**Mega Assaignment Python**

#intro

print("Hello Future Data Engineer");

Q1. Why do we call Python as a general purpose and high-level programming language?

Ans 1.

Any programming language that permits the creation of a programme in a considerably more user-friendly programming environment and is typically independent of the hardware architecture of the computer is referred to as a high-level language.

General purpose programming languages are those that are capable of addressing the demands of a wide range of fields.

Thus, we call Python as a general purpose and high-level programming language because it is highly user-friendly and can used in various domains.

Q2. Why is Python called a dynamically typed language?

Ans2.

Dynamic typing means that the type of the variable is determined only during runtime and not before hand. If we don't declare the variable's type, Python won't have any issues. It specifies the kind of variable used during programme execution. Additionally, Python handles memory management, which is important in programming. That’s why we call Python a dynamically typed language

Q3. List some pros and cons of Python programming language?

Ans3.

Pros-

1. Python is easy to learn and read.
2. Python increases productivity.
3. Python has very big collection of libraries.
4. Python is free, open-source, and has a vibrant community.

Cons-

1. Slower than compiled languages.
2. Python can have runtime errors.
3. It consumes a lot of memory space.

Q4. In what all domains can we use Python?

Ans4.

As we discussed before we call Python as a general purpose and high-level programming language because it is highly user-friendly and can used in various domains. For eg-

1. Data Science

2. Automation

3. App Development

4. AI & Machine Learning

5. Audio/Video Applications

6. Web Scrapping

Q5. What are variable and how can we declare them?

Ans5.

Variables are containers for storing data values. It is a reserved memory location for storing values.

Variables are declare or assigned by the assignment operator i.e ‘=’ .

Q6. How can we take an input from the user in Python?

Ans6.

In python input can be taken from the user by using the input() function.

Q7. What is the default datatype of the value that has been taken as an input using input() function?

Ans7.

The default datatype of the value that has been taken as an input using input() function is string type. It need to be type casted to other data types.

Q8. What is type casting?

Ans8.

Type Casting is the method to convert the variable data type into another data type in order to the operation required to be performed by users.

Eg-

n= int(input("Enter a Number= "))

converting string data type into integer type to perform calculations.

Q9. Can we take more than one input from the user using single input() function? If yes, how? If no, why?

Ans9.

Yes we can by writing-

x,y,z=input("Enter x y z= ").split()

print(x,y,z)

Q10. What are keywords?

Ans10.

Keywords are used to specify the Python language's syntax and structure.

Q11. Can we use keywords as a variable? Support your answer with reason.

Ans 11.

No, A keyword cannot be used as a name for a variable, function, or any other type of identifier. They are used to specify the Python language's syntax and structure.

Rules for Python variables declaration suggest that

1. A variable name must start with a letter or the underscore character
2. A variable name cannot start with a number
3. A variable name can only contain alpha-numeric characters and underscores
4. A variable name cant be a keyword

Q12. What is indentation? What's the use of indentaion in Python?

Ans12.

Indentation refers to the spaces at the beginning of a code line or some sentence written to make others understand what the code is about.

Python uses indentation to indicate a block of code and what it is about so that other programmers can understand its functionality.

Q13. How can we throw some output in Python?

Ans13.

We can throw some output in Python by using the print function

print("Hello Future Data Engineer");

Q14. What are operators in Python?

Ans14.

Operators are special symbols that performs a particular action or computation.

Q15. What is difference between / and // operators?

Ans15.

/ operator performs division and gives result in float whereas // operator performs division and gives only quotient as result.

Q16. Write a code that gives following as an output.

iNeuroniNeuroniNeuroniNeuron

Ans 16.

**n = "iNeuron"**

**print(n\*4);**

Output=

iNeuroniNeuroniNeuroniNeuron

Q17. Write a code to take a number as an input from the user and check if the number is odd or even.

Ans 17.

n= int(input("Enter a Number= "))

if n%2==0:

    print("The number is even")

else:

    print("the number is odd")

Q18. What are boolean operator?

Ans18.

