Q1J	Name: Pratik Satish More Batch No: Dag  college: D.A.C.O.E. Karad (22/20)  Date: 27/12/2023  Class assisment-1 Double.  Explain the difference between a list and a tuple in python. Provide an example for each.
	List Tuple
	D Lists are mutable. D'Tuple are immutable, meaning their elements can meaning their elements be modified after creation cannot be changed.
0	DEmpty list can be DEmpty tuple can be created by using empty square bracket.  DEX. a = [1,2,3, 'Mango'] DEX. a = (1,2,3, 'orange')
01	Describe the purpose of the set data type in
\(\frac{1}{2}\)	python. Provide an example to illustrate its use.  The set data type in python is used to store an unordered collection of unique elements. Sets are particularly useful when you need to eliminate duplicate values and perform mathematical set operations like union, intersection and difference efficiently.
6	Example  Set I = & 'apple', 'orange', 'banana', 'apple' }  Set 2 = { 'orange', 'kiwi', 'grape'}  Fruits = set 1 union set 2  Print ("Fruits":, Fruits)



an integer data type in python & Give an example where using a float would be more appropriate?.

The key difference between a float and an integer data type in python is the integers represent whole numbers without any decimal points, while floats represents number with decimal points or numbers in exponential form.

Example.

my-integer = 5

my Float = 3.14

# Using a floot for precision

radius = 4.5

area = 3.14 \* radius \*\* 2

print ("Area of the circle:", area)

How does the dictorary data type, in python differ from lists and tuples 2. Provide an example of a dictorary and explain its structure

Lists are ordered and mutable and the tuples are ordered and immutable but the Dictionaries are unordered and mutable Example

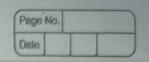
Person info = {

'name: John',

(age): 30,

(city): New York'

Print ("Name"; , Personal - info ['nome']



Print ("Age:", personal-info [age'])
Print ("city:", personal-info ['city'])

A docstring (document string) in python is a string literal used to provide documentation for a module, class, function or method. It is placed at the beginning of a code block and is enclosed in triple quotes (single or double). Docstrings serve as documentation and can be accessed using the help(). Function or tools like sphinx for generating documentation.

Q6) Explain the purpose of the 11 operator in Python Provide an example to illustrate its use.

Jr Python the "" operator is the floor division operator. It performs division between two numbers and returns the largest integer tess than or equal to the result It essentially discards the decimal part of the division, providing the floor value.

Example
result = 10/13
print (result)

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Q7 Differentiate between the = = and is operators in python. Provide examples to demostrate their usage.

-> In python, the '==' operator is used for value equality companing the values of objects while the 'is' operator is used for identity comparison checking if two objects refer to the same memory location.

Example.

月 Using 1==1 a= [1,2,3]

b=[1,2,3]

cza

Print (a == b) # True Print (a is b) # False

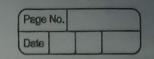
Q8) What is the use of the += operator is python Provide an example to demonstrate its functionality In Python, the 't=' operator is an assignment operator used to add the right operand to the left operand and then assign the result to the left operand. It is a shorthand for performing addition and assignment in a single step.

Example.

Count = 10

count + = 3

print (count)



Discuss the role of the in operator in python

Provide an example of how it can be used.

In Python the 'in' operator is used to

test if a value exists within a sequence such

as a string, list, tuple or any other iterable

It returns a Boolean value, 'True' if the

specified element is found in the sequence

and 'False' otherwise.

Example.

Fruits = ['apple', 'banana', 'orange', 'grape']

bangna = 'banana' in fruits

print (banana)

# True.

example scennio where it can be employed.

The terrnary operator also known as the conditional expression is a concise way to express a conditional statement in a single line. It has the following syntax: 'x if conditional if it is 'True', it returns the value of 'x'; otherwise, it returns the value of 'y'.

Example:

number = 7

print (result)

odd

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Q123 What is the difference between while and for loops in python. Give an example for each loop type.

> While loop:

A while 100p repeatedly executes a block of code as long as a specified condition is 'True'- The loop continues untile the condition becomes 'False' Example,

counter = 1

while counter <= 5: Print (counter) counter + = 1

Ans 1,2,3,4,5

A 'For' loop is used for iterating over a sequence (such as a list tuple, string or range) or other iterable objects. It iterates over each item in the sequence,

Example

Fruits = ['apple', 'banana', 'orange'] for fourt in fourts: point (Fruit)

QIII What is the purpose of the it statement in python 2. Provide on example demostrating the use of an if statement.

> The 'if' statement in Python is used to execute a block of code only if a specified condition is True'. It allows for conditional branching, enabling different parts of the code to be executed based on whether a particular condition is met.

Example

number = -7

if number >0 ;

print ("Tohe number is positive")

elif number = = 0 :

print ("The number is zero.")

print ("The number is negotive.")

Q13 Explain the significance of the break statement in Python Provide a scenario where using break is appropriate.

> The 'break' statement in Python is used to exit or break out of a loop prematurely. It is typically used in within loop.

numbers = [1,3,5,8,9,10,12,15] For num in numbers:

if num % 2 == 0. print (F"The first even number in the list is : {num}")

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0.14	Discuss the role of the continue statement in python
had a	Provide a code snippet demonstrating its use
->	The 'continue' statement in python is used to skip
	the rest of the code inside a loop for the current
	iteration and move on to the next iteration
	numbers=[1,2,3,4,5,6,7,8,9]
	For num in numbers:
	if num 4.21=0:
1	continue.
	Print (F" Even number: {num}")
	Even number = 2,4,6,8
mist	
(Y 15)	How does the else Alclouse in a loop contribute to
	the flow in Python & provide an example illustration the use of the else clause in a loop.
	In Python loops the 'else' clause is executed when
	the loop condition becomes 'False'. However if
	the loop is terminated by a break 'statement
	the else' clause is skipped.
2	
1)	number = 11
	for i in range (2, int (number ** 0.5)+1):
	if number % i == 0:
	print (F" { number } is not a prime number!")
	break
	else:
	point (F'' Enumber 3 is a prime number. ")
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