Name- Soheb Jabbar Bagwan
Collage- DOCOE
Batch No- D9

Class Assement

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Q.1 Explain the difference betn list & tuble in python provide an example for each.

→ List :- 1) Lists are generally used for collections of item where the order & ability to change the element are important for example.

L = ["Aavej", 1, 2, 3, 0.5, 1+2j]

Tuple :- 1) Tuple are suitable for fixed collections where the order of elements matters, but you don't want the dates to be modified for ex

T = (1, 2, 3, "Apple", "Banana")

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Q.2 Describe the purpose of the set data type in python provide an example to illustrate its use.

→ i) primary purpose of a set is to perform mathemtical set operation like union, intersection, difference & symmtric difference efficiency.

a = {1, 2, 3, 4}
b = {3, 4, 5, 6, 7}
a. add (8)
b. remove (7)

√2

sets can be used for tasks such as combining, finding common elements identifying difference & more.

3 what is the key difference betn a float & an integer data type in python? Give an example where using a float would be more appriate.

Integer (int): Represents:- Whole number without decimal point eg:- 1, 5, 100.

float:- Represent number with decimal points or n
expressed in exponential form eg:- 3.14, 2.5, 1e

example:-
Distance = 10
Time = 2.5
speed = Distance/Time
print = ("speed :-", speed, "m/s")

Q4 How does dictionary data type in python differ from lists & tuple provide an example of dictionary & explain.

→ i) The dicitionary data type in python differs from lists & tuple in that it is unordered of key role pairs where each key must be unique.
ii) dictionaries are defined must be using curly bracket
iii) keys & values are separated by colons (':') with each key value pair.

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Q5 What is doc. string & use of this string in python

→ A doc. string in python is a string literal used as comment at beginning of module, function, class or method defination. It primary purpose is to provide documentation or information about the purpose & usage of the code.

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Use :- 1) Documentation, 2) Accessibility
3) Interactive Development.

Q.6) Explain purpose of the // operator in python provide example to illustrate its use

//:- It is purpose is the floor division operator. It perform division & return the largest integer that is ~~perform~~ ~~d~~ less than or equal to the result It discard the fractional part of the division result & produces an integer quotient.

eg. s = 10//3
print (s)

In. eg. 's' assigned the value of 3 become the floor division of 10 by 3 is 3 with reminder 1.

Q.7) Differentiate betn the == & is operator in python provides examples demostrate their usage

== Operator	is operator
i) It compares the content of the object	i) It test for object identity not just equality of content.
a = [1, 2, 3] b = [1, 2, 3] print (result) a=b return 'True'	x = [1, 2, 3] y = [1, 2, 3] print (result) x is y return false.

Q.8. What is the use of the += operator in python & provide an example to demostrate its functionally.

→ The '+=' operator in python is used as an assignment operator. & it is a

shorthand for updating the value of variable by adding another value to it commonly used for in place addition assignment

```
a = 5
a += 2
print (a)
```

output = 7

'+=' operator add the value (2) to variable a.

Q.9. Discuss the role of the 'in' operator in python. provide an example of how it can be used.

→ The 'in' operator in python is used to test whether a specified value is present in sequence such as a string, list, tuple or dictionary.

eg a = "Good morning Aavej"
s = "Aavej" in a
print (s)

Output : True.

Q.10) Explain the concept of the ternary operator (x if condition else y) in python provide example scenario where it can be employed.

→ i) The ternary operator in python, also known as the conditional expression provides a concise way to write a simple 'if-else' statement in a single line

eg.

```
a = 10
b = 15
If a > b;
print (larger number = a)
else:
print (larger number = b)
```

Q11] What is the purpose of the if statement in python? provide a example demonstrating the use of if.

→ 1) The 'if' statement in Python is used for conditional execution code. It also to specify a block of code to be executed only if a certain condition is true. If the condition is false, the code block is skipped or an alternative block may be executed if an 'else' clause is present for eg.

```
Num = int (input ("Enter a number."))
 if Num >0 :
     print (" The entered num is positive")
 elif Num <0:
     print (" The entered Num is Negative")
 else:
     print ("The entered Num is zero")
```

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Q12 Describe the difference betn while & for loops in python. Give a example for each loop type.

While loop	for loop
i) The 'while' loop in python is used to repetedly execute a block of code as long as specified condition is true	i) The 'for' loop in python is used to iterate over a sequence (such as list, tuple or string) or other iterable object
ii) It keeps iterating until the condition become false.	ii) It executive a block of code for each element in the sequence

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eg.

```
count = 1
while count <= 5 :
    print (count)
    count += 1
```

eg.

```
color = ["red", "blue", "yellow"]
for color in color
    print (color)
```

Q.13 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 loop prematurely, before its normal termination condition is met. when encountered 'break' immediately terminates the loop & the program continues with the next state ment after the loop.

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e.g. input = input ("Enter exit' to stop the loop:")
if input.lower() == 'exit':
print ("exiting the loop")
break
print ("continuing the loop...")

Q.14 Discuss the role of the continue statment in Python provide a code snippet demnostrating its use

→ The 'continue' statement is python is used to skip the rest of code inside loop for the current itegration & proceed to the next iteration. It is particularly useful when you wants to bypass certain condition or code block without prematurely terminating the entire loop

e.g.

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for Num in page (1, 11).
If Num % = 0:
print ("Skipping even num: (Num)")
continue.
print ("processing odd Num: (Num)")

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Q) How does the else clause in loop contribute to control flow in python & provide an example illustrating the use of the else clause in a loop.

→ i) The 'else' clause in a loop in python is executed when the loop condition becomes false. It is not executed if the loop is terminated by a 'break' statement.

ii) The else caluse in a loop provides a way to excute a block of code after the loop has completed its normal iteration.

eg.

```
for Num in range (2,11):
    for i in range (2, int (num**0.5)+1):
        if Num % i == 0:
            print ("Num is not a prime Number")
            break
    else:
        print ("Num is a prime number")
```