Boolean operator are AND, NOT & OR which gives true and false as answer.

Q19. What will the output of the following?

1 or 0

**Output= 1**

0 and 0

**Output= 0**

True and False and True

**Output=False**

1 or 0 or 0

**Output=1**

Q20. What are conditional statements in Python?

Ans20.

As the name implies, a conditional statement is used in your programme to manage conditions. It helps in decision making. These statements guide the program while making decisions based on the conditions encountered by the program.

Q21. What is use of 'if', 'elif' and 'else' keywords?

Ans 21.

'if', 'elif' and 'else' keywords are used as conditional statements in Python and helps in decision making based on conditions provided.

Q22. 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 22.

n= int(input("Please enter your age ="))

if n>=18:

    print("I can vote")

else:

    print("I cant vote")

Q23. 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 23.

i\_list=[12, 75, 150, 180, 145, 525, 50]

list\_sum=0

for num in i\_list:

    if num%2==0:

        list\_sum=list\_sum + num

print(list\_sum)

Q24. Write a code to take 3 numbers as an input from the user and display the greatest no as output.

Ans 24.

N=list(map(int,input("Enter three numbers =").split()))

print(N)

g=0

for num in N:

    if num>g:

        g=num

print(g)

Q25. 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 25.

list1=[12, 75, 150, 180, 145, 525, 50]

print(list1)

for n in list1:

    if n%5==0:

      if n<150:

        print(n)

        continue

      if n>500:

        print(n)

        break

Q26. What is a string? How can we declare string in Python?

Ans26.

Strings are datatypes used for storing text/characters.

Eg- Str1=”ROFSAN”

Q27. How can we access the string using its index?

Ans27. Str1=”ROFSAN”

print(Str1[3])

or

for n in Str1:

print(n)

Q28. Write a code to get the desired output of the following

string = "Big Data iNeuron"

desired\_output = "iNeuron"

Ans28.

str1="Big Data iNeuron"

n=str1.split()

print(n[2])

or

str1="Big Data iNeuron"

print(str1[8:])

Q29. Write a code to get the desired output of the following

string = "Big Data iNeuron"

desired\_output = "norueNi"

Ans29.

str1="Big Data iNeuron"

print(str1[-1:8:-1])

Q30. Resverse the string given in the above question.

Ans30.

str1="Big Data iNeuron"

print(str1[-1: :-1])

Q31. How can you delete entire string at once?

Ans31.

We can delete entire string at once by using del().

Q32. What is escape sequence?

Ans32.

An escape sequence is a group of characters that, when employed inside a character or string, transform into another character or group of characters instead of representing themselves.

Q33. How can you print the below string?

'iNeuron's Big Data Course'

Ans33.

Str1=”iNeuron's Big Data Course”

Q34. What is a list in Python?

Ans34.

List are like arrays which is declared by [ ]

Q35. How can you create a list in Python?

Ans35.

list1=[]

list1.append(2)

list1.append(20)

list1.append(33)

list1.append(999)

print(list1)

or

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

print(lst)

Q36. How can we access the elements in a list?

Ans36.

print(list1[0:])

print(list1[1:])

print(list1[0:2])

Q37. Write a code to access the word "iNeuron" from the given list.

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

Ans37.

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

print(lst[4][2])

Q38. Take a list as an input from the user and find the length of the list.

Ans38.

List1=list(map(int,input("Enter three numbers =").split()))

print(List1)

or

for string inputs-

List1=list(input("Enter three numbers =").split())

print(List1)

Q39. Add the word "Big" in the 3rd index of the given list.

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

Ans 39.

List1=["Welcome", "to", "Data", "course"]

List1[2]="Big Data"

print(List1)

Q40. What is a tuple? How is it different from list?

Ans 40.

Tuple is similar to list but only difference is that we can’t update the tuple. It is immutable.

Q41. How can you create a tuple in Python?

Ans41. T1=(20,80,40,2)

Q42. Create a tuple and try to add your name in the tuple. Are you able to do it? Support your answer with reason.

Ans 42.

