition satisfied .

Q.72) What is the use of break statement?

Ans.) break statement break the loop at condition satisfied and stop the loop.

Q.73) What is the use of pass statement?

Ans.) pass statement is used when we pass the particular loop fully.

Q.74) What is the use of range() function?

Ans.) The range() function returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and stops before a specified number.

Q.75) How can you loop over a dictionary?

Ans.) You can loop through a dictionary by using a for loop. When looping through a dictionary, the return value are the keys of the dictionary, but there are methods to return the values as well.

Q.76) Write a Python program to find the factorial of a given number.

Ans.)

num = int(input("Enter a number: "))

factorial = 1

if num < 0:

   print(" Factorial does not exist for negative numbers")

elif num == 0:

   print("The factorial of 0 is 1")

else:

   for i in range(1,num + 1):

       factorial = factorial\*i

   print("The factorial of",num,"is",factorial)

Q.77) Write a Python program to calculate the simple interest. Formula to calculate simple interest is SI = (P*R*T)/100

Ans.)

def simple\_interest(p,t,r):

    print('The principal is', p)

    print('The time period is', t)

    print('The rate of interest is',r)

    si = (p \* t \* r)/100

    print('The Simple Interest is', si)

    return si

simple\_interest(8, 6, 8)

Q.78) Write a Python program to calculate the compound interest. Formula of compound interest is A = P(1+ R/100)^t.

Ans.)

def compound\_interest(principal, rate, time):

    Amount = principal \* (pow((1 + rate / 100), time))

    CI = Amount - principal

    print("Compound interest is", CI)

compound\_interest(10000, 10.25, 5)

Q.79) Write a Python program to check if a number is prime or not.

Ans.)

def PrimeChecker(a):

    if a > 1:

        for j in range(2, int(a/2) + 1):

            if (a % j) == 0:

                print(a, "is not a prime number")

                break

        else:

            print(a, "is a prime number")

    else:

        print(a, "is not a prime number")

a = int(input("Enter an input number:"))

PrimeChecker(a)

Q.80) Write a Python program to check Armstrong Number.

Ans.)

sum = 0

temp = num

while temp > 0:

   digit = temp % 10

   sum += digit \*\* 3

   temp //= 10

if num == sum:

   print(num,"is an Armstrong number")

else:

   print(num,"is not an Armstrong number")

Q.81) Write a Python program to find the n-th Fibonacci Number.

Ans.)

def Fibonacci\_Series(n):

    if n < 0:

        print("Oops! Incorrect input")

    elif n == 0:

        return (0)

    elif n == 1:

        return (1)

    else:

        return (Fibonacci\_Series(n - 1) + Fibonacci\_Series(n - 2))

print("12th Element of the Fibonacci Series:", Fibonacci\_Series(12))

Q.82) Write a Python program to interchange the first and last element in a list.

Ans.)

def swapList(newList):

    size = len(newList)

    temp = newList[0]

    newList[0] = newList[size - 1]

    newList[size - 1] = temp

    return newList

newList = [12, 35, 9, 56, 24]

print(swapList(newList))

Q.83) Write a Python program to swap two elements in a list.

Ans.)

def swapList(sl,pos1,pos2):

    n = len(sl)

    temp = sl[pos1]

    sl[pos1] = sl[pos2]

    sl[pos2] = temp

    return sl

l= [10, 14, 5, 9, 56, 12]

pos1= 2

pos2= 5

print(l)

print("Swapped list: ",swapList(l,pos1-1,pos2-1))

Q.84) Write a Python program to find N largest element from a list.

Ans.)

def Nmaxelements(list1, N):

    final\_list = []

    for i in range(0, N):

        max1 = 0

        for j in range(len(list1)):

            if list1[j] > max1:

                max1 = list1[j];

        list1.remove(max1);

        final\_list.append(max1)

    print(final\_list)

list1 = [2, 6, 41, 85, 0, 3, 7, 6, 10]

N = 1

Nmaxelements(list1, N)

Q.85) Write a Python program to find cumulative sum of a list.

Ans.)

def Cumulative\_sum(lists):

    cum\_list = []

    lenlength = len(lists)

    cum\_list = [sum(lists[0:x:1]) for x in range(0, lenlength+1)]

    return cum\_list[1:]

lists = [10, 15, 20, 25, 30]

print (Cumulative\_sum(lists))

Q.86) Write a Python program to check if a string is palindrome or not.

Ans.)

def isPalindrome(s):

    return s == s[::-1]

s = "malayalam"

ans = isPalindrome(s)

if ans:

    print("Yes")

else:

    print("No")

Q.87) Write a Python program to remove i'th element from a string.

Ans.)

def remove\_char(s, i):

    a = s[ : i]

    b = s[i + 1: ]

    return a+b

string = "Pythonisgood"

i = 5

print(remove\_char(string,i-1))

Q.88) Write a Python program to check if a substring is present in a given string.