T1=()

We cant add or update anything in a tuple as it can not be edited or updated.

Q43. Can two tuple be appended. If yes, write a code for it. If not, why?

Ans 43.

Append does’nt work with tuple as it is fixed and nothing can be added to it.

Q44. Take a tuple as an input and print the count of elements in it.

Ans 44.

t1=tuple(input("enter elements of tuple:").split())

print(t1)

print(len(t1))

or

t1=tuple(map(int,input("enter elements of tuple:").split()))

print(t1)

print(len(t1))

Q45. What are sets in Python?

Ans45.

Sets are similar to tuples, only difference is that sets has no duplicate elements.

Q46. How can you create a set?

Ans46.

Sets are created by { } with some values in it.

Q47. Create a set and add "iNeuron" in your set.

Ans47.

Set1={iNeuron}

print(set1)

Q48. Try to add multiple values using add() function.

Ans48.

set1.add("My")

set1.add("Name is")

set1.add("Rofsan")

set1

Q49. How is update() different from add()?

Ans49.

Update() is used to update the elements of the set in a single go but add() can add only one item to the set in a go.

Q50. What is clear() in sets?

Ans50.

Clear() is used to clear the elements of set.

Q51. What is frozen set?

Frozen set is just an immutable version of a Python set object. While elements of a set can be modified at any time, elements of the frozen set remain the same after creation. Due to this, frozen sets can be used as keys in Dictionary or as elements of another set.

Q52. How is frozen set different from set?

Ans52.

Sets are mutable while frozen sets are immutable objects.

frozen sets can be used as keys in Dictionary or as elements of another set but sets cant do that.

Q53. What is union() in sets? Explain via code.

Ans53.

Union() is used to print the unique items of 2 or more sets and not the reputative items.

Eg-

set1 = {1, 2, 3, 4}

set2 = {3, 4, 5, 6}

print(set1 | set2)

output= {1 2 3 4 5 6}

Q54. What is intersection() in sets? Explain via code.

Ans54.

Intersection() finds and print the common elements between two sets.

Eg-

set1 = {1, 2, 3, 4}

set2 = {3, 4, 5, 6}

print(set1.intersection(set2))

output- {3,4}

Q55. What is dictionary in Python?

Ans55.

Dictionary is a data type in python which is declared by empty { }. It contains a key and a value in it.

Q56. How is dictionary different from all other data structures.

Ans56.

Dictionarys contains a key-value pair whereas all other data structures have only values in them.

Q57. How can we declare a dictionary in Python?

Ans57. Dict1={}

Q58. What will the output of the following?

var = {}

print(type(var))

Ans58. Class dictionary

Q59. How can we add an element in a dictionary?

Ans59. Dict1={}

Dict1[‘Element1’]=”added\_elements”

Dict1[‘Element2’]=”786”

Dict1[‘Element3’]=[”added\_elements1”,”added\_element2”]

Dict1[‘Element4’]=(”added\_elements3”)

Q60. Create a dictionary and access all the values in that dictionary.

Ans60. Accessing the above created dictionary

Print(Dict1)

Q61. Create a nested dictionary and access all the element in the inner dictionary.

Ans61.

Dict1[‘Element5’]=({‘nested\_dict\_key’:”added\_elements3”})

Print(Dict1[‘Element5’][‘nested\_dict\_key’])

Q62. What is the use of get() function?

Ans62.

get() is used to iterate elements from dictionary. It only gives value of a particular key which is mentioned inside the get().

Q63. What is the use of items() function?

Ans63.

Item() is used to iterate the whole dictionary elements as a key-value pair.

Q64. What is the use of pop() function?

Ans64.

Pop() acts same as get() and shows the value of the entered key.

Q65. What is the use of popitems() function?

Ans65.

Popitems() pops out the last entered key-value pair.

Q66. What is the use of keys() function?

Ans66.

Keys() gives all the keys present in a dictionary in a list form.

Q67. What is the use of values() function?

Ans67.

Values() gives all the values present in a dictionary in a list form.

Q68. What are loops in Python?

Ans68.

Loops are used to iterate over a block of statement multiple times until the condition provided is not fulfilled.

Q69. How many type of loop are there in Python?

Ans69.

for loop and while loop

Q70. What is the difference between for and while loops?

Ans70.

For loop is used where the number of iteration is known and while loop is used when the number of iteration is unknown.

Q71. What is the use of continue statement?

Ans71.

Continue statement skips the execution of code after its presence and force to start the next iteration.

Q72. What is the use of break statement?

Ans72.

Break statement helps to break out of the loop at a given period without executing further iteration.

Q73. What is the use of pass statement?

Ans73.

The pass statement is a null statement. It is used where we don’t want to write anything in the body and still don’t get an error in code.

Q74. What is the use of range() function?

Ans74.

The Python range() function returns a sequence of numbers, in a given range. The most common use of it is to iterate sequence on a sequence of numbers using Python loops.

**Syntax:** range(start, stop, step) ***Eg- range(1,10,2) =1,3,5,7,9***

**Parameter:**

start: [ optional ] start value of the sequence

stop: next value after the end value of the sequence

step: [ optional ] integer value, denoting the difference between any two numbers in the sequence.

Q75. How can you loop over a dictionary?

Ans75.

statesAndCapitals = {

'Gujarat': 'Gandhinagar',

'Maharashtra': 'Mumbai',

'Rajasthan': 'Jaipur',

'Bihar': 'Patna'

}

for keys, values in statesAndCapitals.items():

print(keys, values)

or

keys = statesAndCapitals.keys()

print(keys)

values = statesAndCapitals.values()

print(values)

**Coding problems**

Q76. Write a Python program to find the factorial of a given number.

Ans.

n=int(input("Enter a number to find factorial "))

count=1

for i in range(1,n+1):

count\*=i

print("the factorial of",n,"is",count)

Q77. Write a Python program to calculate the simple interest. Formula to calculate simple interest is SI = (P*R*T)/100?

Ans77.

p=int(input("Enter the principle amount = "))

r=int(input("Enter the intreast Rate per annum = "))

t=int(input("Enter the Number of years = "))

si=(p\*r\*t)/100

print("The Simple Intrest is =",si)

Q78. Write a Python program to calculate the compound interest. Formula of compound interest is A = P(1+ R/100)^t.

Ans78.

p=int(input("Enter the principle amount = "))

r=int(input("Enter the intreast Rate per annum = "))

t=int(input("Enter the Number of years = "))

a=p\*(1+ (r/100))\*\*t #or Amount = principal \* (pow((1 + rate / 100), time))

print("The Compound amount is = ",a)

Q. Write a Python program to check the count of vowels in a string?

Ans.

n="I Am Chowdhury ROFSAN Jani"

vowels = "aeiouAEIOU"

count=0

for i in n:

if i in vowels:

count += 1

print(count)

Q79. Write a Python program to check if a number is prime or not.

Ans79.

n=49

if n<2:

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

else:

for i in range(2, int(n\*\*0.5)+1):

if n%i==0:

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

break

else:

print(n," is a prime number")

Q80. Write a Python program to check Armstrong Number.

Ans80.

num=111

str\_n=str(num)

l=len(str\_n)

n=0

for i in str\_n:

n+=int(i)\*\*l

if n==num:

print("It is an armstrong number",num)

else:

print(num,"It is not an armstrong number")

Q81. Write a Python program to find the n-th Fibonacci Number.

Ans.

#0,1,1,2,3,5,8

n=24

a=0

b=1

for i in range(2,n+1):

c=a+b

a=b

b=c

print(b)

Q82. Write a Python program to interchange the first and last element in a list.

Ans82.

lst=[1,2,3,4,5,6]

lst[0], lst[-1] = lst[-1], lst[0]

print(lst)

Q83. Write a Python program to swap two elements in a list.

Ans83.

lst= [15, 12, 35, 17, 9, 56, 29]

pos1, pos2 = 1, 3

lst[pos1], lst [pos2] = lst [pos2], lst [pos1]

print(lst)

Q84. Write a Python program to find N largest element from a list.