Ans.)

def check(str1, sstr):

   if (str1.find(sstr) == -1):

      print(sstr,"IS NOT PRESENT IN THE GIVEN STRING")

   else:

      print(sstr,"IS PRESENT IN THE GIVEN STRING")

str1 = input("Enter the string ::>")

sstr=input("Enter Substring ::>")

check(str1, sstr)

Q.89) Write a Python program to find words which are greater than given length k.

Ans.)

def word\_k(k, s):

    word = s.split(" ")

    for x in word:

        if len(x)>k:

          print(x)

k = 3

s ="Python is good"

word\_k(k, s)

Q.90) Write a Python program to extract unquire dictionary values.

Ans.)

my\_dict = {'hi' : [5,3,8, 0],

   'there' : [22, 51, 63, 77],

   'how' : [7, 0, 22],

   'are' : [12, 11, 45],

   'you' : [56, 31, 89, 90]}

print("The dictionary is : ")

print(my\_dict)

my\_result = list(sorted({elem for val in my\_dict.values() for elem in val}))

print("The unique values are : ")

print(my\_result)

Q.91) Write a Python program to merge two dictionary.

Ans.)

def Merge(dict1, dict2):

    return(dict2.update(dict1))

dict1 = {'a': 10, 'b': 8}

dict2 = {'d': 6, 'c': 4}

print(Merge(dict1, dict2))

print(dict2)

Q.92) Write a Python program to convert a list of tuples into dictionary.

Input : [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]

Output : {'Sachin': 10, 'MSD': 7, 'Kohli': 18, 'Rohit': 45}

Ans.)

def Convert(tup, di):

    for a, b in tup:

        di.setdefault(a, []).append(b)

    return di

tups = [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]

dictionary = {}

print (Convert(tups, dictionary))

Q.93) Write a Python program to create a list of tuples from given list having number and its cube in each tuple.

Input: list = [9, 5, 6]

Output: [(9, 729), (5, 125), (6, 216)]

Ans.)

list1 = [9, 5, 6]

res = [(val, pow(val, 3)) for val in list1]

print(res)

Q.94) Write a Python program to get all combinations of 2 tuples.

Input : test\_tuple1 = (7, 2), test\_tuple2 = (7, 8)

Output : [(7, 7), (7, 8), (2, 7), (2, 8), (7, 7), (7, 2), (8, 7), (8, 2)]

Ans.)

test\_tuple1 = (7, 2)

test\_tuple2 = (7, 8)

print("The original tuple 1 : " + str(test\_tuple1))

print("The original tuple 2 : " + str(test\_tuple2))

res =  [(a, b) for a in test\_tuple1 for b in test\_tuple2]

res = res +  [(a, b) for a in test\_tuple2 for b in test\_tuple1]

print("The filtered tuple : " + str(res))

Q.95) Write a Python program to sort a list of tuples by second item.

Input : [('for', 24), ('Geeks', 8), ('Geeks', 30)]

Output : [('Geeks', 8), ('for', 24), ('Geeks', 30)]

Ans.)

def Sort\_Tuple(tup):

    lst = len(tup)

    for i in range(0, lst):

        for j in range(0, lst-i-1):

            if (tup[j][1] > tup[j + 1][1]):

                temp = tup[j]

                tup[j] = tup[j + 1]

                tup[j + 1] = temp

    return tup

tup = [('for', 24), ('Geeks', 8), ('Geeks', 30)]

print(Sort\_Tuple(tup))

Q.96) Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans.)

def pypart(n):

    myList = []

    for i in range(1,n+1):

        myList.append("\*"\*i)

    print("\n".join(myList))

n = 5

pypart(n)

Q.97) Write a python program to print below pattern.

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\*

Ans.)

n=5;i=0

while(i<=n):

  print(" " \* (n - i) +"\*" \* i)

  i+=1

Q.98) Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans.)

def triangle(n):

  k = n - 1

  for i in range(0, n):

    for j in range(0, k):

      print(end=" ")

    k = k - 1

    for j in range(0, i+1):

      print("\* ", end="")

    print("\r")

n = 5

triangle(n)

Q.99) Write a python program to print below pattern.

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Ans.)

def numpat(n):

    num = 1

    for i in range(0, n):

        num = 1

        for j in range(0, i+1):

            print(num, end=" ")

            num = num + 1

        print("\r")

n = 5

numpat(n)

Q.100) Write a python program to print below pattern.

A

B B

C C C

D D D D

E E E E E

Ans.)

def alphapat(n):

    num = 65

    for i in range(0, n):

        for j in range(0, i+1):

            ch = chr(num)

            print(ch, end=" ")

        num = num + 1

        print("\r")

n = 5

alphapat(n)