Ans84.

lst = [1,2,3,4,5,6,9]

n=int(input("enter how many gratest number you want= "))

new=[]

for i in range(0,n):

num=0

for j in range(len(lst)):

if lst[j]>num:

num=lst[j]

lst.remove(num)

new.append(num)

print(new)

Q85. Write a Python program to find cumulative sum of a list.

Ans85.

lst=[1,2,3,4]

length=len(lst)

b=0

for i in range(length):

a=lst[i]

b=a+b

print(b)

Q86. Write a Python program to check if a string is palindrome or not.

Ans.

word=input()

if word == word[::-1]:

print(word, "is a palindrome.")

else:

print(word, "is not a palindrome.")

Q87. Write a Python program to remove i'th element from a string.

Ans87.

sample\_string = "Big Data Bootcamp"

e=int(input())

sample\_string = sample\_string[:e] + sample\_string[(e+1):]

print(sample\_string)

Q88. Write a Python program to check if a substring is present in a given string.

Ans88,

def substring\_present(string, sub\_string):

return sub\_string in string

sample\_string = "Hello, World!"

print(substring\_present(sample\_string, "Hello"))

Q89. Write a Python program to find words which are greater than given length k.

Ans89.

def greater\_than\_k(string, k):

words = string.split()

return [word for word in words if len(word) > k]

sample\_string = "Hello, World!"

print(greater\_than\_k(sample\_string, 3))

Q90. Write a Python program to extract unquire dictionary values.

Ans90.

def extract\_unique\_values(dictionary):

return list(set(dictionary.values()))

sample\_dict = {'Sachin': 10, 'MSD': 7, 'Kohli': 18, 'Rohit': 45}

print(extract\_unique\_values(sample\_dict))

Q91. Write a Python program to merge two dictionary.

Ans91.

def merge\_dicts(dict1, dict2):

return {\*\*dict1, \*\*dict2}

dict1 = {'Sachin': 10, 'MSD': 7}

dict2 = {'Kohli': 18, 'Rohit': 45}

print(merge\_dicts(dict1, dict2))

Q92. 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}

Ans92

def list\_to\_dict(lst):

return {key: value for key, value in lst}

sample\_list = [('Sachin', 10), ('MSD', 7), ('Kohli', 18), ('Rohit', 45)]

print(list\_to\_dict(sample\_list))

Q93. 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)]

Ans93.

def number\_and\_cube(numbers):

return [(num, num \*\* 3) for num in numbers]

sample\_list = [9, 5, 6]

print(number\_and\_cube(sample\_list))

Q94. 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)]

Ans94.

def combine\_tuples(tuple1, tuple2):

return [(t1, t2) for t1 in tuple1 for t2 in tuple2] + [(t2, t1) for t2 in tuple2 for t1 in tuple1]

test\_tuple1 = (7, 2)

test\_tuple2 = (7, 8)

print(combine\_tuples(test\_tuple1, test\_tuple2))

Q95. 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)]

Ans95.

def sort\_by\_second(tuples):

return sorted(tuples, key=lambda x: x[1])

sample\_list = [('for', 24), ('Geeks', 8), ('Geeks', 30)]

print(sort\_by\_second(sample\_list))

Q96. Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans 96.

n=1

while n<=5:

print(" \*"\*n)

n+=1

Q97. Write a python program to print below pattern.

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\*

Ans97.

for i in range(1, 6):

print(" " \* (5 - i) + "\*" \* i)

Q98. Write a python program to print below pattern.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

Ans98.

for i in range(1, 6):

print(" " \* (5 - i) + "\* " \* i)

Q99. Write a python program to print below pattern.

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Ans99.

for i in range(1, 6):

print(" ".join(str(j) for j in range(1, i + 1)))

Q100. Write a python program to print below pattern.

A

B B

C C C

D D D D

E E E E E

Ans100.

for i in range(65, 70):

print(" ".join(chr(i) for j in range(i - 64)))